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Development and Testing of a Virtual Nursing Intervention to Increase Walking After a Cardiac Event: A Randomized Trial

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Résumé

Bien que l'augmentation de l'activité physique entraîne plusieurs effets bénéfiques sur la santé après un syndrome coronarien aigu (Anderson et al., 2016; Moholdt, Lavie, & Nauman, 2018), seulement 40 à 60% des patients coronariens atteignent le niveau d'activité physique recommandé (De Smedt et al., 2016; Janssen & Jolliffe, 2006; Reid et al., 2006). Bien que les interventions sur le Web offrent de nouvelles modalités permettant de rejoindre de larges populations de patients coronariens, peu d'études ont utilisé des mesures objectives de l'activité physique pour en évaluer les effets (Devi et al., 2015).

Le développement d'une intervention infirmière personnalisée sur le Web de quatre semaines, TAVIE en m@rche, a été guidé par l'approche de soins fondée sur les forces et la théorie de l'autodétermination. Le but de l'intervention était d'augmenter la durée de la marche à pied d'intensité modérée à 150 minutes par semaine, comme recommandé chez des patients coronariens insuffisamment actifs. L'intervention est centrée sur les vidéos d'une infirmière proposant un contenu adapté aux niveaux de la motivation autonome, de la compétence perçue et de la marche à pied auto-rapportée.

Le but primaire de cet essai contrôlé randomisé multicentrique à deux groupes parallèles était de tester l'effet de TAVIE en m@rche sur l'augmentation du nombre de pas par jour à douze semaines post-randomisation. Les buts secondaires visaient à évaluer l'effet de l'intervention sur l'augmentation du nombre de pas par jour à cinq semaines ainsi que l'augmentation de la marche à pied et de l'activité physique modérée à vigoureuse à cinq et douze semaines. Nous avons également exploré l'effet de l'intervention sur la motivation et la confiance à atteindre la recommandation pour la marche à pied ainsi que sur la qualité de vie, le tabagisme, l'adhérence à la médication cardiaque, la participation à un programme de prévention secondaire, les visites aux urgences, les hospitalisations et la fréquence des douleurs angineuses.

Les patients présentant un syndrome coronarien aigu éligible devaient déclarer un niveau d'activité physique inférieur à celui recommandé durant les six mois avant l'hospitalisation et pouvoir accéder à l'intervention sur le Web. La randomisation a eu lieu entre la quatrième et la sixième semaine post-hospitalisation au cours desquelles les participants ont été assignés au

hasard au groupe expérimental, pour recevoir TAVIE en m@rche, ou au groupe contrôle, pour recevoir des hyperliens vers des sites Web publics. Les données ont été collectées à cinq et douze semaines selon les buts de l'étude.

Soixante participants ont été randomisés dans les deux groupes et trente-neuf ont fourni des données complètes sur le résultat principal. À douze semaines, en comparaison au groupe contrôle, une augmentation minimale, mais non-significative, du nombre de pas par jour ainsi qu'une amélioration notable sur le plan clinique, mais non-significative, de l'activité physique d'intensité modérée à vigoureuse ont été observées dans le groupe expérimental. Aucune différence significative n'a été observée entre les groupes en ce qui concerne les autres buts secondaires et exploratoires.

L'augmentation minimale et non-significative observée quant au résultat principal pourrait s'expliquer par le fait que la plupart des participants avaient déjà augmenté leur nombre de pas par jour avant même d'avoir accès à l'intervention. L'amélioration sur le plan clinique de l'activité physique modérée à vigoureuse, même si non-significative, pourrait néanmoins être bénéfique à la santé. Cependant, l'interprétation de ce résultat est faite avec prudence en raison des limites suivantes: les types d'activités physiques qui auraient pu expliquer cette amélioration n'ont pas été collectés, un risque de biais lié à l'attrition est présent et la marge d'erreur est grande vu le petit nombre de participants.

Cette étude contribue néanmoins à l'avancement de la théorie en proposant une conceptualisation et une opérationnalisation solide d'une nouvelle intervention infirmière sur le Web. Les contributions empiriques découlent des réflexions sur les adaptations possibles de l'intervention et du devis de la recherche et qui permettraient de mieux atteindre la population-cible et de mieux répondre à leurs besoins de soutien pour accroître l'activité physique.

Mots-clés : syndrome coronarien aigu, prévention secondaire, activité physique, marcher, Internet, personnalisé par ordinateur, cybersanté, soins infirmiers fondée sur les forces, théorie de l'autodétermination, intervention infirmière

Abstract

Although increasing physical activity produces several health benefits after an acute coronary syndrome event (Anderson et al., 2016; Moholdt et al., 2018), only 40 to 60% of coronary patients attain the recommended physical activity level (De Smedt et al., 2016; Janssen & Jolliffe, 2006; Reid et al., 2006). Whereas web-based interventions offer novel modalities scalable to large populations of coronary patients, there is a paucity of evidence using objective measures of physical activity behaviour (Devi et al., 2015).

The development of a four-week web-based tailored nursing intervention, TAVIE en m@rche, was guided by a framework integrating Strengths-Based Nursing Care and Self-Determination Theory. The intervention goal was to increase moderate-intensity walking to the recommended 150 minutes per week in insufficiently active acute coronary syndrome patients. The intervention is centered on videos of a nurse delivering content tailored to baseline self-reported autonomous motivation, perceived competence, and walking behavior.

The primary aim of this parallel two-group multicenter randomized controlled trial was to test the effect of TAVIE en m@rche on increasing steps per day at twelve-weeks post-randomization. Secondary aims included testing the effect of the intervention on increasing steps per day at five weeks, and increasing walking and moderate to vigorous physical activity at five and twelve weeks. We also explored the effect of the intervention on motivation and confidence to attain the walking recommendation, quality of life, smoking status, cardiac medication adherence, secondary prevention program attendance, emergency department visits, hospitalizations, and angina frequency.

Eligible acute coronary syndrome patients reported performing less than the recommended physical activity level six-months prior hospitalization and having the ability to access the web-based intervention. Randomization occurred between the fourth and sixth week post-hospitalization upon which the participants were assigned to either the experimental group, receiving TAVIE en m@rche, or the control group, receiving hyperlinks to public websites. Outcome data were collected at five and or twelve weeks according to the aims.

Sixty participants were randomized equally among the two groups, in which thirty-nine provided completed data for the primary outcome. At twelve weeks, relative to the control

groupe, a minimal and non-significant increase in steps per day as well as a non-significant improvement in moderate to vigorous intensity physical activity were found in the experimental group. No significant effects were observed between groups regarding other secondary or any exploratory outcomes.

The minimal and non-significant increase in the primary outcome may be explained by most participants attaining the intervention goal before receiving access to the intervention. The magnitude of improvement in moderate to vigorous physical activity, albeit non-significant, could nonetheless represent important health gains in the experimental group. However, caution in interpretation is warranted in this result for the following limitations: the types of physical activities that could have explained this improvement were not collected, a risk of attrition bias was present, and the result shows statistical uncertainty that occurred from a small sample size.

This study contributes to the advancement of theory in intervention design by demonstrating the conceptualization and operationalization of a novel web-based intervention using a nursing approach. Empirical contributions arise from stimulating thinking on possible adaptions of the intervention and research design to best reach the intended population for intervention and to best meet their needs for support in increasing physical activity.

Keywords : acute coronary syndrome, secondary prevention, physical activity, walking, Internet, computer-tailored, eHealth, Strengths-Based Nursing Care, Self-Determination Theory, nursing intervention

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List of Abbreviations

ACS : Acute coronary syndrome(s)

CAD: Coronary artery disease

CG: Control group

CHF: Chronic heart failure

CR: Cardiac rehabilitation program

CVD: Cardiovascular disease

EG: Experimental group

IPAQ : International Physical Activity Questionnaire

Kcal: Kilocalorie

MET: Metabolic Equivalent of Task

MMAS-4 : Morisky Medication Adherence Scale

MVPA: Moderate to vigorous intensity physical activity

PA: Physical activity

PAS : Perceived autonomy support

PAS-SO : Perceived autonomy support from a significant other

PAS-WEB : Perceived autonomy support from the intervention

RCT : Randomized controlled trial

SDT : Self-Determination Theory

SMS: Short Message Service

TSRQ: Treatment Self-Regulation Questionnaire

To my wife Carmie, my step-daughters Amanda and Jessica, my son Dylan, and my parents Vanda and Fritz.

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Chapter 1. Background

Acute coronary syndromes (ACS) are among the leading causes of coronary artery disease (CAD) mortality and health care utilization worldwide (Barquera et al., 2015). ACS are acute cardiac events ranging from unstable angina to myocardial infarction, which arise from a progressive and abnormal accumulation of atherosclerotic plaques in the coronary arteries leading to disease (Boudoulas, Triposciadis, Geleris, & Boudoulas, 2016). In Canada, approximately 62,000 first time myocardial infarctions occur yearly (Public Health Agency of Canada, 2018), and during 2016-2017, myocardial infarction was the third top reason for hospitalization (Canadian Institutes for Health Information, 2017). Therefore, ACS patients after hospitalization represent an important population for health care professionals to focus on.

Health behaviour changes, such as increasing physical activity, reducing smoking status, and improving cardiac medication adherence and diet, contribute to stabilizing or reversing CAD progression (Boudoulas et al., 2016). Nurses encourage health behaviour changes through the provision of education and counseling in collaboration with health care services (Lin, Neubeck, & Gallagher, 2017). Encouraging successful increases in physical activity alone are associated with health benefits. Greater reductions in mortality risk are found in CAD patients who are more physically active as compared to those who are less physically active (Moholdt et al., 2018). Moreover, improved quality of life and reduced hospitalizations are found in CAD patients participating in supervised exercise (Anderson et al., 2016). In parallel, the 'gateway' effect suggests that positive change in one health behaviour may increase overall confidence and serve as a 'gateway' to other health behaviour changes (Prochaska, Spring, & Nigg, 2008). As such, increased confidence from positive changes in physical activity may influence reduced smoking status, improved cardiac medication adherence, diet or attendance in supervised exercise. Despite these actual or potential benefits, estimates range from 40% to 60% of CAD patients performing sufficient levels of physical activity (De Smedt et al., 2016; Janssen & Jolliffe, 2006; Reid et al., 2006).

Participation in a secondary prevention program is one way to help ACS patients increase physical activity. The Canadian Guidelines for Cardiac Rehabilitation and Cardiovascular Disease Prevention suggest that components of secondary prevention programs include interventions aimed at promoting long-term health behaviour changes in cardiac patients (Stone

et al., 2009). Traditional secondary prevention programs consist of face-to-face or phone health behaviour change counselling interventions, which may range from brief to intensive counselling, and most include supervised exercise in hospital settings (Grace, Bennett, Ardern, & Clark, 2014). Because only 22% to 30% of CAD patients attend traditionally delivered secondary prevention programs, alternative ways of delivering these programs are being examined in research, including the use of the Internet (Grace et al., 2014).

Web-based interventions aimed at improving health behaviours are delivered via the Internet and include modes of delivery that are integral to a website such as online text, videos and discussion forums, and other modes of delivery that are complimentary to a website such as email and Short Message Service (SMS) (Eysenbach & CONSORT-EHEALTH Group, 2011). An advantage of web-based interventions is their potential to reach large numbers of people including those living in remote locations, those who have difficulty traveling to face-to-face interventions, or those who are unwilling to participate in such interventions (Griffiths, Lindenmeyer, Powell, Lowe, & Thorogood, 2006). Empirical evidence, drawn from meta-analyses, on web-based interventions is presented as follows: the effect of tailored interventions on health behaviour changes in non-CAD populations; the effect of tailored or non-tailored interventions on physical activity in mainly non-CAD populations; and the effect of tailored or non-tailored interventions on physical activity in only CAD populations.

Web-based interventions can be computer-tailored, which involves a computerized process customizing information on individual assessments of characteristics such as levels of motivation, confidence, and behaviour (Kreuter, Farrell, Olevitch, & Brennan, 2013). Tailoring is expected to increase the relevancy of and attention to the information delivered, which in turn is expected to improve effects on health behaviour changes (Kreuter et al., 2013). A meta-analysis found a significant effect of web-based tailored interventions on health behaviour change outcomes such as increased smoking cessation and improved diet as compared to non-tailored or no intervention controls in populations of any age and health status (Lustria et al., 2013). However, this same meta-analysis found no effect on physical activity outcomes. Although no explanation of this result was proposed by Lustria et al. (2013), they suggest that tailoring is not the “magic bullet” (p. 1063) in web-based interventions. As such, the efficacy of web-based interventions on physical activity outcomes may depend on complex interactions among other intervention elements such as the tailoring measures used (e.g., measures of

motivation and confidence), modes of delivery (e.g., combinations of online text with videos, email, and SMS), intervention intensity, and population characteristics. Therefore, research is needed to test innovative combinations of intervention elements that may influence greater improvements in physical activity.

In healthy adults, one recent meta-analysis of randomized controlled trials (RCTs), comparing web-based interventions (tailored or not) to any type of control group (not specified), found significant effects on physical activity outcomes (Jahangiry, Farhangi, Shab-Bidar, Rezaei, & Pashaei, 2017). An earlier meta-analysis of RCTs or non-RCTs compared web-based interventions (tailored or not) to control groups that were not web-based in adults with or without a chronic disease (mainly non-cardiac, as only one RCT was piloted in CAD) (Davies, Spence, Vandelanotte, Caperchione, & Mummery, 2012). They found a small and significant effect size on primary physical activity outcomes (total or at least moderate intensity during leisure time, which were mostly self-reported) (Davies et al., 2012). Moreover, a significantly greater effect size was found in studies that recruited only insufficiently active participants versus no such eligibility criterion (Davies et al., 2012). Therefore, the effect of web-based interventions (tailored or not) is promising on physical activity outcomes in mainly non-CAD populations, and effects may be more pronounced in insufficiently active participants.

In the cardiac literature, a meta-analysis by Devi at al. (2015) retained seven full-sized RCTs of tailored or non-tailored web-based interventions in CAD populations (Antypas & Wangberg, 2014; Devi, Powell, & Singh, 2014; Lear et al., 2014; Lindsay, Smith, Bellaby, & Baker, 2009; Maddison et al., 2015; Reid et al., 2012; Southard, Southard, & Nuckolls, 2003), and one other RCT (Widmer et al., 2017), was published after Devi et al. In all eight RCTs, participants were recruited regardless of their baseline physical activity level. One common feature was the use of web-based educational and/or motivational information using for instance, online tutorials and slide-presentations about physical activity, with or without the use of SMS, smartphone apps, or email. In addition to these common features, one RCT encouraged weekly views of peer role models through online videos (Maddison et al., 2015).

Although Devi et al. (2015) was unable to compute a pooled effect of change in physical activity behaviour (e.g., step counts or self-report) due to the data reported, three RCTs found significant improvements (Antypas & Wangberg, 2014; Devi et al., 2014; Maddison et al.,

2015). However, Devi et al., (the meta-analysis) did not include measures of physical fitness to evaluate effects on physical activity, which may influence the number of significant RCTs found. Also, Devi et al., reported no significant difference between groups over time of steps per day over six and twelve-month endpoints in the RCT by Reid et al. (2012). However, this RCT nonetheless found significantly greater differences in group means in favour of the experimental group at both follow-up endpoints, which was their planned primary outcome. Therefore, solid evidence is scarce on the effect of web-based interventions on physical activity outcomes, and the number of significant RCTs may depend on the nature (behaviour versus physical fitness), and type (i.e., difference between groups over time versus group means) of outcomes retained.

Objective physical activity measures, considered as primary outcomes in five of these RCTs, included a measure of behaviour (step counts by activity tracker), or fitness (exercise capacity by treadmill). Primary outcomes of steps per day were significantly improved in both RCTs measuring this outcome at six weeks (Devi et al., 2014), and at six and 12 months (Reid et al., 2012). Among the three RCTs measuring exercise capacity (Lear et al., 2014; Maddison et al., 2015; Widmer et al., 2017), only one found a significant improvement across their four and 16-month endpoints (Lear et al., 2014). These data suggest that significant improvements in an objective measure of behaviour, such as steps per day, may be more amenable to change by a web-based intervention than objective measures of fitness.

Considering the seven RCTs measuring self-reported physical activity (Antypas & Wangberg, 2014; Lear et al., 2014; Lindsay et al., 2009; Maddison et al., 2015; Reid et al., 2012; Southard et al., 2003; Widmer et al., 2017), only three found significant effects in some outcomes. Specifically, significant improvements were found on a primary outcome of total physical activity (walking, moderate and vigorous) (Antypas & Wangberg, 2014), although a high risk of attrition bias was determined in this result (Devi et al., 2015). Significant improvements were also found in secondary outcomes of moderate to vigorous intensity physical activity (Maddison et al., 2015; Reid et al., 2012), and in walking (Antypas & Wangberg, 2014; Maddison et al., 2015). Another RCT reported that the imprecision of their measure may explain the observed non-significant improvement in physical activity (Southard et al., 2003). Also, a non-significant greater increase in physical activity found in the most recent RCT (Widmer et al., 2017), may be explained by a lack of power to detect differences in change in this outcome.

Comparing tailored versus non-tailored interventions, the former showed a greater proportion of significant improvements on any planned physical activity outcome. Specifically, among the three tailored interventions, two were significantly improved on their primary outcomes of steps per day relative to usual care control groups (Devi et al., 2014; Reid et al., 2012). The other was significant, relative to a non-tailored intervention website, on self-reported total physical activity, although inconclusive due to attrition bias (Antypas & Wangberg, 2014). Two of these significant RCTs included health care professional involvement through single or combination use of email and chat (Devi et al., 2014; Reid et al., 2012). Among the five non-tailored interventions (Lear et al., 2014; Lindsay et al., 2009; Maddison et al., 2015; Southard et al., 2003; Widmer et al., 2017), two found significant improvements relative to usual care control groups on at least one of the planned physical activity outcomes (Lear et al., 2014; Maddison et al., 2015). Among these two significant RCTs, one included health care professional involvement through email and chat (Lear et al., 2014). As such, most of these significant interventions are reliant, in part, on the availability of health care professionals (Lustria et al., 2013). In summary, the effect of tailored interventions, in which most included health care professional involvement, on steps per day is promising. However, the paucity of solid evidence highlights a need for future RCTs in this body of literature.

Nurses play an important role in the secondary prevention of ACS by providing health behaviour change interventions (Lin et al., 2017). Nursing interventions are guided by shared values of the nursing profession (Gottlieb, 2013). Strengths-Based Nursing Care presents a framework of eight nursing values that guide interventions with the premise of working with patients' strengths toward the promotion of health and healing (Gottlieb, 2013).

The Strengths-Based Nursing Care value of 'Self-determination' is relevant in human motivation, and was drawn from literature on self-determination including the past works of Deci and Ryan (1985), the originators of the Self-Determination Theory (SDT). Empirical works in SDT applied in health care settings suggest that changes in health behaviour can be explained by three SDT constructs: perceived autonomy support, self-determined motivation continuum, and perceived competence (Ng et al., 2012). The relationships between SDT constructs and physical activity outcomes are generally well supported in observational studies and RCTs testing traditional interventions in non-cardiac or cardiac populations (Teixeira, Carraca, Markland, Silva, & Ryan, 2012). In the web-based physical activity literature, only one RCT testing an

SDT-based intervention was retained in a recent meta-analysis (Jahangiry et al., 2017). This RCT showed promising results concerning the effect on SDT constructs at three months (Friederichs, Bolman, Oenema, Verboon, & Lechner, 2015), and self-reported physical activity at 12 months in a general adult population (Friederichs, Oenema, Bolman, & Lechner, 2015). As such, the overall SDT literature supports that interventions based on this theory have the potential to improve physical activity outcomes.

Our goal was to develop and test the effect of a fully-automated Web-based intervention that allows tailoring according to individuals' level of motivation, confidence, and walking. Tailoring has shown promising results in the web-based CAD literature, and fully-automated interventions are advantageous as they can be implemented without health care professional involvement. As no prior platform was found suitable to the desired features, we retained TAVIE™, which allows both tailoring and a fully-automated implementation (Côté et al., 2011). TAVIE™ platforms have been developed to support chronic disease management ranging from human immunodeficiency virus, cancer, to cardiac surgery. TAVIE is a French acronym for Traitement Assistance Virtuelle Infirmière et Enseignement (Treatment Virtual Nurse Assistance and Teaching). Using this platform, we developed TAVIE en m@rche in French, where "TA VIE" means *your life*, and "en marche" means *walking*. The development was guided by Strengths-Based Nursing Care and SDT. An intervention goal of increasing walking was retained, as this is one recommendation in secondary prevention (Deschênes, Lacerte, & François, 2009), and is objectively measurable in step counts (Ainsworth, Cahalin, Buman, & Ross, 2015).

We tested the effect of TAVIE en m@rche in insufficiently active ACS patients. Our primary aim was to demonstrate a greater increase in steps per day in the TAVIE en m@rche experimental group as compared to a control group receiving access to public websites. Secondary aims included testing the intervention's effect on increased self-reported walking and moderate to vigorous physical activity. Exploratory aims included testing the mediating role of SDT constructs on increased steps per day, in addition to testing the intervention's effect on quality of life, other health behaviour changes, and health care utilization (emergency department visits and hospitalizations). Specific hypotheses retained are presented with their endpoints at the end of Chapter 2, following the literature review.

Chapter 2. Literature Review

Part 1: Physical Activity and Web-Based Interventions

This chapter is current to literature reviewed up to July 2015, which provided justification for the protocol submission. Literature review after this date is implemented in the prior chapter, the Protocol and Primary Results Articles, and in the thesis discussion. Chapter 2 is divided into two parts. Part 1 presents the background of physical activity and web-based interventions in CAD patients. Part 2 presents the intervention design of TAVIE en m@rche.

Health Benefits of Physical Activity

Physical activity is "any bodily movement produced by skeletal muscles that requires energy expenditure" (World Health Organization, 2013). The physical activity recommendation according to the Canadian Association of Cardiovascular Prevention and Rehabilitation, is to perform at least five days per week of 30 minutes per day or to accumulate 150 minutes per week of moderate-intensity physical activity (Stone et al., 2009). This recommendation, which is equivalent to the general population, is supported by a position stand of the American College of Sports Medicine (Garber et al., 2011). The recommendation also includes vigorous-intensity physical activity performed for at least 75 minutes per week to attain the equivalent of the moderate-intensity recommendation, or accumulating moderate to vigorous intensity physical activity of 500 to 1000 Metabolic Equivalent of Task (MET)-minutes per week (Garber et al., 2011). MET is defined as "the ratio of the rate of energy expended during an activity to the rate of energy expended at rest" and MET-minutes per week "quantifies the total amount of physical activity performed in a standardized manner across individuals and types of activities" (Garber et al., 2011, p. 1337).

An approximation to this recommendation, commonly cited in physical activity research, is to attain at least 1,000 kilocalories per week of moderate-intensity physical activity (Garber et al., 2011). Although steps per day is another practical method of tracking physical activity, target step counts represent total daily step-based activity rather than only moderate-intensity energy expenditure surpassing regular activities (Tudor-Locke & Bassett, 2004). Moreover, as step counts do not determine activity intensity, approximating steps counts to the recommendation is

difficult (Garber et al., 2011). Nonetheless, an accepted norm for attaining at least a "somewhat active" lifestyle is translated in 7,500 steps per day (Tudor-Locke & Bassett, 2004). Moreover, Garber et al. (2011), citing work by Marshall et al. (2009), suggests that a rough approximation of the moderate-intensity physical activity recommendation using step counts is the performance of 100 steps per minute for 30 minutes.

In CAD, two North American longitudinal cohort studies found that greater levels of self-reported physical activity using different measures decreases all-cause or cardiovascular mortality risk in a dose-response relationship after controlling for age, sex, body mass index, smoking, illness severity, and other factors (Apullan et al., 2008; Janssen & Jolliffe, 2006). For instance, Apullan et al. (2008) found a 23% greater increase in all-cause mortality risk at 14.7 years in CAD patients performing sedentary activities (e.g., activities while sitting) as compared to those performing strenuous physical activity (e.g., competitive sports) in the past 6 months. Janssen and Jolliffe (2006) found a 19% greater reduction in all-cause mortality risk at 9 years in CAD patients categorized as performing the recommended level of moderate intensity physical activity as compared to those performing no moderate physical activity in the past 2 weeks. Data examining different levels of physical activity starting from below the recommendation also shows reductions in mortality risk. Moore et al. (2012) pooled data from six longitudinal cohort studies that included 654,827 adults of the general population. They found that up to 75 minutes per week of self-reported physical activity equivalent to a moderate-intensity level (e.g., brisk walking) was associated with a reduction in mortality risk as compared to no moderate-intensity physical activity performed (Moore et al., 2012). Moreover, additional increases in moderate-intensity physical activity were associated with greater reductions in mortality risk in a dose-response relationship (Moore et al., 2012). These data suggest that an intervention goal of increasing moderate-intensity physical activity from zero to half of the recommendation, and greater, may be clinically meaningful in a CAD population as a first step to attaining the recommended 150 minutes per week.

Physical activity is also associated with improved quality of life. Quality of life generally refers to self-perceptions of well-being, life satisfaction, and function in several health domains (Guérin, 2012). These health domains have been categorized in emotional, physical, and social domains in measures of quality of life (Bize, Johnson, & Plotnikoff, 2007). In CAD, secondary prevention programs are associated with improved quality of life (Conn, Hafdahl, & Brown,

2009; Shepherd & While, 2012). Conn et al. (2009) conducted a meta-analysis of 66 experimental or quasi-experimental studies to examine the effect of supervised exercise, physical activity counselling (without supervised exercise), or both (supervised exercise and physical activity counseling) on measures of quality of life, well-being, and life satisfaction in chronic disease patient populations in which cardiac diseases were among the most common (24 out of 71 comparisons). They found a significant effect of physical activity interventions on improvement in overall quality of life compared either with control conditions (i.e., two-group comparisons) or with pre-intervention quality of life scores (i.e., single group pre-post comparisons) (Conn et al., 2009). The level of physical activity performed was not associated with greater levels of quality of life suggesting that small increases in physical activity not detected by its measures may have nevertheless influenced increases in quality of life (Conn et al., 2009). Because Conn et al. reported quality of life only as a single outcome without distinguishing between the domains of quality of life, it is unknown from this data, which improvements in quality of life domains contributed to the overall increase.

Shepherd and While (2012) conducted a systematic review of 16 randomized controlled trials (RCTs) to examine the effect of secondary prevention programs on emotional, physical, and social quality of life domains. They found the greatest number of significant effects of secondary prevention programs on the physical quality of life domain (reported as physical well-being), fewer significant effects on the emotional quality of life domain (reported as psychological well-being), and too few RCTs measuring the social quality of life domain to arrive at conclusions on effect (Shepherd & While, 2012). Based on these RCTs, they hypothesized that improvements in physical well-being were associated with greater levels of physical activity and physical fitness that resulted from participation in secondary prevention programs (Shepherd & While, 2012). Taken together, secondary prevention programs aimed at increasing at least moderate-intensity physical activity can also improve quality of life particularly in the physical domain.

Secondary prevention programs are also associated with health benefits such as reduced CAD risk factors such as hypertension and dyslipidemia, and reduced cardiac-related hospitalizations (Stone et al., 2009). These health benefits may be a consequence of increased physical activity in these programs as most are exercise-based (Grace et al., 2014). In parallel, the ‘gateway effect’ posits that confidence felt through success in one health behaviour change

may lead to positive change in other health behaviours (Nigg, Allegrante, & Ory, 2002; Prochaska et al., 2008). Applied to physical activity, confidence felt through success in increasing physical activity may lead to positive changes in smoking cessation, improved diet, cardiac medication adherence, or attendance to a secondary prevention program (given that increased physical activity is achieved outside such a program). As such, improvements in these health behaviours, including increased moderate-intensity physical activity, may be interrelated, and may all contribute to the health benefits of reduced mortality risk, CAD risk factors and hospitalizations, and improved quality of life.

The 'gateway effect' may also explain associations found between greater levels of physical activity and lower smoking prevalence in North American cohort studies of CAD patients (Apullan et al., 2008; Leung, Ceccato, Stewart, & Grace, 2007). Smoking is one major risk factor in CAD disease progression making increased smoking cessation another important outcome in secondary prevention programs (Stone et al., 2009). However, the evidence in RCTs supporting the effect of physical activity on smoking cessation is less clear. A systematic review of 15 RCTs found insufficient evidence to support the effect of physical activity interventions on smoking cessation due to methodological limitations in most studies and possibly other factors such as insufficient intervention intensity (Ussher, Taylor, & Faulkner, 2012). However, this same review along with another (Roberts, Maddison, Simpson, Bullen, & Prapavessis, 2012) found consistent evidence supporting the effect of performing moderate-intensity physical activity on temporary reduction of tobacco withdrawal symptoms and cravings in recent ex-smokers. These findings suggest that although limited evidence exists supporting the effect of increased physical activity on smoking cessation, performing moderate-intensity physical activity could nonetheless be an important coping strategy while quitting smoking.

Reducing depressive symptoms is another important outcome in secondary prevention, and increasing physical activity has been one suggested way to achieve this health benefit (Stone et al., 2009). The importance of depressive symptoms in CAD populations is supported by past research that has found the presence of major depressive disorder in about 20% of ACS-related hospitalized patients as compared to about 4% in the general population (Lichtman et al., 2014). A Cochrane review of 39 RCTs found that exercise was efficacious in reducing depressive symptoms as compared to no intervention in general and chronic disease populations (Cooney et al., 2013). However, evidence was lacking from this review to determine the type, intensity,

frequency, and duration of the physical activity that are efficacious on reducing depression (Cooney et al., 2013). Cooney et al. (2013) also analyzed a subgroup of six RCTs that were more methodologically solid, and they found smaller and non-significant effects. Among these six RCTs, one was conducted in CAD patients (Blumenthal et al., 2012). Blumenthal et al. (2012) found that performing 16 weeks of aerobic exercise three days per week significantly reduced depression symptoms as compared to no intervention. However, the intensity of the exercise performed was vigorous in a supervised setting, which may not be attainable in CAD patients who are not participating in supervised exercise. Therefore, there is some solid evidence that vigorous-intensity physical activity can reduce depressive symptoms in CAD patients, however, evidence is lacking on the effect of moderate-intensity physical activity in this population.

Taken together, increased moderate-intensity physical activity in CAD patients is associated with several health benefits such as reduced mortality, improved quality of life, reduced CAD risk factors, reduced hospitalizations, as well as possible improvements on other health behaviours through the 'gateway effect.' However, moderate-intensity physical activity may not be sufficient to reduce depressive symptoms in CAD patients. An examination of the web-based intervention literature in CAD, found later in this chapter, will help determine which outcomes are amenable to change by a web-based physical activity intervention.

Physical Activity Levels Performed Post-Hospitalization

The rate of performing at least the physical activity recommendation appears to increase shortly post CAD-related hospitalization, but it decreases over time. Reid et al. (2006) conducted a longitudinal cohort study of 782 adult participants (mean age of 61.6 years) post CAD-related hospitalization from three hospital sites in Ontario, Canada. They found that nearly 75% of participants self-reported past seven-day energy expenditure equivalent to at least 150 weekly minutes of moderate-intensity physical activity at two months post CAD-related hospitalization, which significantly declined to nearly 66% at six months, and 62% at 12 months.

Reid et al. (2006) however suggested that their results may be overestimated because of an overrepresentation of educated patients, and of patients participating in a physical activity program regularly before the hospitalization. Indeed, lower estimates of self-reported physical activity have been found. In North American populations, a Canadian 2013-2014 survey estimated 51% of adults, aged 45 to 64 years, self-reported performing at least the recommended

physical activity level in the past three months of the survey (Statistics Canada, 2014). In CAD, Janssen and Jolliffe (2006) found in their American population-based study of 1,045 non-hospitalized CAD patients aged 65 or older that 37% self-reported performing at least the physical activity recommendation in the past two weeks at baseline. Data outside North America from a longitudinal study of 1,521 first time myocardial infarction patients recruited from eight Israeli hospitals also found lower physical activity estimates (Gerber et al., 2011). These authors reported between 40% to 44% of patients performing at least the physical activity recommendation at four assessments over time from post hospitalization (three to six months, one to two years, five years, and 10 to 13 years) (Gerber et al., 2011). Taken together, self-reported physical activity of at least the recommended level may reach nearly 75% shortly after hospitalization, but it declines to about 60% and 40% over time. It is reasonable to expect that life-threatening ACS experiences along with in-hospital advice from health care professionals could lead to at least short-term increases in moderate to vigorous intensity physical activity among CAD patients. However, there is still a need to reach an important proportion of patients who do not perform sufficient physical activity after an ACS event.

Factors Associated with Physical Activity Levels

Given the importance of performing physical activity after a cardiac event, CAD literature has examined factors associated with physical activity levels, which we grouped among patient socio-demographic characteristics, clinical characteristics, and barriers or facilitators to participate in physical activity (intrapersonal, interpersonal, and environmental).

Drawn from longitudinal studies, socio-demographic characteristics found that were significantly associated with physical activity levels were age, and sex of the participant. Older age was associated with lower levels of physical activity than younger age (Apullan et al., 2008; Reid et al., 2006), and being female was associated with lower levels of physical activity than being male (Apullan et al., 2008; Leung et al., 2007; Reid et al., 2006).

Clinical characteristics associated with physical activity levels included diabetes (Apullan et al., 2008; Reid et al., 2006), hypertension, family history of premature CAD (Apullan et al., 2008), and smoking (Apullan et al., 2008; Leung et al., 2007), and lower percentages of left ventricular ejection fraction (Apullan et al., 2008). The presence of these clinical characteristics

was associated with lower levels of physical activity as compared to the absence of these clinical characteristics.

Another clinical characteristic found to be associated with physical activity levels is the presence of depressive symptoms. The importance of depressive symptoms in CAD patients has been highlighted in a systematic review by the American Heart Association that found significant and positive associations between the presence of depressive symptoms or major depressive disorder and cardiovascular events (Lichtman et al., 2014). Several hypotheses involving the dysregulation of biological systems and a lack of health behaviours (e.g., insufficient physical activity, smoking, and medication non-adherence) explaining this association have been proposed in past literature (Lichtman et al., 2014). Elderon and Whooley (2013) highlighted in their review, that the lack of health behaviours in depressed CAD patients contributes largely to the observed association between depressive symptoms and cardiovascular events. For instance, a past longitudinal study (n = 1,017) found that CAD patients with depressive symptoms performed significantly less moderate to vigorous intensity physical activity, had a greater proportion of smokers, and a lower proportion of those adherent to their medication prescriptions as compared to CAD patients without depressive symptoms. These results support the importance of encouraging health behaviour changes including physical activity in this population. Overall, depressive symptoms in CAD patients are associated with lower levels of physical activity. As well, improved physical activity along with other health behaviour changes should be encouraged in the subgroup of depressed CAD patients to reduce risk of cardiovascular events.

Fatigue is another clinical characteristic that may be associated with lower physical activity levels. Although fatigue appears to be present and persistent post CAD-related hospitalization, literature examining the association between fatigue and physical activity in CAD patients is sparse. Alsén and Brink (2013) examined fatigue in 155 patients at four months and two years post-myocardial infarction-related hospitalization using a questionnaire that measured five dimensions of fatigue (general, physical, and mental, motivation, and activity) that ranged between 5 (no fatigue) to 20 (very fatigued) per dimension. They found that although four out of five dimensions of fatigue significantly decreased over time, at two years, nearly half (48%) reported clinically important fatigue levels, among which 30% had fatigue without depression, and 18% had fatigue with depression (Alsén & Brink, 2013). Moreover, the only

aspect of fatigue that did not decline, but persisted over time was reduced motivation. Although reduced motivation is a fatigue dimension that may decrease physical activity, Alsén and Brink did not examine the association between fatigue and physical activity behaviour.

Crane, Abel, and McCoy (2015) examined the association between fatigue and physical activity behaviour in a cross-sectional study of 72 patients aged 65 years or older who reported fatigue and were six to eight months post-myocardial infarction. They found that greater perceived severe fatigue, and fatigue-related interference with work, ability to socialise, sexual activity and enjoyable daily activities was significantly associated with performing no moderate to vigorous physical activity (Crane et al., 2015). Considering these two studies (Alsén & Brink, 2013; Crane et al., 2015), fatigue seems to be an important symptom in CAD patients, such that clinically important fatigue-related signs and symptoms may be associated with lower levels of physical activity.

In parallel, drawn mainly from qualitative and observational literature, intrapersonal barriers included having no time for physical activity due to reasons such as competing demands at work or home (Fleury, Lee, Matteson, & Belyea, 2004), and a lack of interest in physical activity (Fleury et al., 2004; Rogerson, Murphy, Bird, & Morris, 2012). Another barrier was the fear or concern that physical activity may cause harm to the heart or other body parts (Rogerson et al., 2012).

In contrast, intrapersonal facilitators to participate in physical activity included reasons such as lowering cholesterol levels (Kärner, Tingström, Abrandt-Dahlgren, & Bergdahl, 2005), and life longevity (Rogerson et al., 2012). Other facilitators included experiencing the psychological benefits of physical activity such as reduced stress (Rogerson et al., 2012) or feeling psychologically better (Kärner et al., 2005).

An interpersonal barrier or facilitator respectively were the perceived lack of (Fleury et al., 2004), or presence of social support as there is a sense of obligation towards significant others and health care professionals, or the expressed need to watch the grandchildren grow up (Rogerson et al., 2012). An environmental barrier was inclement weather (Fleury et al., 2004; Rogerson et al., 2012).

Although socio-demographic and clinical characteristics may be difficult to change by an intervention, they serve as potential variables that may influence the effect of interventions on

physical activity outcomes. In contrast, barriers and facilitators to physical activity suggest potential avenues of intervention to increase physical activity in CAD populations, although examination of the intervention literature is required to determine which avenues to pursue.

In summary, although physical activity is associated with multiple health benefits, an important proportion of CAD patients are insufficiently active. There are several factors in CAD patients that are associated with lower levels of physical activity, or act as barriers or facilitators to physical activity participation. These factors should be considered in the design and testing of a nursing intervention aimed at increasing physical activity. The next section defines web-based interventions and tailoring, which is followed by an overview of the evidence of the effect of these interventions on physical activity outcomes in mainly non-cardiac populations, and then in CAD populations.

Web-Based Interventions

Drawing from Ritterband and colleagues' work, the CONSORT-EHEALTH Group defined web-based interventions as: "tools or treatments, typically behaviorally based, that are operationalized and transformed for delivery via the Internet or mobile platforms" (Ritterband, Andersson, Christensen, Carlbring, & Cuijpers, 2006, p. e23). Web-based interventions may include modes of delivery such as written online text, videos, and applications such as online chat or discussion forums found on websites. These interventions may also include email and SMS that complement web-based modes of delivery.

Computer tailoring was an important innovation that has increased sophistication in web-based interventions (Lustria, Cortese, Noar, & Glueckauf, 2009). The term 'tailoring,' drawn mainly from the past works of Kreuter, Rimer and colleagues (Kreuter et al., 2013; Kreuter & Skinner, 2000; Kreuter, Strecher, & Glassman, 1999; Kreuter & Wray, 2003; Rimer & Glassman, 1998), refers to "…any combination of strategies and information intended to reach one specific person, based on characteristics that are unique to that person, related to the outcome of interest, and derived from an individual assessment" (Kreuter et al., 1999, p. 277) . In contrast, non-tailored or generic health information does not involve individual assessments and reaches the population at large or subgroups (Kreuter & Wray, 2003). Tailored health information is expected to be more personally relevant than non-tailored information because the former is customized to individuals' behaviour, motivation, and choices (Kreuter et al., 2013).

Tailoring involves a computerized process resulting in messages delivered to participants in print or web-based formats (Kreuter et al., 2013). As web-based formats now dominate the literature on tailored physical activity interventions, a systematic review found a greater number of RCTs reporting significant effects in favor of tailored web-based physical activity interventions as compared to non-tailored or no intervention controls (Broekhuizen, Kroeze, van Poppel, Oenema, & Brug, 2012).

Canadians have access to web-based bilingual information on physical activity (e.g., Canadian Society for Exercise Physiology, and the Heart and Stroke Foundation). Tailored interventions named "eHealth Tools" are offered by the Heart and Stroke Foundation for the primary or secondary prevention of CAD (Heart and Stroke Foundation, 2013a). "My Heart & Stroke Risk Assessment" is one eHealth Tool consisting of tailored advice based on health risk assessments provided in text format concerning smoking cessation, diet, physical activity, and other health behaviour changes. Another, "Healthy Weight Action Plan," focuses on weight reduction or maintenance providing tailored action plans in text format that includes weekly goal setting and self-monitoring for diet and physical activity. Although no RCTs were found evaluating these eHealth Tools, a survey examined the characteristics of people using this open access intervention. The authors found that under half of the adults that used eHealth Tools were under 50 years of age, most reported having no heart disease and most were female (Zbib, Hodgson, & Calderwood, 2011), rather than ACS patients who are usually over the age of 50 and are mostly male. Also, as eHealth Tools have a multiple behaviour change focus, people can disregard information on physical activity and instead focus on improving diet, quitting smoking or another health behaviour change. Therefore, there is a lack of public web-based tailored interventions of Canadian content aimed at increasing physical activity in the secondary prevention of ACS.

Evidence from meta-analyses for web-based interventions

Evidence supporting the effect of web-based interventions on physical activity outcomes is growing. We retained the two most recent meta-analyses on this topic (Davies et al., 2012; Lustria et al., 2013). Davies et al. (2012) tested the effect of tailored or non-tailored interventions compared to control groups that were not web-based, which measured physical activity outcomes. Lustria et al. (2013) tested the effect of tailored interventions compared to non-

tailored or no intervention, which measured health behaviour outcomes including physical activity. Therefore, Davies et al. provided the main conclusions on the effect of web-based interventions (tailored or non-tailored), and Lustria et al. provided the main conclusions on tailored interventions.

Davies et al. (2012) retained 34 RCTs or quasi-experimental studies between 1990 and 2011 that recruited adult only populations. Samples were mainly female (65% of the participants across all studies), and half of the studies recruited the general population (n = 17 studies). The other half included those with non-cardiac chronic diseases (n = 10 studies), cardiac risk factors (n = 6 studies), and CAD (n = 1 study). The physical activity outcomes were mostly self-reported total or moderate to vigorous leisure time physical activity; however, the authors did not mention the types of outcomes other than self-report and how different outcomes were treated in the meta-analysis. Davies et al. reported that 71% of the studies were 'good quality' according to a rating between 'poor quality' and 'good quality' based on criteria of study design, reporting (sample, population characteristics, and outcomes), and reproducibility. The comparison groups were not web-based consisting of mostly usual care (76%). Davies et al. (2012) found a small but significant immediate post-intervention (short) effect in the subgroup of primary outcomes (n = 25, d = 0.14, p < .001), and found a smaller but also significant effect at least six months (long) post-interventions (n = 11, d = 0.11, p < .01).

Davies et al. (2012) also examined the effects of population characteristics, intervention elements (intervention contacts, theoretical framework, behaviour change techniques, and modes of delivery) on physical activity outcomes. Significant effects were found only for population characteristics, and behaviour change techniques. Concerning population characteristics, Davies et al. examined the effect of age (< 45 years versus > 44 years), sex of the participant (< 60% versus > 59% female sample), health status (general population, chronic disease, and overweight), and physical activity level (inclusion of only sedentary participants versus no such eligibility criterion). The only population characteristic found that significantly increased the effect on physical activity outcomes was the inclusion of only sedentary (or insufficiently active) participants versus no such eligibility criterion (n = 9, d = 0.37 versus n = 25, d = 0.12 respectively, $p \leq .013$).

Concerning behaviour change techniques, Davies et al. (2012) examined education components, goal setting, and self-monitoring. They found a significant effect only for the presence of education components versus the lack thereof ($n = 24$, $d = 0.20$ versus $n = 10$, $d = 0.08$, respectively, $p \leq .005$) (Davies et al., 2012). Education components in Davies et al. was broadly defined as "…structured educational material targeting physical activity knowledge…that involved exchange of information" (p. 6 and 11). Although the terms "structured" and "exchange of information" seemed to be important aspects of their definition, this category appears too broad to gain an understanding of the efficacious aspects of education components.

Otherwise, all other intervention elements did not significantly influence effects on physical activity outcomes including the presence of theoretical frameworks (Social Cognitive Theory or the Transtheoretical Model versus another framework or none), modes of delivery, intervention duration, number of intervention contacts, or tailoring (Davies et al., 2012).

The lack of effect of tailoring on physical activity outcomes was replicated by Lustria et al. (2013), whose meta-analysis compared tailored versus non-tailored web-based interventions or no intervention controls on health behaviour changes including physical activity. Lustria et al. retained 40 RCTs or quasi-experimental studies published between 1999 and 2009 focused on increasing physical activity, improving diet, reducing alcohol misuse/abuse, increasing smoking cessation, improving multiple health behaviour changes or other health behaviour changes. Most studies targeted the general adult population (65%), fewer targeted children or students (20%) and patients diagnosed with a chronic disease (15%), and none were cardiac. The samples were predominately female (63% female in mixed sex samples, and 12% of studies were only female). Lustria et al. found a small but significant immediate (short) post-intervention effect on all health behaviour changes combined ($n = 40$, $d = 0.139$, $p < .001$). This effect was maintained at the furthest evaluated endpoint post-intervention (long) in a subgroup of studies ($n = 21$, $d = 0.158$, $p < .001$). Although significant effects were found for increased smoking cessation ($n = 8$, $d = 0.152$, $p < .001$) and improved diet ($n = 4$, $d = 0.223$, $p < .001$), no effect was found for increased physical activity ($n = 12$, $d = 0.059$, $p > .05$). Therefore, the positive effects of tailoring on smoking cessation and diet are not found in physical activity outcomes, and no explanation concerning the lack of effect on physical activity was proposed by the authors. Lustria et al. nonetheless note that tailoring should not be considered a "magic bullet" (p. 1063) in the effect

of web-based interventions. As such, the effect of web-based interventions on physical activity outcomes may depend on complex interactions among the intervention elements such as whether tailoring was used, the theoretical framework and variables that are used for targeting and tailoring the intervention, the web-based or traditional modes of delivery, the intervention dose, the population characteristics, or the research design. Therefore, further research is needed to test innovative models that combine intervention elements to influence greater increases in physical activity.

In addition, Lustria et al. compared effects of expert led (i.e., health care professional involvement beyond addressing technical difficulties) versus self-guided interventions (i.e., no health care professional involvement). Although both obtained significant effects on health behaviour change outcomes, the comparison between expert-led and self-guided was not significant (expert led $n = 8$, $d = 0.159$, $p < .001$, self-guided $n = 32$, $d = 0.137$, $p < .001$, and comparison between expert led and self-guided $p > .05$). These results suggest that health care professional involvement in web-based interventions may not always be required to produce significant effects in health behaviour change outcomes.

Taken together, web-based interventions appear to yield small but significant short and long-term effects on physical activity outcomes. Insufficiently active populations may benefit most from these interventions, and interventions with structured educational components that involve information exchange tend to yield better results. Although tailoring in web-based interventions were efficacious on health behaviour changes such as improved smoking cessation and diet, tailoring lacked effect on physical activity outcomes. As such, it appears that other intervention elements in addition to tailoring may be important to influence increases in physical activity outcomes. In addition, little is known from these meta-analyses concerning the effect of web-based interventions in ACS patients. Hence, a review of RCTs of web-based interventions tested in CAD populations was conducted.

Evidence from randomized controlled trials in coronary artery disease patients

We retained seven RCTs for review that tested the effect of web-based interventions on physical activity outcomes in CAD patients (Table 1).

Table 1. Web-based interventions with physical activity outcomes in CAD patients

(Authors) / Country	Design / *n* / Population	Experimental group (EG) / Control group (CG)	Outcomes
Tailored: Physical activity measured by activity monitor			
(Reid et al., 2012) Canada	RCT *n* = 223 84% male ACS	**EG:** CardioFit tailored intervention aimed at increasing PA **Theory:** Self-efficacy and social support **CG:** Usual care and print booklet **Duration:** 20 weeks for tutorials, and 50 weeks for PA plans	**Primary:** Steps per day **Other PA:** Self-reported MVPA min/week **PA Assessments:** 6 and 12 months
(Devi et al., 2014) England	RCT *n* = 94 74% male stable angina	**EG: "**ActivateYourHeart" tailored web-based cardiac rehabilitation program aimed at cardiac risk factor reduction **Theory:** None specified **CG:** Usual care **Duration:** 6 weeks	**Primary:** Steps per day **Other PA:** Energy expenditure measured by accelerometer **PA Assessments:** Baseline, 6 weeks, and 6 months after intervention completion
Non-tailored: Physical activity measured by treadmill			
(Lear et al., 2014) Canada	RCT *n* = 78 85% male ACS	**EG:** Internet-based cardiac rehabilitation program (vCRP) aimed at cardiac risk factor reduction **Theory:** None specified **CG:** Usual care and list of public websites **Duration:** 4 months	**Primary:** Maximal time on treadmill **Other PA:** Self-reported MVPA kcal per week **PA Assessments:** Baseline, 4, and 16 months
(Maddison et al., 2015) New Zealand	RCT *n* = 171 81% male CAD patients	**EG:** HEART mobile and web-based intervention aimed at increasing PA[a] **Theory:** Self-efficacy **CG:** Usual care **Duration:** 24 weeks	**Primary:** Peak oxygen uptake **Other PA:** Self-reported MVPA, walking, and total physical activity **PA Assessments:** Baseline, and 24 weeks
Tailored: Physical activity measured by self-report			
(Antypas & Wangberg, 2014) Norway	Cluster RCT *n* = 69 patients 78% male CVD (mostly myocardial infarction)	**EG:** Tailored mobile and web-based intervention aimed at increasing PA **Theory:** Multiple frameworks **CG:** Non-tailored intervention website **Duration:** 3 months	**Primary:** Self-reported MVPA MET-min/week **PA Assessments:** Baseline during CR, at CR discharge, then 1 and 3 months post-CR

(Authors) / Country	Design / *n* / Population	Experimental group (EG) / Control group (CG)	Outcomes
Non-tailored: Physical activity measured by self-report			
(Southard et al., 2003) USA	RCT *n* = 104 75% male CAD (9.6% CHF)	**EG:** Internet-based management system aimed at cardiac risk factor reduction **Theory:** None specified **CG:** Usual care **Duration:** 6 months	**Primary:** Low-density lipoprotein **PA outcome:** Self-reported aerobic exercise minutes per week **PA Assessments:** Baseline, and 6 months
(Lindsay, Bellaby, Smith, & Baker, 2008) UK	RCT *n* = 108 67% male CAD patients	**EG:** Hearts of Salford web-based portal with weekly drop in sessions aimed at cardiac risk factor reduction **Theory:** None specified **CG:** Usual care access to websites with weekly drop in sessions **Duration:** 6 months	**Primary:** None planned **PA outcome:** Self-reported MVPA days per week **PA Assessments:** Baseline, and 6 months

Note. Citations were classified in ascending chronological order within their group of tailored versus non-tailored and by the instrument used to measure physical activity. ACS = acute coronary syndrome(s); CAD = coronary artery disease; CG = control group; CHF = chronic heart failure; CR = cardiac rehabilitation program; CVD = cardiovascular disease; kcal = kilocalorie; EG = experimental group; MET = Metabolic Equivalent of Task; MVPA = moderate to vigorous physical activity; *n* = sample size that was randomized; *p* = probability value; PA = physical activity; RCT = randomized controlled trial.

[a]For the purpose of this review, we classified the HEART intervention as non-tailored. Although the HEART intervention comprised of personalised automated SMS messages that were also visible on the study website, the development, pilot trial and full trial reports were unclear whether a computerized tailoring processes used, as per our definition on p. 14. As no response from the authors concerning this question was received and given the ambiguity in description of personalization, we classified this intervention as non-tailored.

We scanned 145 studies from five systematic reviews that retained RCTs and other study designs testing web-based interventions on health outcomes (health behaviour changes including physical activity, quality of life, cardiac risk factors, and others) in cardiac patients (CAD, post-cardiac surgery, heart failure, and others) (Clark et al., 2015; Fredericks, Martorella, & Catallo, 2015; Munro, Angus, & Leslie, 2013; Neubeck et al., 2009; Pietrzak, Cotea, & Pullman, 2014). As no reviews presented RCTs after 2013, we conducted our own search to include RCTs (*n* = 130) published between 2013 and February 2015 using MEDLINE, PsycINFO, and CINAHL databases to present current findings. Our search strategy was drawn from a Cochrane systematic review protocol on Internet-based interventions for secondary prevention interventions (Devi, Igbinedion, Powell, Singh, & Rees, 2011), and complemented with search terms found form another review (Munro et al., 2013).

A total of 275 studies were scanned (including duplicates) for eligibility in addition to the reference lists of key studies. RCTs were included if they recruited CAD populations, rather than only ACS patients, so that relevant populations (e.g., stable angina), were considered. Included RCTs also reported a physical activity outcome of behaviour (e.g., walking, steps per day) or fitness (e.g., exercise capacity), and tested an intervention with a web-based component that provided educational or motivational information on physical activity, regardless of comprising "mobile-based" or "mobile phone" components.

RCTs were excluded if they recruited mainly post-cardiac surgery or heart failure patients because physical activity goals in these cardiac populations may differ from ACS populations without these characteristics. Also excluded were interventions with a web-based component that served only as a platform presenting patients' data on physical activity or other clinical assessments, without educational or motivational information. One eligible RCT was excluded (Zutz, Ignaszewski, Bates, & Lear, 2007), because it was a pilot trial of an intervention that was later tested in a full trial (Lear et al., 2014), retained in this review. Another eligible RCT was excluded (Lindsay et al., 2009), because it only reported three to nine-month change in outcomes post-randomization without considering changes from baseline, which are reported (i.e., baseline to six-months) in the first publication of the same RCT (Lindsay et al., 2008), retained in this review. We summarized the findings of this RCT under the note of Table 1.

The following questions asked in our review were:

- What are the effects of web-based interventions on physical activity outcomes in CAD patients?;
- What are the effects of web-based interventions on other outcomes in CAD patients?; and
- What are the gaps in the CAD web-based intervention literature?

What are the effects of web-based interventions on physical activity outcomes in CAD patients?

Four out of the seven RCTs provided the strongest evidence on the effect of web-based interventions on physical activity outcomes in CAD patients because sample sizes were sufficient to detect planned differences post-randomization on primary outcomes of objectively

measured physical activity behaviour or fitness (Devi et al., 2014; Lear et al., 2014; Maddison et al., 2015; Reid et al., 2012). Objective measures of physical activity provide stronger evidence because they potentially enhance accuracy and precision of the point estimate as they are subjected to less bias, such as recall or social desirability, that may occur with self-reported physical activity (Houle, 2012). A description of these four RCTs are followed by a synthesis of their findings, which is focused in the section presenting the gaps in the literature.

The first two RCTs tested tailored interventions that objectively measured physical activity behaviour through steps per day determined by activity monitors (i.e., physical activity behaviour), and both found significantly positive results on their primary outcomes (Devi et al., 2014; Reid et al., 2012). Reid et al. (2012) found significantly greater pedometer measured steps per day favoring the CardioFit experimental group (EG) who received a 50-week tailored intervention compared to a usual care control group (CG). At six months (end of tutorials), the EG versus CG performed 7,079 versus 6,186 steps per day respectively, and at 12 months (end of tailored physical activity plans) the EG versus CG performed 7,392 versus 6,750 steps per day respectively ($n = 223$, $p = .023$). Reid et al. reported in the discussion a mean difference of 764 more steps per day in the EG across both follow-ups. However, non-significant effects in time ($p = .314$) and group by time interaction ($p = .656$) were found, indicating that no change in steps per day over time occurred, which in turn did not depend on group membership. The absence of baseline steps per day, makes it impossible to know how the primary outcome changed from baseline to follow-up. Nonetheless, self-reported physical activity at baseline were balanced between comparison groups (15.0 versus 14.4 MET in the EG and CG respectively), and both values correspond to being below the physical activity recommendation according to the measure (Godin, 2011). At the six and 12 month follow-up endpoints, Reid et al. found significantly greater levels of self-reported moderate to vigorous physical activity (MVPA) favoring the EG as compared to the CG ($n = 223$, $p = .047$), and all values were at least above the recommendation. The effect of time ($p = .317$) and group by time interaction ($p = .782$) were also not significant following a similar pattern as the primary outcome. Considering the self-reported data, the sample was insufficiently active at baseline, and met recommended physical activity levels at both follow-up endpoints. Both self-reported and step count data corroborate that the EG performed significantly more physical activity than the CG post-randomization.

Devi et al. (2014) found significantly greater change over time in accelerometer measured steps per day at six weeks favoring the "ActivateYourHeart" EG who received a six-week tailored web-based cardiac rehabilitation program as compared to a usual care CG. Between baseline and six weeks, the increase of 497 steps per day in the EG, and the decrease of 861 steps per day in the CG resulted in a significant difference between groups in change of 1,357 more steps per day in the EG ($n = 75$, $p = .02$) (Devi et al., 2014). In addition, Devi et al. found in secondary physical activity outcomes, significantly improved results over time at six weeks in accelerometer measured daily total energy expenditure, sedentary activity, and moderate physical activity favoring the EG (all $n = 75$, all $p = .01$), which followed a similar pattern as the primary outcome. The secondary outcomes of change over time at six months post-intervention resulted in improved but non-significant differences in favor of the EG in all accelerometer measured physical activity outcomes including steps per day (n not reported, $p > .05$) (Devi et al., 2014). The measure most representative of the physical activity recommendation was the duration of daily moderate physical activity, which found both comparison groups attaining at least the recommendation at baseline (43.5 daily minutes in the EG versus 55.5 daily minutes in the CG). These data indicate that sufficiently active CAD patients obtained a significantly greater increase in physical activity at six weeks in the EG relative to the CG that decreased physical activity over time, but these gains were not significantly maintained at six months post-intervention completion.

The next two RCTs tested non-tailored interventions that measured physical fitness through exercise capacity determined by treadmill testing (Lear et al., 2014; Maddison et al., 2015). These RCTs comparatively found inconsistent results on their primary outcomes. Lear et al. (2014) found significantly greater change in maximal time on treadmill (a proxy measure of exercise capacity) favouring the four-month Virtual Cardiac Rehabilitation Program EG as compared to a usual care CG that received a list of public websites. Between baseline and each follow-up (four and 16 months), the EG performed 45.7 more seconds on treadmill as compared to the CG ($n = 71$, $p = .045$) (Lear et al., 2014). Despite this significant improvement, Lear et al. found a non-significant minimal difference in self-reported MVPA in favour of the EG across the four and 16-month follow-ups ($n = 71$, $p = .191$). For instance, from baseline to 16 months, whereas the EG minimally increased from 1,265 to 1,347 kilocalories per week, the CG minimally decreased from 1,271 to 1,190 kilocalories per week. All baseline and follow-up

values at least met the physical activity recommendation expressed in kilocalories per week. These data indicate that sufficiently active ACS patients significantly increased their exercise capacity in favour of the EG, which possibly resulted from a non-significant improvement in self-reported MVPA.

Maddison et al. (2015) found no significant differences in treadmill measured peak oxygen uptake (a direct measure of exercise capacity) comparing the 24-week HEART mobile phone and web-based intervention EG to a usual care CG that had access to onsite cardiac rehabilitation. At 24 weeks, 27.8 versus 27.9 ml/(kg x minute) of peak oxygen uptake was found in the EG versus the CG respectively, resulting in nearly no difference between groups that was not significant ($n = 171$, $p = .65$). Nonetheless, Maddison et al. found significantly greater increases in secondary outcomes of self-reported leisure time MVPA and walking at 24 weeks favouring the EG (all $n = 144$, all $p < .05$), but found a non-significant greater difference in total self-reported physical activity favouring the EG ($n = 144$, $p = .22$). Baseline values of weekly minutes of MVPA attained at least physical activity recommendations (320.3 in the EG versus 275.5 in the CG). These data indicate that sufficiently active CAD patients significantly increased their MVPA and walking in favour of the EG, in which the intensity was possibly insufficient to influence change in a direct measure of exercise capacity (i.e., peak oxygen uptake) (Maddison et al., 2015).

Data from these four strong RCTs support that web-based interventions can improve both objective and subjective measures of physical activity in CAD patients. For objective measures, results are more consistent in a measure of physical activity behaviour (i.e., steps per day by activity tracker), and inconsistent in measures of physical fitness (i.e., exercise capacity by treadmill). Specifically, steps per day and maximal time on treadmill may be more amenable to improved changes by an intervention as compared to a direct measure of exercise capacity such as peak oxygen uptake.

For subjective measures, some improvements were found among the three strong RCTs measuring self-reported MVPA (Lear et al., 2014; Maddison et al., 2015; Reid et al., 2012). Using the modified Godin Leisure-Time Exercise Questionnaire (GLTEQ), Reid et al. (2012) found a significant effect in weekly minutes of MVPA. The modified GLTEQ asks the weekly frequency of MVPA performed (e.g., fast walking for moderate and running for vigorous) for at

least 15 minutes in the last three months, and total time spent on average in MVPA. Using the International Physical Activity Questionnaire (IPAQ long form), Maddison et al. (2015) found significantly greater levels of leisure-time MVPA, which were domain specific to, for instance, recreation, sport or exercise. The IPAQ long form asks frequency and time spent in domains of activities in the last seven days. Using the Minnesota Leisure-Time Physical Activity (LTPA) Questionnaire, Lear et al. (2014) found a non-significant minimal difference in kilocalories per week of leisure-time MVPA. The Minnesota LTPA asks frequency and time spent in domains such as conditioning exercise, water activities, and winter activities in the last four weeks. Although one marked difference across these three questionnaires is the length of recall, this cannot explain the mixed results as significant effects were found in the shortest (seven days in the IPAQ) and the longest (three months in the modified GLTEQ) recall lengths. However, sample size may provide an explanation as only the smallest sample RCT was non-significant, in which the differences in physical activity were minimal (Lear et al., 2014).

The remaining three RCTs (Antypas & Wangberg, 2014; Lindsay et al., 2008; Southard et al., 2003) provided weaker evidence in part because of the lack of planning an objective physical activity primary outcome, and instead planned subjective primary or secondary outcomes. Among these three interventions one was tailored (Antypas & Wangberg, 2014), and two were non-tailored (Lindsay et al., 2008; Southard et al., 2003).

The tailored intervention, using a self-reported measure of total energy expenditure as the primary outcome, found a significant effect post-intervention in favour of the EG (Antypas & Wangberg, 2014). The authors compared a tailored mobile phone and web-based intervention EG to a non-tailored website CG. After randomization (n = 29 in the EG versus n = 40 in the CG), baseline measures were collected during a four-week cardiac rehabilitation program, and total energy expenditure was balanced between groups, despite unequal group sizes: 4,266 (EG n = 29) versus 3,810 (CG n = 38) MET-minutes per week. However, upon receiving the tailored intervention at cardiac rehabilitation discharge, the CG had a greater number of participants lost to follow-up: 15 versus 21 participants in the EG and the CG respectively (see flow diagram of the study, and note the error of n = 39 in the CG). The CG observed significantly greater total energy expenditure: 875 (EG n = 14) versus 4,590 (CG n = 19) MET-minutes per week, p = .02. At three months after discharge, the difference in numbers of loss to follow-up was minimal between comparison groups, and the EG observed significantly greater energy expenditure:

5,613 (EG n = 7) versus 1,356 (CG n = 11) MET-minutes per week, p = .02. The authors note that the presence of attrition bias risk and small numbers of participants remaining for analyses indicates an inconclusive finding on the primary outcome (Antypas & Wangberg, 2014).

The next two RCTs tested non-tailored interventions that measured self-reported physical activity by two different questionnaires as secondary outcomes, and found either a positive but non-significant result or no significant effect. Southard et al. (2003) reported a non-significant improvement over time in self-reported minutes per week of aerobic exercise in favour of the six-month Internet-based management system EG: 150 to 208 (EG, n = 49) versus 142 to 165 (CG, n = 51) from baseline to six-months, $p > .05$). The authors proposed that non-significance may have been from a lack of understanding the word "aerobic" in the questionnaire, resulting in a large variance of the point estimate (variance not reported in table of outcomes) (Southard et al., 2003).

Lindsay et al. (2008) found no significant effect between groups in self-reported physical activity (no primary outcome determined) comparing the effect of a six-month Hearts of Salford web-based portal EG versus a usual care CG that had no access to the portal. Specifically, change in days per week of self-reported moderate-intensity exercise from baseline to six-months was less than one day in each comparison group resulting in a non-significant difference (n = 98, p = .371). Lindsay et al. proposed that the lack of effect was from a greater preoccupation with learning how to use the portal than on adopting health behaviour changes. Moreover, their qualitative data revealed that the online discussions focused more on improving diet instead of other health behaviour changes such as increasing physical activity. Therefore, logistical issues concerning portal usage along with a lack of online discussion about physical activity may have resulted in insufficient intervention usage to influence significant change in this behaviour. Considering these three RCTs, the presence of attrition bias (Antypas & Wangberg, 2014), lack measurement precision (Southard et al., 2003), and lack of sufficient intervention intensity (Lindsay et al., 2008) prevent drawing firm conclusions on the interventions' effects on physical activity outcomes.

In summary, the data support that tailored interventions can improve objectively measured steps per day and self-reported physical activity, however strong evidence was found only among two RCTs (Devi et al., 2014; Reid et al., 2012). In non-tailored interventions

evidence is inconsistent on objectively measured exercise capacity and self-reported physical activity, and strong evidence was found only among two RCTs (Lear et al., 2014; Maddison et al., 2015). The paucity of strong evidence on objectively measured physical activity outcomes highlights the need for future well designed RCTs testing web-based interventions in the CAD population.

What are the effects of web-based interventions on other outcomes in CAD patients?

All seven RCTs measured other outcomes, which we classified among five categories: quality of life and depression, other health behaviour changes, clinical outcomes, and emergency department visits and hospitalizations, and theoretical variables.

Quality of life and depression

Four out of seven RCTs measured quality of life outcomes (Devi et al., 2014; Maddison et al., 2015; Reid et al., 2012), and one did not report the follow-up measures (Southard et al., 2003). At least one quality of life domain was improved in favour of the EGs among these three RCTs concerning differences between groups or difference in change between groups at any follow-up. Significant effects were found in emotional (Devi et al., 2014; Reid et al., 2012), physical (Reid et al., 2012), social (Devi et al., 2014), and general health quality of life (Maddison et al., 2015). Although these results indicate that significant improvements are found in some quality of life domains immediately post-intervention as early as six weeks, there is no clear trend in which domain the improvements occur. One explanation is the use of two different measures which could yield different results across domains, such that the SF36 questionnaire was used in one RCT (Maddison et al., 2015) and the MacNew questionnaire was used in the other two RCTs (Devi et al., 2014; Reid et al., 2012). However, considering the MacNew questionnaire, whereas emotional quality of life was significant in both RCTs, the physical and social domains were significant in one or the other RCT. One explanation is related to the target population as Reid et al. recruited ACS patients, and Devi et al. recruited stable angina patients. Therefore, improvement in a quality of life domain (emotional, physical, or social) by a web-based intervention may depend on whether the sample recruited is recovering from an ACS event or living with stable CAD.

Three out of seven RCTs measured depression, but none found significant effects between groups (Antypas & Wangberg, 2014; Devi et al., 2014; Southard et al., 2003) despite significantly improved physical activity outcomes in favour of the EGs in two of these RCTs (Antypas & Wangberg, 2014; Devi et al., 2014). Devi et al. (2014) and Antypas and Wangberg (2014) both measured depression with a subscale from the Hospital Anxiety and Depression Scale. Therefore, the significant increases in physical activity attained in these RCTs were possibly insufficient to influence significant decreases in depression symptoms.

Other health behaviour changes

Other health behaviour changes measured in five out of seven RCTs included medication use (Reid et al., 2012), smoking status (Lear et al., 2014; Lindsay et al., 2008; Reid et al., 2012; Southard et al., 2003), and diet (Devi et al., 2014; Lear et al., 2014; Lindsay et al., 2008; Southard et al., 2003). Although the intervention goal in Reid et al. (2012) focused only in change in physical activity, the other RCTs also focused on other health behaviour changes, which aimed at reducing cardiac risk factors (Devi et al., 2014; Lear et al., 2014; Lindsay et al., 2008; Southard et al., 2003).

Overall, evidence supporting the effect of a web-based intervention on health behaviour changes other than physical activity is sparse and weak. For instance, only Reid et al. (2012) presented data on medication use. Overall, among four cardiac medications, use decreased over time in both the EG and CG, except the use of one cardiac medication that increased over time in the EG (Reid et al., 2012). As medication use was presented without using a measure of adherence with statistical testing, these results are difficult to interpret.

For smoking status, the results are also inconclusive. Among the three RCTs that planned statistical analyses on change in smoking status, no differences between comparison groups were found (Lear et al., 2014; Lindsay et al., 2008; Southard et al., 2003). However, little can be concluded from the result in Lindsay et al. (2008) because of a lack of intervention intensity to influence significant improvements in health behaviours other than diet. Also, no or minimal change in numbers of participants smoking over time was shown or reported without statistical tests (Lear et al., 2014; Southard et al., 2003). Therefore, no firm conclusions on medication adherence or smoking status can be drawn due to the paucity of solid evidence.

All four RCTs that measured outcomes on diet included an intervention focus on improving diet, and provided statistical testing to compare results (Devi et al., 2014; Lear et al., 2014; Lindsay et al., 2008; Southard et al., 2003). Although two RCTs found no significant effects (Devi et al., 2014; Southard et al., 2003), two RCTs found significantly greater improvements in favour of the EGs as compared to the CGs in some outcomes (Lear et al., 2014; Lindsay et al., 2008). Specifically, Lindsay et al. (2008) found a significantly greater decrease over time in frequency of eating 'bad' foods in favour of the EG as compared to the CG (p = .014), and Lear et al. (2014) found a significantly greater increase in percent change of daily kilocalories of dietary protein, and a significantly greater decrease in percent change in daily kilocalories of saturated fat in favour of the EG as compared to the CG (all $p < .05$). Although the data is sparse, there is evidence supporting the possibility of improving some diet outcomes by a web-based intervention that includes a focus on improving diet.

Clinical outcomes

Three out of seven RCTs measured clinical outcomes (Devi et al., 2014; Lear et al., 2014; Southard et al., 2003). All three RCTs assessed anthropometric measurements (e.g., weight, waist circumference, and others) and blood pressure (Devi et al., 2014; Lear et al., 2014; Southard et al., 2003), two measured angina symptoms (Devi et al., 2014; Southard et al., 2003), and another two measured lipid profile (Lear et al., 2014; Southard et al., 2003). Significant improvements in favour of the EGs compared to the CGs were a reduction in weight ($p < .05$) in two of the three RCTs (Devi et al., 2014; Southard et al., 2003), a reduction in angina symptom frequency (p = .002) in one of the two RCTs (Devi et al., 2014), and a reduction in total cholesterol and low-density lipoprotein ($p < .05$) in one of the two RCTs (Lear et al., 2014). However, a significantly greater decrease in systolic blood pressure over time at six weeks in favour of the CG compared to the EG (i.e., both groups decreased) was found in Devi et al. (2014) (p = .001 in text and .003 in table), but the difference between groups over time was less pronounced at six months post-intervention completion, and was not statistically significant (p = .53). Otherwise, in Lear et al. (2014), an improvement in systolic blood pressure approached significance (p = .051). Although the evidence is sparse and inconsistent on clinical outcomes, improvements were nonetheless found in weight, angina symptoms, and lipid profile.

Emergency department visits and hospitalizations

Three RCTs measured major cardiovascular events leading to emergency department visits and hospitalizations by comparison group (Lear et al., 2014; Reid et al., 2012; Southard et al., 2003). Among the two RCTs that provided statistical testing, Southard et al., 2013 found two EG patients (4.1%) who experienced a major cardiovascular-related event that resulted in a hospitalization or emergency department visit as compared to eight CG patients (15.7%), and this difference approached statistical significance ($p = .053$). Lear et al. (2014) found fewer EG versus CG patients (six [18%] versus 11 [30%] respectively) reporting both emergency department visits or major events resulting in hospitalization (e.g., revascularization, unstable angina, stroke, and death), although differences between comparison groups was not significant ($p = .275$). Although these two RCTs lacked power to detect differences, the direction of effect is toward less emergency department visits and hospitalizations in favour of the web-based intervention EGs.

Theoretical variables

Inspired by relevant literature (Sidani & Braden, 2011), theoretical variables are defined in this thesis as variables that are drawn from a theoretical framework, explain the phenomenon of behaviour change (i.e., increased physical activity), are potentially amenable to change by an intervention, and are measurable. The term 'construct' represents an abstraction, referring to a group of measurable variables, which share related characteristics of a single concept, although 'constructs' and 'variables' may be used, sometimes, interchangeably.

Four RCTs measured the effect of the web-based interventions on theoretical constructs or variables (Antypas & Wangberg, 2014; Devi et al., 2014; Lindsay et al., 2008; Maddison et al., 2015). Two of these RCTs found significant effects on at least one theoretical variable measured (Devi et al., 2014; Maddison et al., 2015). Devi et al. (2014) targeted patients' confidence in increasing physical activity (i.e., self-efficacy) with the use of behaviour change techniques such as goal setting, self-monitoring, and feedback. They found a significantly greater increase in general self-efficacy over time at six weeks in favour of the EG as compared to the CG ($p = .03$), but the difference was not significant at six months post-intervention. Maddison et al. (2015) also targeted self-efficacy with the use of behaviour change techniques such as overcoming barriers to be physically active, scheduling daily exercise, and goal setting. They

found a significantly greater level of task self-efficacy (also known as exercise self-efficacy) at 24 weeks in favour of the EG as compared to the CG ($p = .04$). In a previous report of the same RCT, Maddison and colleagues found evidence supporting a significant partial mediating role of exercise self-efficacy on self-reported leisure-time MVPA indicating that the increase in exercise self-efficacy partly explained the intervention's significantly positive effect on MVPA (Maddison et al., 2014). Although walking was also significant in this RCT, no mediating role for self-efficacy was found for this outcome (Maddison et al., 2014).

Other theoretical variables measured by Maddison et al. (2015) were barrier self-efficacy and locus of causality, and these were not significant ($p > .05$). In their protocol, Maddison and colleagues defined barrier self-efficacy (social cognitive theory) as the degree of confidence to overcome barriers (e.g. inclement weather, pain, and others) to exercise, and locus of causality (self-determination theory) as the degree one feels that exercise performance is by personal choice (Maddison et al., 2011). For barrier self-efficacy, Maddison et al. explained: "…we did not pre-determine whether these barriers were salient for our participants, which may have contributed to these (non-significant) results" (p. 708), although their measure was drawn from their past work that found a significant and positive association between barrier self-efficacy and attendance at an exercise program in ischemic heart disease patients (Maddison & Prapavessis, 2004). Maddison and colleagues did not present explanations for the lack of effect on locus of causality, but the description of their intervention appeared focused on targeting change in self-efficacy variables with no mention of targeting change in locus of causality. As such, the lack of effect on locus of causality may be due to the lack of targeting change in this theoretical variable.

The two other RCTs found no significant effects on the measured theoretical variables (Antypas & Wangberg, 2014; Lindsay et al., 2008). Specifically, Lindsay et al. (2008) measured confidence in managing health, and health locus of control, and Antypas and Wangberg (2014) measured stage of change (i.e., readiness adopt a specified health behaviour), and self-efficacy. In Lindsay et al., it is possible that a lack of intervention intensity resulted in a lack of change in the theoretical variables. In Antypas and Wangberg, methodological limitations prevent drawing conclusions on the effect of their intervention on measured theoretical variables.

Taken together, the strongest evidence supporting the effect of web-based interventions on theoretical variables comes from Maddison et al. (2015) and Devi et al. (2014). Although

significant effects on self-efficacy was found in these two RCTs, no significant effects were found in the other theoretical variables measured (e.g., barrier self-efficacy, and locus of causality). Congruent with Maddison and colleagues, future research should explore other theoretical constructs or variables that may further explain web-based interventions effects.

What are the gaps in the CAD web-based intervention literature?

We found only three out of seven RCTs that tested computer-tailored interventions (Antypas & Wangberg, 2014; Devi et al., 2014; Reid et al., 2012), and another provided "personalized" SMS messages visible also by web (Maddison et al., 2015), but no clear evidence of computer-tailoring was presented. A wide range of tailoring is implemented in web-based interventions, which according to Lustria et al. (2009), may be classified along a continuum of sophistication. Whereas less sophisticated tailored interventions generally consist of assessment and feedback on health risk factors, more sophisticated ones (or customized health programs) consist of behaviour change techniques that may help patients attain their health behaviour change goals (Lustria et al., 2009). These three tailored interventions (Antypas & Wangberg, 2014; Devi et al., 2014; Reid et al., 2012), leaned towards greater sophistication (i.e., customized health program) because they provided advice, feedback, and behaviour change techniques aimed at increasing physical activity, rather than only providing simple feedback on assessment results. Given the paucity of evidence, it may be worthwhile to conduct further RCTs testing tailored interventions in CAD patients.

Only Reid et al. (2012) showed that participants were insufficiently active at baseline according to self-report (Reid et al., 2012). Reid et al. (2012) possibly attained such a sample by only including participants that reported no plan to attend a secondary prevention program, although, no specific criterion to exclude sufficiently active participants was implemented. Reid et al. however did not measure steps per day at baseline, making it impossible to know how the primary outcome changed from randomization to follow-up. As greater effects on physical activity outcomes in insufficiently active adult populations were found in a recent meta-analysis (Davies et al., 2012), it may be of value to further examine the effect of a web-based intervention on increasing steps per day from randomization to follow-up in an ACS population that is insufficiently active at recruitment regardless whether attendance to a secondary prevention program is planned.

Most interventions lasted at least three months or longer. Specifically, two interventions lasted three or four months (Antypas & Wangberg, 2014; Lear et al., 2014), three lasted six months (Lindsay et al., 2008; Maddison et al., 2015; Southard et al., 2003), and one lasted for nearly one year (Reid et al., 2012). Devi et al. (2014) tested the shortest duration intervention and found a positive effect on steps per day at the end of the six-week intervention, but the difference in favour of the EG was not significant at six months post-intervention completion. Devi et al. argued that in regular practice, such a web-based intervention would remain available after the designated intervention duration. As such, they hypothesized that continued access to their intervention beyond its completion at six-weeks could have influenced significant improvements in physical activity also at six months (Devi et al., 2014). Therefore, little is known concerning the lasting effect of shorter duration web-based interventions that have continued access post-intervention in ACS patients.

No RCTs examined if the intervention's effects on physical activity would depend on the sex of the patient. Indeed, females consistently demonstrated lower levels of physical activity outcomes in longitudinal cohort studies (Apullan et al., 2008; Leung et al., 2007; Reid et al., 2006). In contrast, web-based interventions in the general population have been primarily tested in female populations, and have found positive and significant effects on physical activity outcomes (Davies et al., 2012). Therefore, it may be of value to compare physical activity outcomes after participating in a web-based intervention in male and female CAD patients.

In summary, web-based interventions in CAD patients may increase objective measures of physical activity behaviour (i.e., steps per day), fitness (i.e., maximal time on treadmill), as well as subjective measures of behaviour (i.e., walking and MVPA). In addition, improvements were found in emotional, physical, and social quality of life domains, although the results were inconsistent. In contrast, although the presence depressive symptoms may influence lower levels of physical activity, no effect on improvement in symptoms has been found in the web-based interventions reviewed. Evidence was sparse and weak in the retained RCTs in support of the 'gateway effect' (i.e., change in one health behaviour leads to change in others), therefore, no conclusions could be drawn particularly concerning potential improvements in medication adherence, and smoking status. Although some improvements in diet outcomes were found in interventions that had a focus on diet, it is unknown if a 'gateway effect' effect from a web-based physical activity intervention can improve diet. Also, improvements in some clinical outcomes

were found such as decreased angina, along with a consistent tendency toward fewer emergency department visits and hospitalizations favouring the EGs. On a theoretical level, preliminary evidence supports that increased self-efficacy may in part explain increased physical activity, indicating that efforts in influencing change in this construct is worthwhile. However, as evidence is sparse, other theoretical constructs could be explored that may further explain the effects of these interventions. A paucity of RCTs tested tailored interventions, interventions in CAD patients that report insufficient activity prior hospitalization, short-duration interventions, and no RCTs tested the differential effect of web-based interventions in males and females. Further review of the literature is warranted to help delineate a theoretical framework, behaviour change techniques, modes of delivery, and dose, which could optimize the effects of web-based physical activity interventions in ACS patients that are insufficiently active.

Part 2: Intervention Design of TAVIE en m@rche

Systematic approaches in nursing intervention design can be inductive or deductive (Sidani & Braden, 2011). Although inductive approaches are experiential involving direct input from potential intervention providers and patients, deductive approaches are theory-driven, indicated when a solid body of literature exists on the phenomenon of interest. Proponents of the latter suggest that the chosen theoretical framework should guide the choice of theoretical constructs (and corresponding variables), which explain the phenomenon and are amenable to change by an intervention, and the choice of intervention elements that include strategies, mode of delivery, and dose (Sidani & Braden, 2011). The present work uses a deductive, theory-driven approach because of the extant body of theoretical and empirical knowledge on human motivation in physical activity (Ryan, 2012).

For our intervention design, we retained an integrated theoretical framework consisting of the Strengths-Based Nursing Care approach to nursing practice (Gottlieb, 2013) with the Self-Determination Theory on human motivation (Deci & Ryan, 1985). The technology retained that allowed developing a fully-automated web-based tailored intervention for our design was the TAVIE™ platform. A central feature of TAVIE™ is the use of videos of a real nurse, the Virtual Nurse, that delivers the intervention content, guiding participants through the tailored intervention.

Part 2 is divided into two sections. Section 1 presents a Concept Analysis Article of an autonomy supportive intervention, which originated mainly from empirical works in Self-Determination Theory. This article helped lay one of the key building blocks of the intervention's integrated theoretical framework, which is presented later within Section 2. Section 2 presents the systematic deductive approach of our literature review for the intervention design of TAVIE en m@rche, in which the autonomy supportive intervention is integrated in the theoretical framework. We now bring your attention to the Concept Analysis Article. As with all Articles in this thesis, the full citations are found in the References section.

Part 2, Section 1: Concept Analysis Article

Citation : Kayser, J. W., Cossette, S., & Alderson, M. (2014). Autonomy-supportive intervention: An evolutionary concept analysis. *Journal of Advanced Nursing, 70*(6), 1254-1266. doi:10.1111/jan.12292

Abstract

Aim. This paper is a report of an analysis of the concept of an autonomy supportive intervention.

Background. A large proportion of chronic illnesses can be prevented by positive health behaviour changes. The aim of an autonomy supportive intervention is to increase perceived autonomy support, which in turn increases positive health behaviour changes. Its known core components are: choice, rationale and empathy. Identifying and analyzing the antecedents, attributes and consequences of an autonomy supportive intervention will increase the clarity of this concept.

Design. Concept analysis

Data Sources. Sources were 63 papers describing an autonomy supportive intervention in health behaviour changes indexed in CINAHL, PsycINFO and MEDLINE (all dates until July 2012).

Methods. Rodgers' evolutionary method of concept analysis was used to help identify and analyze the antecedents, attributes and consequences of the concept.

Results. More evolution was found in the disciplines of nursing and psychology compared with medicine in relation to the use of an autonomy supportive intervention in theoretical frameworks. The antecedents included assessment prior intervention delivery, intervention providers' beliefs and skills training. A lack of homogeneity in the manner of which the attributes were described was found in the literature across disciplines and the attributes were classified under five components instead of three: choice, rationale, empathy, collaboration and strengths.

Conclusion. An autonomy supportive intervention is a useful concept across health care disciplines and future research should aim at identifying which attributes and components of an autonomy supportive intervention may be more effective in increasing perceived autonomy support.

Keywords: concept analysis, autonomy supportive intervention, nursing intervention, self-determination theory.

Introduction

More than half of all global deaths are due to major chronic illnesses such as cardiovascular, diabetes, respiratory and cancers (World Health Organization, 2011). A large proportion of these deaths can be prevented by positive health behaviour changes such as smoking cessation and increasing physical activity (World Health Organization, 2011). Promoting self-care in the management of chronic illnesses is also a growing priority (Johnston, Irving, Mill, Rowan, & Liddy, 2012). However, current world-wide epidemics in major chronic illnesses are evidence to the limited effectiveness of population and individual-based health care interventions (World Health Organization, 2011). Therefore, generating new knowledge in nursing interventions to increase positive health behaviour changes is a priority.

An intervention is an action, or group of actions, that is delivered to another with the purpose of fostering a positive outcome and can be justified by a sound rationale (Sidani & Braden, 2011). An *autonomy supportive intervention* (ASI) is one example of such an intervention that has emerged in the health care literature in the past three decades. An expected positive outcome of an ASI is the influence it has on the human perception that one's decision to increase positive health behaviour changes was supported by the social environment (e.g., health professionals) without coercion or pressure (Deci & Ryan, 1985). This proximal outcome—a mediator of an ASI—is known as *perceived autonomy support* (PAS). Recent meta-analyses support the positive association between ASI and PAS wherein PAS is an important predictor of health outcomes (Ng et al., 2012; Teixeira et al., 2012). This paper is a report of an analysis of the concept of an ASI.

Background

The origin of an ASI lies in Self-Determination Theory (SDT). SDT suggests that socio-environmental factors can be combined in an ASI, which in turn will positively affect health behaviour changes (Deci & Ryan, 1985). The effect of an ASI is mediated through three interrelated variables: PAS, psychological needs and behavioural regulations. PAS is the perception of the degree of the quality of an ASI received from the social environment including

non-professional social networks, health professionals or society at large (Williams, Gagne, Ryan, & Deci, 2002). Psychological needs include the need for autonomy—feeling ownership in one's choice for positive behaviour changes; the need for competence— feeling that one has the ability to attain the chosen behaviour change; and the need for relatedness— feeling that one is understood and cared for by others in relation to the behaviour changes. SDT posits that the satisfaction of these needs leads to increased behavioural regulation. Behavioural regulation is the process of internalizing motivation toward behaviour change that lies on a continuum between highly controlled and highly autonomous motivations. While controlled behavioural regulation is the experience that the behaviour change was caused by interpersonal or internal pressure or coercion, autonomous behavioural regulation is the experience that the behaviour change originated in volition and is aligned with the person's profoundly held values (Minicucci, Schmitt, Dombeck, & Williams, 2003). Therefore, in SDT, an ASI is expected to increase PAS which in turn, satisfies the three psychological needs. These satisfied needs then positively influence the internalization of motivation toward autonomous behavioural regulation. This results in the increase of positive health behaviour changes (Ng et al., 2012).

An Autonomy Supportive Intervention (ASI)

Given that the proximal outcome of an ASI is PAS, we retained the original definition of an ASI as an intervention aimed at increasing PAS wherein its core intervention components are: 1) offering *choice* in engaging in an activity or in the choice of activities, 2) providing a *rationale* about the importance of an activity and 3) expressing *empathy* through the acknowledgment of feelings and perspectives (Deci, Eghrari, Patrick, & Leone, 1994). However, a cursory review revealed that the nature of an ASI may be subjected to a variety of interpretations because the attributes of each broad component have not yet been identified. Furthermore, literature reveals a lack of an examination of interdisciplinary use and evolution of this concept. Therefore, a concept analysis of an ASI was performed to fill these knowledge gaps. The aim of this paper was to identify and analyze the antecedents, attributes and consequences across disciplines of an ASI using Rodgers' evolutionary method in concept analysis.

Rodgers' evolutionary method was chosen because it emphasizes the evolution of the concept's use over time and because it is aligned with dispositional theories where concepts

represent a meaning of a term (Hallett, 1967; Wittgenstein, 1968). Concepts defined under this philosophical orientation can be analyzed through its antecedents, attributes and consequences (Rodgers, 2000). The antecedents are the events that precede the concept. The attributes, central to Rodgers' evolutionary method, are defined as the characteristics of a concept. The consequences are the causal events or outcomes that happen after the concept. This analysis involved six activities: 1) identify the concept with its surrogate and related terms; 2) identify the concept in time and describe its history across disciplines; 3) identify the concept's attributes across disciplines; 4) identify the antecedents and consequences of the concept across disciplines; 5) if possible, present an exemplar case identified from the literature; and 6) propose a conceptual model of the concept and suggest implications.

Questions were established to help classify the data during the first four activities (Rodgers, 2000). For 'surrogate' and related terms, the question was: What are the synonyms and closely related terms of an ASI? For 'history', the question was: What is the history of the concept of an ASI across disciplines? For 'antecedents', the questions were: What needs to be assessed before delivering an ASI? What attitude, perceptions, or beliefs does the intervention provider need to have before delivering an ASI?; and What skills are needed in the intervention provider to provide an ASI? For *attributes*, the question was: When observing an ASI in practice, what are its attributes? For *consequences*, the questions were: What are the possible outcomes of an ASI on health behaviours? What are its possible mediators?

Data sources

Literature for this concept analysis was drawn from three disciplines: nursing, psychology and medicine. The multidisciplinary focus of this analysis is timely because of the current movement toward interprofessional collaboration (Zwarenstein, Goldman, & Reeves, 2009). In addition, these three disciplines are major contributors to the scientific literature on health behaviour changes. CINAHL, PsycINFO and MEDLINE databases were queried using the following terms: 'autonomy' and 'support$' or 'autonomy supportive intervention$' in the title; combined with 'intervention' or 'program$' or 'approach$' or 'counsel$' or 'behavio$' or 'context$' or 'environment$' or 'style$' or 'climate$.' The 204 citations found in this search were combined to an additional 98 citations found using first authors' names in reference lists in key papers including peer reviewed papers reporting dissertation work. These 302 citations were

considered in relation to the following inclusion criteria: 1) the words 'autonomy' and 'support' in the title or abstract; 2) providing a sufficient description of an ASI; and 3) identifying an outcome related to increasing a positive health behaviour change(s) in the prevention of illnesses or in the management of acute or chronic illnesses. Primarily focused on adult health, the topic of physical activity in children was included because of its importance in the prevention of cardiovascular diseases in adulthood (Halfon, Verhoef, & Kuo, 2012). Exclusion criteria were; 1) languages other than English; 2) syntheses such as book chapters, literature reviews and concept analyses because we aimed to analyze primary sources; and 3) dissertations that did not result in a publication in a peer reviewed journal. Excluded publications included those focusing on academic achievement or learning, career achievement or work-related behaviours, competitive sports or arts, functional autonomy, parenting or child development and social identity or support. The resulting 63 papers included in this analysis were classified by discipline: nursing (17); psychology (20); and medicine (26).

These data were entered into three main spreadsheet databases: a reference list database, a database of antecedents and consequences and a cross-table database for the attributes. The reference list database listed all papers' details including for instance, the year of publication, discipline, design, target behaviour and theory used. Words and phrases relevant to antecedents and consequences of an ASI were included in a database and were compared for commonalities resulting in categories stratified by discipline. The cross-table database listed the references in the first column and an ASI attribute list was created in the top row. To create the list of attributes for the top row, the actual words used to describe an attribute were included in a separate database associated with a numerical code for ease of manipulation. Each attribute number was then entered in the top row of the cross-table database. This cross table permitted the calculation of a complete count of attributes per paper in the rows and a complete count of papers per attribute in the columns. These databases enabled a systematic analysis of the concept.

Results

Surrogate Terms

Surrogate terms are synonyms to the concept analyzed (Rodgers, 2000). While the term 'ASI' was found in only two papers (Moustaka, Vlachopoulos, Kabitsis, & Theodorakis, 2012; Williams, Gagne, et al., 2002), 'autonomy support' was among those most frequently cited.

Coherent with the original general definition of an ASI (Deci et al., 1994), 'autonomy support' was described in the literature across disciplines as a set of behaviours or actions by a person or social group that offers choice, rationale and empathy with the aim to increase PAS in a target population. Hence, 'autonomy support' can be considered a synonym to 'ASI.'

'Autonomy supportive environment,' was another surrogate term most commonly used in medicine (Moustaka et al., 2012; Roemmich, Lambiase Ms, McCarthy, Feda, & Kozlowski, 2012; Rouse, Ntoumanis, Duda, Jolly, & Williams, 2011) and in nursing (Husted, Thorsteinsson, Esbensen, Hommel, & Zoffmann, 2011; Ryden, 1985), but less commonly used in psychology (Hill & Sibthorp, 2006). An 'autonomy supportive environment' adds the notion of social structure, network or resources in the ASI (Hill & Sibthorp, 2006; Rouse et al., 2011; Ryden, 1985). 'Environment' is a term particularly salient in nursing because nurses take on important roles in shaping their patients' environments (Ryden, 1985). Therefore, 'autonomy supportive environment' can be considered a synonym to 'ASI' describing attributes referring to the provision of support from the social environment, but positioned in an ASI.

Related Terms

Concepts that are similar yet different from the concept analyzed are known as related terms (Rodgers, 2000). One common related term identified was 'autonomy supportive style.' It was most commonly used in medicine (Moustaka et al., 2012; Resnicow et al., 2008; K. L. Russell & Bray, 2010; Williams, Cox, Kouides, & Deci, 1999; Williams & Deci, 2001; Williams, Gagne, Mushlin, & Deci, 2005; Williams, Gagne, et al., 2002), less commonly used in psychology (Hagger et al., 2007; Solloway, Solloway, & Joseph, 2006), but not used in nursing. While s*tyle* implies an inherent interpersonal quality in intervention providers, the term *intervention* in ASI, implies a purposeful act that is a product of critical thinking and clinical judgement and aims to affect beneficial outcomes in others. Therefore, 'autonomy supportive style' was related but not synonymous with ASI.

History

In the literature examined, an ASI has been described over time from 1985 to 2012 in a variety of study designs including theoretical papers. There was an apparent lack of evolution on how an ASI was used within target health behaviours and populations among the disciplines. While over time, nursing maintained its focus on self-care in chronic illness adult populations;

psychology maintained a diverse focus on multiple types of health behaviours such as physical activity, diet, smoking cessation and self-care, in healthy adult or adolescent and in chronic illness populations. Medicine, over time, had a primary focus on physical activity, but in diverse populations including healthy adults and in those with a chronic illness.

However, the concept of an ASI appears to have evolved in its theoretical grounding in nursing and psychology, but not in medicine. In nursing the use of an ASI was originally used without a theoretical base. In the present sample of papers, in 2003, Minicucci et al. were the first to embed their autonomy supportive smoking cessation intervention in a theoretical framework that integrated Gadow's nursing moral framework and SDT (Minicucci et al., 2003). Since then, SDT was the framework of choice in all nursing papers that based their study on a theoretical framework (Husted et al., 2011; Johnson, 2007; Jorgensen, Hansson Professor, & Zoffmann, 2012; C. L. Russell et al., 2011). In contrast, psychology had originally used an ASI in SDT until 2007. After 2007, there was evidence of the use of an ASI embedded into a theory other than SDT. For instance, Chatzisarantis and colleagues examined the influence of an autonomy supportive environment, a synonym to ASI, using the Theory of Planned Behaviour (TPB) (Chatzisarantis, Hagger, & Smith, 2007). Chatizisarantis and colleagues continued to use the TBP until the work by Hagger et al. in 2009 who clearly integrated the two theoretical frameworks: SDT in the TPB (Hagger et al., 2009). Medicine maintained the use of an ASI in SDT over time with the exception of (Shen, 2010), who like Chatzisarantis and colleagues, examined an ASI in the TPB.

Given that the concept of an ASI is principally embedded in SDT across disciplines, the definition of an ASI remained unchanged over time emphasizing its three core components—choice, rational and empathy—and its expected effect on PAS. However, an important number of nursing papers lacked a theoretical framework. In these, no clear definition of an ASI was proposed but instead, they referred to the attributes of an ASI which will be analyzed in the following section *attributes*.

Antecedents

Three types of antecedents emerged from the analysis. Examples stratified by discipline are provided in Table 2. They were grouped under the following three categories: 1) potential

moderators to assess prior to delivering an ASI; 2) intervention providers' attitudes, perceptions, or beliefs; and 3) skills training.

Table 2. Antecedents stratified by discipline

Antecedent	Nursing	Psychology	Medicine
Potential moderators to assess prior to delivering an ASI	Change in the need for autonomy support		Patient preference for autonomy support
	Psychological readiness for autonomy support based on individual recovery trajectories		Gender
Intervention providers' attitudes, perceptions or beliefs	Hold values such as honesty, integrity and courage	Ability to understand clients' perspective	
		Non-judgmental attitude	
Skills training	Communication skills	Communication skills	Communication skills
	In the care of residents in long-term care	In the provision of physical education classes for students	In the provision of physical education classes for students
		In counseling for life-style risk reduction	

Note. ASI = Autonomy supportive intervention

Potential moderators to assess prior to delivering an ASI

The literature examined allowed the discovery that certain subgroups of individuals may benefit more or less from an ASI due to human development, illness recovery trajectory and personal preference or characteristics. In nursing, Karlsson, Arman, and Wikblad (2008) found that the level of autonomy support (in an ASI) in self-care among diabetic adolescents should be sensitive to their changing needs in autonomy support. Proot, ter Meulen, Abu-Saad, and Crebolder (2007) suggested that an ASI should be tailored to the psychological readiness of stroke patients' individual recovery trajectory. Two papers illustrated that patient preferences in

autonomy support may moderate the effect of an ASI on outcomes. Resnicow et al. (2008) found that fruit and vegetable intake only increased in patients who preferred autonomy supportive-type of written communication and not in those who preferred regular-type written communication in newsletters. Lee and Lin (2010) found higher health related quality of life scores in diabetic patients who preferred high levels of information from their physicians rather than in those who preferred low levels. Finally, gender may also moderate the effect of an ASI as Roemmich et al. (2012) found that providing choice (a component of an ASI) had a greater effect on increasing physical activity in girls than in boys.

Intervention providers' attitudes, perceptions, or beliefs

In nursing, Minicucci et al. (2003) argued that for nurses to provide an ASI, they must hold personal values such as honesty, integrity and courage. In psychology, Hill and Sibthorp (2006) noted the importance in camp counselors' ability to understand the perspective of diabetic children campers to enable the provision of an ASI. Furthermore, having a non-judgmental attitude was highlighted as an important quality in smoking cessation counselors delivering an ASI (Niemiec, Ryan, Deci, & Williams, 2009).

Skills training

The importance of teaching communication skills for an ASI were highly cited in medicine (Juul, Maindal, Zoffmann, Frydenberg, & Sandbaek, 2011; Moustaka et al., 2012; Silva et al., 2010; Tessier, Sarrazin, & Ntoumanis, 2008; Williams, 2002), but sparingly cited in nursing (Atkins, 2006; Husted et al., 2011) and in psychology (Chatzisarantis, Hagger, Wang, & Thogersen-Ntoumani, 2009). One example of needed communication skills was found in Juul et al. (2011) who described in their study protocol a specific set of communication skills (e.g., active listening and values clarification) taught to the study nurses during a 16-hour training. Across disciplines, the need for skills training for an ASI was generally supported in all professionals including nurses, physicians, psychologists, counselors and teachers.

Attributes

The attributes are presented in Table 3 in descending order of frequency in its component across the 63 papers. As an ASI was theoretically grounded in SDT since its beginning in psychology, we choose to retain the three core components described in SDT to classify the

attributes found in the literature according to Deci and colleagues' definitions. *Choice* is defined as one direction of action of an intervention provider offering more than one option to the individual without coercion or control (Deci et al., 1994). Examples of attributes found in the papers included providing choice in treatments or interventions and avoiding pressure, punishments, demands or coercion. *Rationale* is also defined as having one direction and involved the provision of information or explanation from the intervention provider to the patient (Deci et al., 1994). Examples of attributes included providing a meaningful rationale, or relevant and factual information. *Empathy* was defined as a two-way interpersonal communication between the intervention provider and the patient (Deci et al., 1994). Attributes included acknowledging patients' perspectives, feelings and opinions after allowing time for patients to talk and listening to them with attentiveness and warmth. While we were able to classify 21 attributes under these core components, 17 remained unclassified. We therefore examined other theories to identify possible components that could integrate the remaining attributes used in an ASI.

Table 3. List of attributes in descending order of frequency within its component

Attribute No.	Component 1: Choice	Totals
1	Provides choices in treatment or interventions	42
2	Avoids reducing choice options using pressure, punishments, demands, or coercion	22
3	Conveys choice in status quo versus change	7
4	Allows time for patient to make own choices and decisions	6
5	Provides choice in opportunities for autonomous actions, or initiatives	4
6	Respects and supports choices and decisions	4
7	Provides access to choice in systems, resources, or information	4
8	Provides limits in choice	2
9	Provides choice in opportunities for social interactions or support from environment	2
Attribute No.	Component 2: Rationale	Totals
10	Provides a meaningful rationale	22
11	Provides relevant and factual information, or explains the meaning of technical terms	22
12	Provides feedback on performance	6
13	Communicates clear expectations and values	2
14	Communicates value in uninteresting activities	2
15	Presents clear contingencies between behavior and outcome	1
16	Offers recommendations or advice	1
17	Communicates persuasive information	1
Attribute No.	Component 3: Empathy	Totals
18	Understands and acknowledges the other's perspective, feelings and opinions	42
19	Takes time to listen with attentiveness and warmth	5
20	Allows time for the other to talk	3
21	Accepts negative emotions and provides emotional support	3
Attribute No.	Component 4: Collaboration	Totals
22	Supports and encourages self-initiatives and increased self-responsibility	11
23	Engages in shared collaborative decision making and action planning	8
24	Encourages questions and responds to them	5
25	Uses respectful, fair and constructive communication	4
26	Minimizes interpersonal power differential	3
27	Defines treatment goals and goal follow-up in collaboration with the patient	2
28	Engages in agenda setting in collaboration with the patient	2
29	Asks about what the other wants, wants to do, achieve, or will do	1
30	Participates in collaborative problem solving	1
31	Encourages a leadership role in the other	1
32	Explores problem and allows own problem definition	1
33	Avoids evaluating performance or surveillance	1
34	Discusses learning strategies and offers hints	1
35	Shares responsibility	1
Attribute No.	Component 5: Strengths	Totals
36	Communicates praise, providing positive feedback on strengths	7
37	Explores life aspirations and motivations	5
38	Explores values and goals, in relation to lifestyles	1

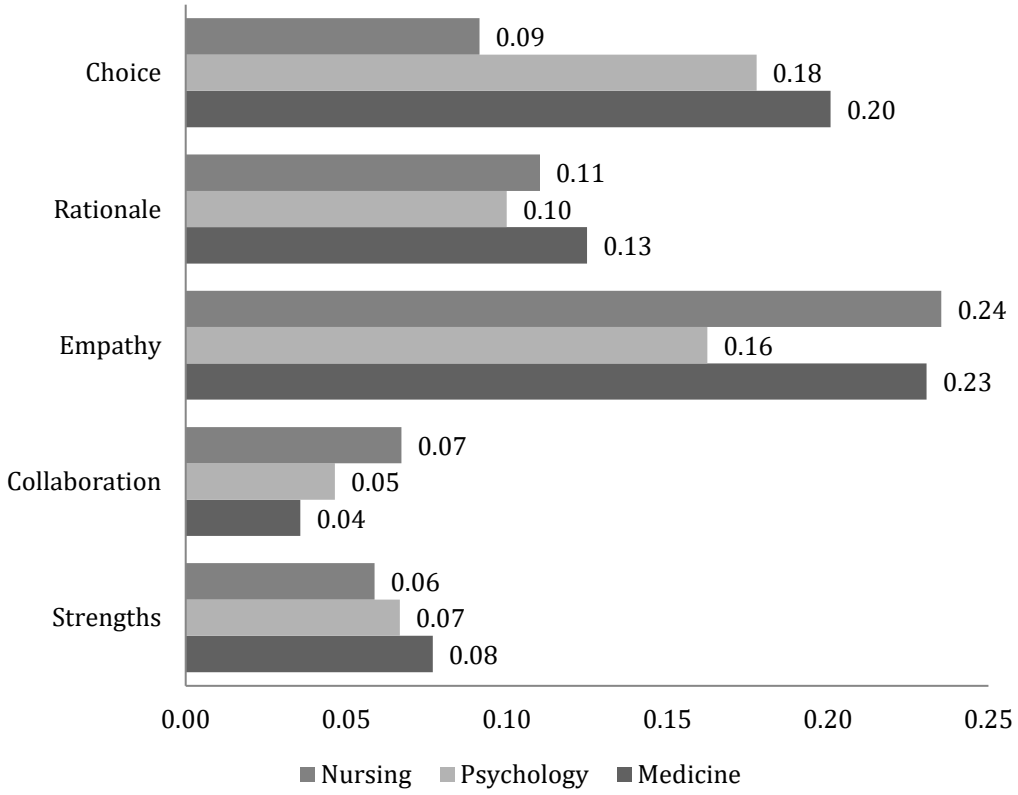


Figure 1. Proportion of cited attributes classified under a component per discipline.

Each bar was calculated as follows: Total number of citations/(Total attributes *N*). In the top bar for example, the total number of occurrences of an attribute under *choice* (*n* = 14 'Total number of citations') was divided by the product of possible number of attributes within the component *choice* (*n* = 9 'Total attributes') and the total number of papers in the discipline of nursing (*N* = 17). The calculation was as follows: 14 citations/(9 attributes 17 nursing papers) = 0.09.

A consensus was reached on the components, 'collaboration' and 'strengths', based on Gottlieb and colleagues' work. Gottlieb (2013) maintain that nurses' respect of patients' self-determination can be achieved through a collaborative nurse-patient partnership and through helping patients identify and develop their own strengths. Gottlieb and Feeley (2006) defined 'collaboration' as sharing power in an interpersonal interaction between the intervention provider and the patient where the provider's aim is to engage patients in collaborative action planning using exploration and respectful communication. Examples of attributes included supporting and encouraging patients' self-initiatives and increased self-responsibility. 'Strengths' as defined by Feeley and Gottlieb (2000), involves the action of identifying, exploring and providing feedback

on clients' strengths which include positive attitudes, capabilities, personal characteristics, aspirations and motivations (Feeley & Gottlieb, 2000). Attributes included communicating praise, providing positive feedback on strengths and exploring life aspirations and motivations. These two components sufficed for the classification of the remaining 17 attributes. Figure 1 illustrates the proportion of citations of attributes under a particular component per discipline. For example, the top bar in Figure 1 represents nearly 10% of citations of attributes under the component choice were found in nursing papers. This figure shows that in each discipline at least one attribute was cited under each of the five identified components; and a higher proportion of papers cited attributes under empathy and choice compared with the three other components. Notably, a lower proportion of nursing papers cited attributes under choice than in psychology and medicine; and a lower proportion of psychology papers cited attributes under empathy than in nursing and medicine. This figure highlights the lack of homogeneity in the manner of which the attributes of an ASI are described in the literature across disciplines.

Table 4. Consequences stratified by discipline

Consequence	Nursing	Psychology	Medicine
Possible outcomes of an ASI on health behaviours	Life-style risk reduction Medication adherence Physical activity Self-care behaviours in chronic illness Smoking cessation	Life-style risk reduction Medication adherence Physical activity Self-care behaviours in chronic illness Smoking cessation Substance abstinence	Life-style risk reduction Medication adherence Physical activity Self-care behaviours in chronic illness Smoking cessation
Possible mediators of an ASI	PAS Psychological needs Self determination Self-regulation	Attitudes Intention PAS Perceived behavioural control Psychological needs Self-regulation Subjective norms	Active involvement in care Attitudes Intention PAS Perceived behavioural control Psychological needs Self-regulation Subjective norms

Note. ASI = Autonomy supportive intervention; PAS = Perceived autonomy support

Consequences

The two types of consequences presented in Table 4 stratified by discipline included: 1) possible outcomes of an ASI on health behaviours; and 2) possible mediators of an ASI.

Possible outcomes of an ASI on health behaviours

The total list of health behaviour outcomes found were: life-style risk reduction (e.g., general health behaviours to reduce risk factors such as hyperlipidemia, hyperglycemia and/or obesity), medication adherence, physical activity, self-care behaviours in chronic illness, smoking cessation and substance abstinence. As described in the history section, the nursing literature was primarily concerned with self-care behaviours; the psychological literature revealed a wider spread of health behaviour change topics; and the medical literature was primarily concerned with physical activity. Results were mixed among the 10 experimental studies—all based on SDT—as significant positive effects of an ASI were reported in five: increased physical activity in women (Moustaka et al., 2012; Silva et al., 2010) and children (Roemmich et al., 2012), reductions in glycated hemoglobin and cholesterol in diabetes patients (Williams, Lynch, & Glasgow, 2007) and increased smoking cessation rates (Williams, Niemiec, Patrick, Ryan, & Deci, 2009). The remaining five studies found non-significant effects of an ASI on diabetes self-care (Hill & Sibthorp, 2006), substance abuse (Cogswell & Negley, 2011)smoking cessation (Solloway et al., 2006; Williams & Deci, 2001) and on vegetable and fruit intake (Resnicow et al., 2008). As the results varied across studies including behavioural and physiological measures and in the population studied, there was no trend suggesting that an ASI is more or less effective regarding certain health outcomes. Also, these mixed results cannot be explained solely by sample size or history because the smallest study (N = 35) and largest (N = 1006) were both significant; and older studies were not more significant than more recent ones. However, the lack of intervention fidelity may provide an explanation because only half reported intervention provider training or treatment fidelity evaluation thereby possibly contributing to variability in effectiveness. In these, only two studies evaluated intervention fidelity: Williams & Deci (2001) evaluated audio-recordings of the ASI and Moustaka et al. (2012) performed a ‘manipulation check’ that involved measuring participants’ perceptions of the ASI.

Possible mediators of an ASI

The possible mediators of an ASI were generally clustered in their theoretical framework; but PAS was the proximal outcome in all papers. For instance, the mediating variables in SDT-based papers were PAS, psychological needs and behavioural regulation. The mediating variables in the TPB-based papers was PAS, attitudes, subjective norms, behavioural control and intention (Chatzisarantis, Hagger, & Brickell, 2008; Chatzisarantis et al., 2007; Chatzisarantis et al., 2009; Kor & Mullan, 2011). Hagger et al. (2009) combined SDT and TPB variables into one model but depicted PAS as the proximal outcome. This is indicative of how although grounded in SDT, the effect of an ASI may be explained through a variety of processes found in other theoretical frameworks such as the TPB.

Exemplar

Identifying exemplars of the concept, if possible, helps provide a more clear illustration of the concept analyzed (Rodgers, 2000). In the present sample of papers, an ASI was delivered by a variety of intervention providers, for a wide range of health behaviours, in various clinical settings and populations and no exemplar of an ASI was identified.

Discussion

This paper is a report of an analysis of the concept of an ASI using Rodgers' evolutionary method drawing on literature from three disciplines: nursing, psychology and medicine. The analysis of the use of an ASI over time revealed more evolution in the disciplines of nursing and psychology than in medicine. This evolution was apparent in its use in theoretical frameworks. While an ASI in nursing originated from atheoretical grounding, in psychology an ASI originated in SDT. In nursing the relatively recent movement toward evidence-based nursing practice (French, 2001; Sidani & Braden, 1998) may have influenced the evolution of the use of theoretical frameworks. One advantage to using theory is the ability to explain the processes an intervention on desired outcomes (Sidani & Braden, 1998). In psychology, the evolution was identified in the interest to try out the concept of an ASI in another theoretical framework notably, the TPB, in response to this theory's limitations in fully explaining health behaviour change (Chatzisarantis et al., 2007). The appeal of an ASI in the TPB is that it represents a non-pressured form of social influence rather than the original concept of 'social norms' in the TPB that represents conformity to social pressures.

We identified a large number of attributes (38) and approximately half (17) could not be classified under the originally identified components of an ASI: choice, rationale and empathy. To enable the classification of these 17 attributes, two new components were added: collaboration and strengths. Collaboration is an important value in health care. Gottlieb & Feeley (2006) describe nurse-patient collaboration as a dynamic process of the relationship that includes establishing trust, engaging in collaborative information exchange and 'working-out' a collaborative plan of action. (Sieber et al., 2012) report an increase in this past decade of the implementation of a variety of collaborative care models in various U.S. medical settings. In psychology, establishing a collaborative relationship is a core value and essential to the effectiveness of psychological therapy (Pisani, leRoux, & Siegel, 2011). 'Strengths' has been used in health literature dating from early laboratory studies in psychology testing the effect of performance feedback (i.e., an attribute of 'strengths') on motivation (Deci & Ryan 1985). However, Gottlieb (2013) views a strengths-based approach as more than just a 'technic,' but an orientation to care or way of understanding the lives of the people and families they provide care for. It is unknown how 'strengths' or 'collaboration,' as potential additions to the core three components of an ASI, if applicable, may affect PAS and subsequently positive health behaviour change. Our findings highlight the importance to consider collaboration and strengths in the definition of an ASI.

Although a recent meta-analysis supports the mediating effect of PAS—reflecting the need for PAS to be enhanced if an ASI is to have an effect on health outcomes (Ng et al. 2012)—not all experimental studies in our sample found significant positive effects of an ASI. This finding was not due to measured health behaviour change, target population or sample size, but may be due to the lack of homogeneity in the description of an ASI in the literature. Not only were a large number of attributes identified to describe an ASI—surpassing the usual definition of the three components—there also appeared in our data a lack of homogeneity in the proportion of papers citing attributes under 'choice' and 'empathy'.

Another explanation to the mixed results may be related to intervention fidelity. Intervention fidelity helps ensure that interventions are delivered as intended by the researcher. Training of intervention providers, the use of an intervention manual and evaluating fidelity are ways to ensure intervention providers' adherence to the intervention's goals, components, mode of delivery and dose (Sidani & Braden 2011). In our analysis we found skills training to be a

common antecedent of an ASI across disciplines. However, only half of the experimental studies clearly reported the training of intervention providers or the use of an intervention manual and only two of these evaluated fidelity. This issue is important because studies, not included in our review, in nurse practitioners and physicians (Lawson, 2002), counsellors (Sussman, Williams, Leverence, Gloyd, & Crabtree, 2008; Toriello & Leirer, 2004) and teachers (Sarrazin, Tessier, Pelletier, Trouilloud, & Chanal, 2006; Trouilloud, Sarrazin, Bressoux, & Bois, 2006), show a lack of ASI use in real-life clinical practice. In summary, increasing ASI homogeneity and intervention fidelity may help ensure the positive effect it has on increasing PAS. The results of present analysis can be used to increase this homogeneity and to inform the development of a standardised treatment fidelity measurement in the evaluation of an ASI.

A model is presented in Figure 2, based on the results of this analysis, illustrating the antecedents, attributes and consequences of an ASI. The assessment prior to an ASI delivery, intervention providers' attitudes, perceptions, or beliefs and skills training in ASI delivery, are indicated in the antecedents. The attributes of the ASI, in their components, are a central part of this model, which is mediated by PAS—the target of the intervention—then other psychological mediators depending on the theoretical framework used. Health behaviour outcomes are the distal outcomes of an ASI. This model, may offer a practical framework for researchers and clinicians in the exploration of the possible associations of an ASI.

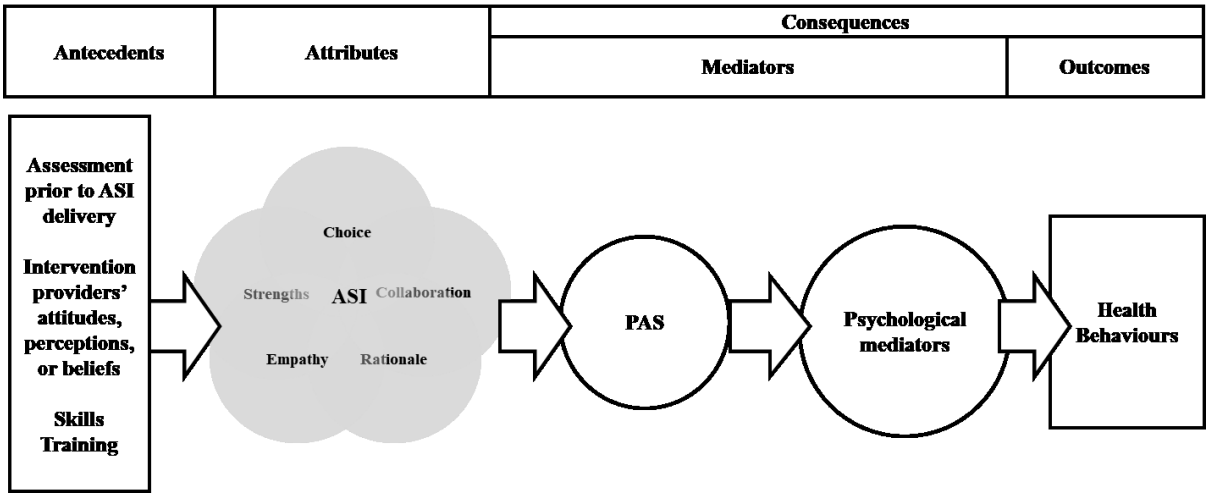


Figure 2. A model of the antecedents, attributes and consequences of an ASI

Limitations

One limitation of this concept analysis is that the literature included was only English language publications resulting in the possibility that relevant references may have been overlooked. The deductive approach used in the attributes section is not characteristic of the evolutionary method in concept analysis given its emphasis on inductive inquiry (Rodgers, 2000). We decided however that a deductive approach was most suitable in the attributes' analysis because the concept of an ASI is largely theory driven. Notably, the remaining sections in the analysis were inductive hence aligned with the method of choice. Also, it was not possible using the current method to identify which components and which attributes may be more effective in increasing PAS. This can only be known through future empirical research. A final limitation of this concept analysis was the failure to identify an exemplar.

Conclusion

This concept analysis, in our opinion, helps to lay the ground for future evaluation of an ASI. Given the importance of generating new knowledge in effective nursing interventions on the topic of increasing positive health behaviour changes in the prevention of future chronic illnesses and in the promotion of self-care in chronic illnesses, this concept analysis is a step toward better understanding the concept of ASI, its development and where it needs to go from here. This concept analysis revealed across disciplines the evolution of an ASI, its antecedents, attributes and consequences. Our findings may be used to increase homogeneity of this concept and inform the development of a standardised treatment fidelity measurement. Future research should aim at identifying which attributes and components of an ASI may be more effective in increasing PAS. We support the use of an ASI as a useful concept across health care disciplines to help increase positive health behaviour changes.

We now bring your attention to Section 2 of the intervention design, where we present the background of the integrated framework, intervention strategies (global and specific), modes of delivery, and dose. This section ends with a presentation of the research hypotheses.

Part 2, Section 2: Intervention Framework, Strategies, Modes of Delivery, and Dose

Inspired by the work of Sidani and Braden (2011), the following literature review was organized using five steps: 1) clarify the background of the theoretical framework and its constructs; 2) examine the effects of self-determination theory-based interventions on constructs of interest and the desired outcome; 3) delineate the integrated framework with its intervention strategies; 4) delineate the modes of delivery and intervention dose; and 5) summarize the strengths and limitations of TAVIE en m@rche.

Clarify the background of the theoretical framework and its constructs

Clarity of a theoretical framework promotes the advancement of nursing science such that interventions found efficacious may be reproduced, new knowledge using the same framework may be generated, and innovations from the theoretical framework may be implemented. In addition, specific knowledge gained concerning interventions' effects on theoretical constructs (consisting of variables) increases our understanding of the causative processes through which interventions obtained their effects (Sidani & Braden, 1998). This knowledge in turn helps guide evidence-based nursing practice in the design of efficacious interventions.

Strengths-based nursing care

For our intervention design, we retained Strengths-Based Nursing Care (SBNC) (Gottlieb, 2013) as the approach to nursing practice. In SBNC, the nursing value, 'Self-determination,' was in part supported by the tenets of Self-Determination Theory of human motivation (Deci & Ryan, 1985). Self-Determination Theory was the retained theory providing the theoretical constructs amenable to change by the proposed intervention. Strengths-Based Nursing Care (SBNC) is a values-driven approach to nursing practice (Gottlieb, 2013). The eight SBNC values are as follows:

1. Health and healing;
2. Uniqueness of the person;
3. Holism and embodiment;
4. Objective/subjective reality and created meaning;

5. Self-determination;

6. Person and environment are integral;

7. Learning, readiness, and timing; and

8. Collaborative partnership between nurse and person

These eight values build on past theoretical and empirical works of the McGill Model of Nursing (Gottlieb & Ezer, 1997), works on the collaborative partnership approach to nursing care (Gottlieb & Feeley, 2006), and the Developmental/Health Framework within the McGill Model of Nursing (Gottlieb & Gottlieb, 2007). In addition, a broad range of theoretical and empirical works in nursing and in other scientific disciplines was used to support these values. SBNC represents an evolution of the McGill Model of Nursing, in which the conceptualization of *strengths* has become a central and distinguishing feature. Strengths, is defined as a "person or family's special and unique qualities that determine what a person can do and who she can become" (Gottlieb, 2013, p. 105). Indeed, SBNC does not exclude a focus on deficits or weaknesses but rather maintains that nurses work with the interplay between both strengths and weaknesses such that human strengths are discovered, vulnerabilities are mitigated or contained, and weaknesses are uncovered (Gottlieb, 2013). SBNC is "…about understanding the whole…how strengths and weaknesses interact to promote health, and healing" (Gottlieb, 2013, p. 120).

Health and healing

The SBNC value, 'Health and healing' is concerned with wholeness, which refers to a "sense of wellness," balance, and living in "harmony" with all aspects of the person that includes "physical, cognitive, mental, emotional, social and spiritual domains of functioning" (Gottlieb, 2013, p. 66). Although health is the process of "creating wholeness," which is achieved through developing capacities and competencies to deal with life challenges, healing is the process of "restoring wholeness" (Gottlieb, 2013, p. 66). As such, in SBNC, illness or life events represent challenges that provide opportunities to identify and develop potential strengths, which in turn enables the person to create and restore wholeness, hence health and healing (Gottlieb, 2013).

Uniqueness of the person

Uniqueness is concerned with individual differences including qualities and strengths, from the cellular to the whole-person level, and among families and societal groups (Gottlieb, 2013). People experience illness or life events in their unique way because of differences in genetic and biological features, and the social environments in which the event is experienced. Uniqueness of the person is in part influenced by these differences in experiences of illness events. Therefore, instead of a "standardized…one size fits all" approach (Gottlieb, 2013, p. 69), SBNC nurses are responsive to patients' and families' unique qualities or strengths.

Holism and embodiment

Holism and embodiment refers to the view that the person is not a sum of its parts but an integrated and inseparable whole (Gottlieb, 2013). The opposite is the reduction and disembodiment of patient care through focusing on patients' diseased body parts or systems, a deficit focused view. Holism and embodiment implies caring for the whole person in an integrated way through understanding the complexities underlying the relationships among the mind, brain and other body systems (Gottlieb, 2013).

Objective/subjective reality and created meaning

Objective reality refers to what can be observed and measured from patients. Emphasized in SBNC is subjective reality, which refers to patients' perceptions and feelings about illness or life events, which themselves represent created meanings of their experiences (Gottlieb, 2013). Along with objective observations, SBNC nurses seek to understand subjective realities through created meanings of patients' illness or life experiences.

Self-determination

Respecting self-determination means to respect a person's right to a life grounded in volition and free-will (Gottlieb, 2013). This SBNC value implies that nurses foster patients' autonomy to take ownership and responsibility of their health and healing process. The SBNC perspective on self-determination is drawn in part from the works of Deci and Ryan (1985), the originators of the Self-Determination Theory on human behaviour. Self-Determination Theory is described in the next section because it was retained in the present theoretical framework.

Person and environment are integral

The person and environment are reciprocally linked and integral to each other such that nurses, and family or friends, are integral parts of the person's external environment (Gottlieb, 2013). Collectively, interpersonal interactions influence the degree to which the external environment supports health and healing. This SBNC value implies that nurses seek to understand the person's environment, and are responsible in creating health promoting and healing environments.

Learning, readiness, and timing

In SBNC, active participation in learning is valued and involves developing new competencies and capacities (Gottlieb, 2013; Gottlieb & Gottlieb, 2007). Readiness may be influenced by several factors including self-efficacy such that confidence in one's competencies and capabilities increases the sense of readiness for learning and change. Timing of illness or life events may also increase readiness to learn and change because harm resulting from the lack of certain health behaviour changes may become apparent during illness or life crises (Gottlieb, 2013). As "readiness is a prerequisite for change…timing refers to when change is most likely to occur" (Gottlieb, 2013, p. 95 and 97). Therefore, this SBNC value implies that nurses are sensitive to readiness and timing when engaging patients in an active learning or change process.

Collaborative partnership between nurse and person

This value underpins the nature of the nurse-patient relationship wherein both nurse and patient share "knowledge, skills, and experiences" in their relationship (Gottlieb, 2013, p. 101). The SBNC nurses' role is to "encourage people to share their expertise, to develop their autonomy and self-efficacy, and to help them (identify and develop) their strengths" (Gottlieb & Feeley, 2006, p. 6). Fostering collaborative nurse-patient partnerships enables the creation of health promoting and healing environments.

In summary, SBNC provides a values-driven approach to nursing practice that serves as a backdrop that guides nursing interventions. However, SBNC lacks theory on human motivation and theoretical constructs explaining the phenomenon of physical activity behaviour. Drawn from the SBNC value, 'Self-Determination,' Self-Determination Theory was the retained theory on human motivation explaining physical activity behaviour.

Self-determination theory constructs

Self-Determination Theory (SDT) was originally elaborated by Deci and Ryan (1985). Adaptations through empirical investigation in its application for health behaviour changes were advanced by Williams, Minicucci, et al. (2002) and Williams et al. (2006). Based on the latter authors' works, Ng et al. (2012) tested a model which included three categories of SDT constructs: perceived autonomy support, self-determined motivation continuum, and perceived competence (Figure 3). The theory posits that change in SDT constructs by an intervention will in turn predict health behaviour changes, a process known as the mediation effect (Baron & Kenny, 1986).

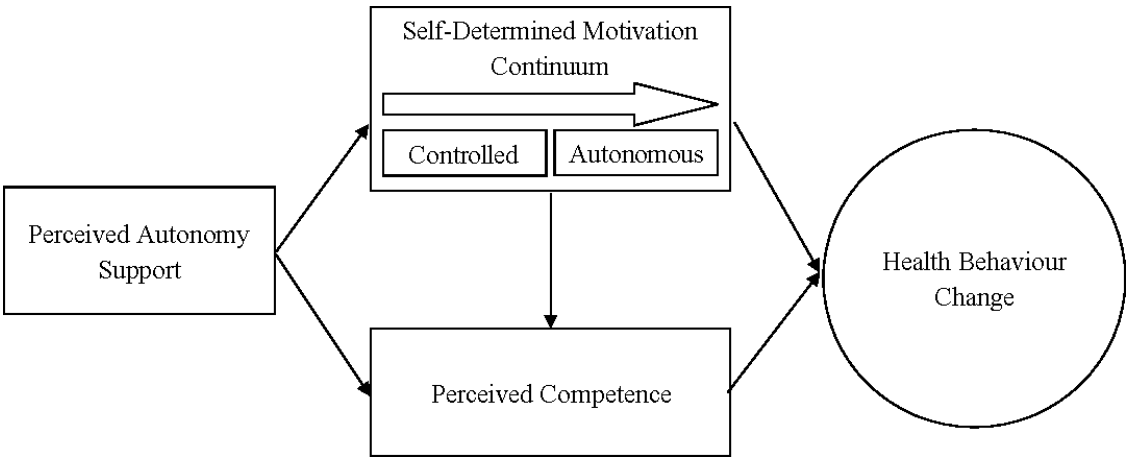


Figure 3. SDT constructs and their relationships

Adapted from Ng et al. (2012). Reproduced with permission from SAGE publications.

Perceived autonomy support

Perceived autonomy support is the perception that during interpersonal interactions, *choices* were provided concerning decisions or preferences, *rationale* was offered concerning suggestions or recommendations, and acknowledgement or *empathy* was expressed concerning difficulties encountered (Deci et al., 1994). Perceived autonomy support can be received through interactions with authority figures (Vansteenkiste & Sheldon, 2006) such as health care professionals or through significant others including family such as a spouse, friend, or acquaintance (Rouse et al., 2011). Regardless of the source of autonomy support, SDT posits that increases in perceived autonomy support will positively influence health behaviour change, but

indirectly through improvements in the self-determined motivation continuum and through increases in perceived competence (Ng et al., 2012).

Self-determined motivation continuum

The *self-determined motivation continuum* represents 'motivation' in SDT, and is a central category of SDT constructs that offer an explanation why people behave the way they do (Deci & Flaste, 1995) including adopting and maintaining a health behaviour change. The continuum consists of motivational subtypes (variables), which refer to the degree that one feels that an actual or future behaviour change is volitional, aligned with one's goals and values, and/or for sheer enjoyment (Deci & Ryan, 1985). As such, each subtype of motivation is distinguished by their degree of relative autonomy (Figure 4).

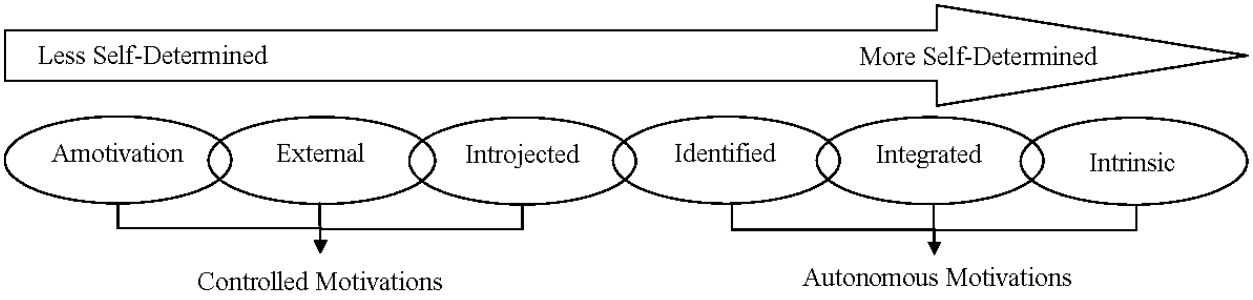


Figure 4. Self-determined motivation continuum

Adapted from Deci and Ryan (2008). Reproduced with permission from the Canadian Psychological Association.

Amotivation, found at the lowest end of the continuum, refers to a lack of reason to engage in behaviour change, and is the least self-determined motivational subtype. The next subtype is *external motivation*, which refers to behaviour change that is motivated by rewards or negative consequences imposed by others, following rules or pleasing others. *Introjected motivation* refers to behaviour change that is motivated out of a sense of guilt or shame in the presence of failure in change. *Identified motivation* represents a more self-determined and effective subtype such that the behaviour change is motivated by personal benefits of the behaviour change, which in turn fosters felt volition. *Integrated motivation* extends the volition felt in the latter now aligning the behaviour change with personal goals and values. At the highest end of the continuum lies *intrinsic motivation*—the behaviour change is motivated out of sheer enjoyment. A threshold of relative autonomy can split the self-determined motivation

continuum into controlled and autonomous motivations (Figure 4). SDT posits that decreases in controlled motivations and increases in autonomous motivations positively predict health behaviour change (Williams et al., 2006; Williams, Minicucci, et al., 2002).

Perceived competence

Perceived competence refers to the degree of confidence in one's capability in achieving a health behaviour change goal (Williams et al., 2006). Self-efficacy, central in the human motivation literature (Ryan, 2012), represents a parallel category of theoretical constructs to perceived competence. The degree of confidence overcoming barriers encountered when implementing a change in health behaviour is known as barrier self-efficacy (Blanchard, Rodgers, Courneya, Daub, & Knapik, 2002). Barrier self-efficacy and perceived competence both represent perceived 'confidence' in successful health behaviour change. Increases in both perceived competence and barrier self-efficacy are expected to predict improved health behaviour changes.

Examine the effects of self-determination theory-based interventions on constructs of interest and the desired outcome

Theoretical constructs retained for review are drawn from Figure 3, and the desired outcome pertains to increased physical activity. Past evidence supports the overall associations between the SDT constructs in Figure 3 and physical activity outcomes. Specifically, Teixeira, Carraca, Markland, Silva, and Ryan (2012) found in their systematic review of 72 samples in 66 studies (cross-sectional, longitudinal, mixed methods, and RCT) that the majority of the samples (i.e., $\geq$ 75%) supported the association between greater levels of autonomous motivations and improved physical activity outcomes (Teixeira et al., 2012). Between 50% and 75% of the samples supported the association between greater levels of perceived autonomy support and perceived competence, and improved physical activity outcomes. For the association between controlled motivations and physical activity outcomes, the samples were split between finding a negative association as theoretically expected, and no association. However, most of the samples (84.7%) retained in Teixeira et al. were non-experimental, and the main aim of their analysis was on the associations between SDT constructs and physical activity outcomes rather than a focus on the effect of SDT-based interventions on SDT constructs and on physical activity outcomes.

The main aim of our literature review was to determine which SDT constructs or variables may be amenable to change by an intervention, and hence be targeted by the proposed intervention. As such, we examined the effect of SDT-based interventions on SDT constructs and physical activity outcomes.

We retained 12 RCTs or non-RCTs. The studies were obtained in part through scanning the systematic review by Teixeira et al. (2012) whose search strategy ended in 2011 (n = 66). We then applied the same search terms as Teixeira et al. in our own search strategy (between 2011 and 2014) using the MEDLINE, PsycINFO, and CINAHL databases (n = 281). Therefore, we scanned a total of 347 studies (total includes duplicates) in addition to references lists from key studies. Studies were included if they were an RCT or non-RCT testing the effects of an SDT-based intervention on physical activity outcomes in adults. In addition, we included any RCT or RCT protocol of web- and SDT-based interventions that reported or planned testing SDT constructs and physical activity outcomes. Studies were excluded if they did not contain at least one measure of a motivational subtype on the self-determined motivation continuum because of their centrality in SDT. The 12 retained studies consisted of seven RCTs (Fortier, Sweet, O'Sullivan, & Williams, 2007; Jacobs, De Bourdeaudhuij, Thijs, Dendale, & Claes, 2011; Levy & Cardinal, 2004; Mildestvedt, Meland, & Eide, 2008; Patrick, Canevello, & Williams, 2012; Silva et al., 2010; Van Hoecke, Delecluse, Bogaerts, & Boen, 2014), two cluster-RCTs (Duda et al., 2014; Edmunds, Ntoumanis, & Duda, 2008), two non-RCTs (Moustaka et al., 2012; Van Hoecke et al., 2013), and one RCT in progress (Friederichs, Oenema, et al., 2014). These studies were classified in Table 5 among supervised exercise (i.e., coaching during exercise classes), face-to-face or phone counselling (i.e., the experimental condition was primarily focused on counselling), printed materials (i.e., mailing brochures without brief advice or counselling), and web-based (i.e., at least one main component is web-based). These were then listed in chronological order. The following questions were asked:

a) What is an SDT-based intervention?;

b) Which constructs based on the SDT model are amenable to change during an SDT-based intervention?;

c) Are the significant effects on SDT constructs associated with significantly improved physical activity outcomes?; and

d) What are the gaps in the SDT-based intervention literature?

a) What is an SDT-based intervention?

Most SDT-based interventions consisted of either autonomy or need support. Deci et al. (1994) described three core components of autonomy support: 1) providing *choices* in activities while avoiding pressure or controlling language, 2) offering meaningful *rationale* concerning an activity, and 3) acknowledging feelings or expressing *empathy* in relation to engaging in an activity. Autonomy or need support were synonymously or nearly synonymously described in nine of the 12 interventions: six interventions were named autonomy-supportive (Duda et al., 2014; Fortier et al., 2007; Jacobs & Claes, 2008; Mildestvedt et al., 2008; Moustaka et al., 2012; Silva et al., 2010), and three interventions were named need-supportive (Patrick & Canevello, 2011; Van Hoecke et al., 2014; Van Hoecke et al., 2013), although there were some variations in these descriptions. For instance, Silva et al. (2010), described six components of their autonomy-supportive environment (i.e., intervention) that included the provision of *choice* or menu of options with no pressure or demands, presenting a clear *rationale*, encouragement in exploring goals and values, and providing positive feedback while acknowledging feelings (i.e., *empathy*) that competence increases through objective success.

Although three out of 12 interventions used neither the terms autonomy- nor need-supportive to describe their SDT-based interventions (Edmunds et al., 2008; Friederichs, Oenema, et al., 2014; Levy & Cardinal, 2004), Duda et al. (2014), in their literature review, used the term 'need-support' to describe Edmunds et al. (2008) SDT-based intervention. This intervention consisted of autonomy support (*choice*, *rationale*, acknowledgement of others' perspectives [i.e., *empathy*]), structure (e.g., setting clear goals and providing feedback), and interpersonal involvement (e.g., demonstration of interest in the other in an *autonomy supportive* manner) (Edmunds et al., 2008). Overall, despite an apparent heterogeneity in the description of SDT-based interventions, a distinguishing feature of these interventions are that they are autonomy- or need-supportive, which generally include the three core components of autonomy support: choice, rationale, and empathy.

Table 5. SDT-based interventions aimed at increasing physical activity in adults

Author / Country	Design (*n*) / Follow-up / PA Outcome	Population / Sex	Experimental group (EG) / Control group (CG)	Effect of the SDT-based intervention on SDT variables and on physical activity				
Supervised exercise				PAS[c]	CM	AM	PC	PA
(Edmunds et al., 2008) UK	Cluster RCT (*56*) 10 weeks Attendance	Healthy young adults 100% female	EG: SDT-based, 10 weekly sessions of aerobics CG: Regular coaching, 10 weekly sessions of aerobics	(+)	Amot (0) EXT (0) INTRO (0)	IDN (0) INTG (0) IM (0)	(+)	(+)
(Moustaka et al., 2012) Greece	Non-RCT (*35*) 13 weeks Attendance	Healthy adults 100% female	EG: SDT-based, 24 exercise classes in 8 weeks CG: Regular coaching, 24 exercise classes in 8 weeks	(+)	Amot (-) EXT (-) INTRO (+)	IDN (+) IM (+)	(+)	(+)
Face-to-face or phone counseling								
(Fortier et al., 2007) Canada	RCT (*120*) 13 weeks Self-report	Sedentary adults 69% female	EG: SDT-based (intensive): 6 individual sessions in 12 weeks + behaviour change techniques + brief advice CG: SDT-based (brief advice): single 2–4 minute individual session	(+)	NA	(+)	(0)	(+)
(Mildestvedt et al., 2008) Norway	RCT (*176*) 24 months Self-report	CAD patients 78% Male	EG: SDT-based, 4 individual sessions in 24 months + behaviour change techniques + CG condition CG: Group + supervised exercise	(0)	NR	NR[b]	NR	(0)
(Silva et al., 2010) Portugal	RCT (*239*) 12 months Pedometer	Overweight adults 100% female	EG: SDT-based, 30 group sessions in 12 months + behaviour change techniques CG: Health education but not on PA, 29 sessions in 12 months	(+)	EXT (0) INTRO (+)	IDN (+) IM (+)	(+)	(+)
(Van Hoecke et al., 2013) Belgium	Non-RCT (*126*) 1 year Self-report	Sedentary adults 52% female	EG: SDT-based, 5 individual sessions in 4 months (including email) + behaviour change techniques CG: No intervention	NA	NA	(+)	(+)	(+/0)

Author / Country	Design (*n*) / Follow-up / PA Outcome	Population / Sex	Experimental group (EG) / Control group (CG)	Effect of the SDT-based intervention on SDT variables and on physical activity				
				PAS[c]	CM	AM	PC	PA
(Duda et al., 2014) UK	Cluster RCT (*347*) 6 months Self-report	Adults with cardiac risk factors 73% female	EG: SDT-based, 4 individual sessions in 3 months + behaviour change techniques CG: Usual care advice, 1 session plus as needed within 3 months	(0)	NR	NR[b]	NR[a]	(0)
(Van Hoecke et al., 2014) Belgium	RCT (*442*) 1 year Pedometer	Sedentary older adults ~67% female	EG_1: SDT-based, individual sessions every 10 days in 10 weeks + behaviour change techniques + CG condition EG_2: Competence-based, 15 minute session + walking program + CG condition CG: Referral to PA resources, 15 minute session + booklet	NA	NA	(0)	NR[a]	(0)
Printed materials								
(Levy & Cardinal, 2004) USA	RCT (*185*) 2 months Self-report	Sedentary adults 68% female	EG_1: SDT-based, PA brochure + behaviour change techniques + booster EG_2: SDT-based, PA brochure + behaviour change techniques CG: Regular educational PA brochure	NA	Amot (0) EXT (0) INTRO (0)	IDN (0) INTG (0) IM (0)	(0)	(0)
Web-based								
Jacobs and colleagues (2011) Belgium	RCT (*314*) 12 months Self-report	Healthy adults 67% male	EG: *PreCardio* TPB/SDT- and web-based + traditional coaching + behaviour change techniques + CG condition (TPB, SDT, stages of change) CG: Usual care face-to-face advice + generic website	NR	NR	NR[b]	NR	(0)
(Patrick et al., 2012) USA	RCT abstract (*197*) 7 weeks Self-report	Sedentary adults	EG: SDT-based tailored personal trainer (CPT), seven weekly sessions + behaviour change techniques CG: Tailored CPT non-SDT, lacking needs-support	NA	NR	NR[b]	NR	NR
				Only conference abstract reported				

Author / Country	Design (*n*) / Follow-up / PA Outcome	Population / Sex	Experimental group (EG) / Control group (CG)	Effect of the SDT-based intervention on SDT variables and on physical activity				
				PAS[c]	CM	AM	PC	PA
(Friederichs, Oenema, et al., 2014) Netherlands	RCT protocol (*600*) 12 months Self-report	Sedentary adults	EG_1: *I MOVE* SDT- and web-based, four sessions + behaviour change techniques (mainly Motivational Interviewing) EG_2: Other web-based intervention using SCT, TTM and TBP CG: Waitlist	NA	NR	NR	NR	NR
				RCT protocol				

Note 1. Studies listed in chronological order; AM = autonomous motivations; Amot = amotivation; CAD = coronary artery disease; CM = controlled motivations; EXT = external motivation; IDN = identified motivation; IM = intrinsic motivation; INTG = integrated motivation; INTRO = introjected motivation; *n* = sample size at randomization; Non-RCT = Non-randomized controlled trial with control group; PA = physical activity; PAS = perceived autonomy support; PC = perceived competence or self-efficacy; RCT = randomized controlled trial; SCT = Social Cognitive Theory; SDT = Self-Determination Theory; TPB = Theory of Planned Behavior; and TTM = the Transtheoretical Model.

Note 2. Retained effects on SDT variables were those closest to immediate post-intervention (preferred) to show change in these variables during intervention duration. Effects on physical activity outcomes were at the furthest follow-up preferring the objective measure over self-report if both were reported.

Table legend:

(+) = significant positive effect in favour of the EG $p < .05$;

(-) = significant negative effect in favour of the EG $p < .05$;

(0) = no significant effect $p > .05$;

(+/0) = significant effect in two out of four of the physical activity outcomes;

NA = variable not assessed or no planned assessment in protocol; and

NR = variable assessed but effect of the intervention on this variable not reported.

[a]Perceived competence was measured but its results were not reported, but rather included in a composite score of needs support (perceived autonomy, competence, and relatedness).

[b]The association between autonomous motivations and other variables were reported, but the effect of the intervention on autonomous motivation was not reported.

[c]The measures retained for perceived autonomy support (PAS) assessed choice, rationale and empathy, which were mainly drawn from the commonly used health care climate questionnaire.

In parallel, five studies described the consistency between their autonomy or need-supportive intervention, and the principles of Motivational Interviewing (Duda et al., 2014; Fortier et al., 2007; Friederichs, Oenema, et al., 2014; Van Hoecke et al., 2014; Van Hoecke et al., 2013). Motivational Interviewing, a patient-centered counselling approach developed by W. R. Miller and Rollnick (1991), is orientated towards supporting autonomy and self-efficacy (or

confidence) through a collaborative and empathic approach, and considered consistent with SDT by several authors not part of the present literature review (Markland, Ryan, Tobin, & Rollnick, 2005; Patrick & Williams, 2012; Vansteenkiste, Williams, & Resnicow, 2012).

In the counselling, printed material, and web-based interventions, the SDT-based interventions were combined with a variety of behaviour change techniques, and the control conditions had no behaviour change techniques (an exception was Patrick and Canevello [2011] who included behaviour change techniques in both the SDT and control conditions). Behaviour change techniques refer to goal setting, self-monitoring, action planning and other techniques, which can readily be found in the work of Michie et al. (2011). The autonomy or need support influenced the manner in which the behaviour change techniques were communicated to patients. The combination of autonomy or need support with behaviour change techniques was expected to positively influence change in SDT constructs or variables and physical activity outcomes.

b) Which constructs based on the SDT model are amenable to change during an SDT-based intervention?

Nine studies were retained to answer this question because they reported the effect of their SDT-based intervention on one or more constructs based on the SDT model in Figure 3 (Duda et al., 2014; Edmunds et al., 2008; Fortier et al., 2007; Levy & Cardinal, 2004; Mildestvedt et al., 2008; Moustaka et al., 2012; Silva et al., 2010; Van Hoecke et al., 2014; Van Hoecke et al., 2013). Retained effects on SDT constructs were those closest to immediate post-intervention (if possible) to show change in these constructs during the intervention.

Among these nine studies, either no SDT constructs or variables were improved by the SDT-based intervention in four studies (Duda et al., 2014; Levy & Cardinal, 2004; Mildestvedt et al., 2008; Van Hoecke et al., 2014), or at least two SDT constructs or variables were significantly improved in five studies (Edmunds et al., 2008; Fortier et al., 2007; Moustaka et al., 2012; Silva et al., 2010; Van Hoecke et al., 2013).

Among these five studies, four measured perceived autonomy support, and all found significant improvements on this construct (Edmunds et al., 2008; Fortier et al., 2007; Moustaka et al., 2012; Silva et al., 2010). Autonomous motivations and perceived competence or self-efficacy were measured in all five studies, and four found significant improvements on autonomous motivations (Fortier et al., 2007; Moustaka et al., 2012; Silva et al., 2010; Van

Hoecke et al., 2013), and four found significant improvements on perceived competence or self-efficacy (Edmunds et al., 2008; Moustaka et al., 2012; Silva et al., 2010; Van Hoecke et al., 2013). In contrast, three of the five studies measured various controlled motivation subtypes, and contrary to what is posited in SDT, none found consistent significant reductions in all these subtypes (Edmunds et al., 2008; Moustaka et al., 2012; Silva et al., 2010). Specifically, no effect on controlled motivations was found in Edmunds et al. (2008), and mixed effects were found in Moustaka et al. (2012) and Silva et al. (2010). Among the mixed effects, higher levels of introjected motivation (instead of lower levels) in favour of the SDT-based interventions were found (Moustaka et al., 2012; Silva et al., 2010), along with no significant differences (instead of lower levels) in external motivation (Silva et al., 2010). Therefore, it appears that perceived autonomy support, autonomous motivations, and perceived competence (or self-efficacy), are consistently influenced by SDT-based interventions, however, effects on controlled motivations were inconsistent suggesting that these may be less amenable to change during an SDT-based intervention.

c) Are the significant effects on SDT constructs associated with significantly improved physical activity outcomes?

The same nine studies were retained to answer this question. Retained effects on physical activity outcomes were those that were objectively measured when available, and at the furthest follow-up. All five out of nine studies demonstrating significant improvements on physical activity outcomes as a primary or secondary measure were the same five that found significant improvements in at least two SDT constructs (Edmunds et al., 2008; Fortier et al., 2007; Moustaka et al., 2012; Silva et al., 2010; Van Hoecke et al., 2013). Therefore, in general, the significant effects on SDT constructs in these studies were also associated with significantly improved physical activity outcomes.

Among these five interventions, the strongest evidence was by Silva and colleagues due to its large sample size, in an RCT, testing nearly equivalent intensity interventions, on a long-term objectively measured physical activity outcome, steps per day (Silva et al., 2011; Silva et al., 2010). Specifically, they tested in 239 overweight women, a year-long SDT-based group intervention combined with behaviour change techniques, on body weight over three years as the primary outcome and steps per day as a secondary outcome at one year compared to a general

health education intervention. Participants in the SDT-based intervention obtained significantly greater steps per day at one year (9,902 [EG] versus 7,852 [CG], $p \leq .001$) (Silva et al., 2010), as well as significantly greater decreases in body weight at three years (-3.9% [EG] versus -1.9% [CG], $p = .04$) (Silva et al., 2011).

In four of these five interventions, evidence was however weaker due to a lack of sample size estimate (Edmunds et al., 2008; Fortier et al., 2007; Moustaka et al., 2012), or a lack of randomization (Moustaka et al., 2012; Van Hoecke et al., 2013). Despite these limitations, three of these four studies found significant improvements in physical activity (Edmunds et al., 2008; Fortier et al., 2007; Moustaka et al., 2012), and one found mixed results (Van Hoecke et al., 2013). The mixed result was found in the non-RCT ($n = 126$ sedentary adults) by Van Hoecke et al. (2013) who tested a four-month SDT-based face-to-face, phone counselling intervention on self-reported physical activity composite scores compared to no-intervention. Over four and 12 months, significantly greater increases were found in favour of the EG in strenuous ($p < .01$), and in total physical activity ($p < .001$), although no significant change over time was found in mild ($p > .05$) or in moderate-intensity physical activity ($p > .05$). The authors explained these mixed results may be from the coaches' counseling that encouraged more highly structured and higher intensity physical activity rather than mild or moderate-intensity. In summary, methodological limitations in four of these five studies indicate a need for future RCTs testing SDT-based interventions on SDT constructs or variables and on objective physical activity outcomes.

In contrast, the remaining four out of nine studies found non-significant effects on both SDT constructs and physical activity outcomes due to lack of intervention intensity, lack of differences in perceived autonomy support between groups, or lack of sufficient difference in intervention content between groups (Duda et al., 2014; Levy & Cardinal, 2004; Mildestvedt et al., 2008; Van Hoecke et al., 2014). Levy and Cardinal (2004) tested in an RCT ($n = 185$ sedentary adults) three print-based conditions: 1) an SDT-based physical activity print brochure with booster postcard EG_1, 2) an SDT-based physical activity print brochure without booster EG_2, and 3) a publicly available educational physical activity brochure CG. No effect between groups over time on self-reported physical activity was found in separate analyses of males and females (no p value reported). Levy and Cardinal suggested that the lack of effect between groups may have been due to low adherence in completing the behaviour change worksheets in

the SDT-based brochures, and due to a lack of intensity of the SDT-based interventions to influence change in physical activity outcomes.

Duda et al. (2014) tested in a cluster RCT two counselling conditions in 13 centres of 347 mainly overweight or obese adults: 1) four SDT-based counseling sessions within three months EG, and 2) one usual care advice session within three months CG. They found no significant differences between groups in change in moderate to vigorous physical activity at six months (p = .93). Duda et al. suggested that the two conditions (SDT-based versus usual care advice) did not differ sufficiently on the autonomy support provided during the coaching to influence a significant difference between groups on physical activity outcomes, as they found high levels (results not reported) of perceived autonomy support in both groups.

Van Hoecke et al. (2014) tested in an RCT three counselling conditions in 442 sedentary adults 60 years and older: 1) SDT-based counselling sessions every 10 days in 10 weeks EG_1, 2) one 15-minute competence-based walking program EG_2, and 3) one usual care 15-minute session focused on referrals to community resources for physical activity CG. They found no significant differences in the effects between the three comparison groups in change over time (at 10 weeks and one-year post-intervention) in steps per day (p = .129). However, whereas the participants had minimal significant within-group increases in steps per day at one year in the EG_1 (p = .023) and EG_2 (p = .018), no change was found in the CG (p = .875). The lack of differences between the two experimental groups is explained by the provision of the same structured physical activity plans in both EG_1 and EG_2 (Van Hoecke et al., 2014). Therefore, the content between the experimental groups were not substantially different to produce a significant effect in favour of the SDT-based intervention.

Finally, Mildestvedt et al. (2008), the only RCT that tested the SDT-based intervention in a CAD population found no significant effects on a self-reported physical activity composite scores (exercise p =.66, physical capacity p = .56, and exercise intensity p = .67). This RCT (n = 176) tested two counselling modalities: 1) four SDT-based counselling sessions in twenty-four months plus usual care EG, and 2) a usual care four-week daily exercise and information in group sessions CG. The non-significant effect suggests that the addition of one counselling modality (SDT-based individual counselling) was insufficient to influence a significant difference over group counselling and supervised exercise alone on self-reported physical

activity. Also, Mildestvedt et al. proposed that a possible explanation to the lack of effect was that some level of autonomy support was also provided in the CG as no differences between groups (EG versus CG) were found in perceived autonomy support (*p* not reported). Mildestvedt et al. nevertheless found that increases in autonomous motivations and self-efficacy, and decreases in controlled motivations significantly predicted increases in physical activity in the entire CAD sample.

Although caution in interpretation is warranted, as no firm conclusions can be drawn from our qualitative review, some highlights are suggested. In consideration of these nine studies, interventions successful at influencing positive changes in perceived autonomy support, autonomous motivations, and perceived competence (or self-efficacy) may be sufficient to significantly improve physical activity outcomes despite inconsistent effects on controlled motivations. However, there is a lack of evidence in the five successful SDT-based interventions as only one RCT objectively measured physical activity behaviour (i.e., steps per day) in an adequately powered trial. The four SDT-based interventions yielding no significant effects on SDT constructs and on physical activity outcomes lacked sufficient differences between groups in intervention intensity, in perceived autonomy support, or in intervention content. Therefore, there is a need for an adequately designed RCT testing an SDT-based intervention with sufficient intensity and content to influence improvements in SDT constructs, and improvements in an objectively measured primary outcome of physical activity.

d) What are the gaps in the SDT-based intervention literature?

Three gaps in the SDT-based intervention literature are identified, which include the potential of targeting barrier self-efficacy, perceived autonomy support from a significant other, and the potential effect of web- and SDT-based interventions on SDT constructs and physical activity outcomes. First, barrier self-efficacy has received little attention in the SDT-based RCTs because perceived competence rather than self-efficacy is generally considered in SDT. However, barrier self-efficacy could also be a potential target in physical activity interventions in CAD because barriers to physical activity are reported by CAD patients in qualitative literature (Fleury et al., 2004; Rogerson et al., 2012), and because a systematic review by Petter, Blanchard, Kemp, Mazoff, and Ferrier (2009) (n = 121 studies) found that self-regulatory self-efficacy (a broad term that includes both confidence in overcoming barriers, and confidence in

planning exercise) was consistently associated with increased exercise levels in CAD patients. These data suggest the potential of targeting barrier self-efficacy by an intervention also in ACS patients.

Second, perceived autonomy support from a significant other such as a spouse, friend, or acquaintance, has also received little attention in the SDT-based RCTs. The positive association between perceived autonomy support from significant others and physical activity outcomes is supported in two cross-sectional studies in healthy females (Rouse et al., 2011; Wilson & Rodgers, 2004). A pilot-RCT (n = 32) testing the effect of SDT-based counselling on self-care in heart-failure patients found a higher level of patients' perceived autonomy support from caregiver (or significant other) in the intervention group compared to the control group at one month follow-up, but the difference between groups was not significant (Belaid, 2012). Although these results remain inconclusive because of the small sample size, a larger sized study may have detected a significant difference. Taken together, these data suggest the potential of targeting perceived autonomy support from a significant other by an intervention also in ACS patients.

Finally, conclusions concerning web- and SDT-based interventions are limited as only three RCTs were found, and none reported both effect of the intervention on physical activity outcomes and on SDT constructs. The three RCTs were: PreCardio, a Belgian intervention (Jacobs, De Bourdeaudhuij, et al., 2011; Jacobs, Hagger, Streukens, De Bourdeaudhuij, & Claes, 2011), Computerized Personal Trainer (CPT), an American intervention reported in a methods paper and abstract (Patrick & Canevello, 2011; Patrick et al., 2012), and I MOVE, a Dutch RCT currently in progress (Friederichs et al., 2013; Friederichs, Oenema, et al., 2014).

Web- and SDT-based interventions represent a novel approach to theoretical grounding in the web-based physical activity literature. Current evidence shows support for direct or indirect positive associations between autonomous motivations and physical activity outcomes. Specifically, Patrick and colleagues (CPT) (n = 197) reported in their conference abstract that increases in autonomous motivations directly predicted greater levels of daily exercise intensity and frequency in young adults who were insufficiently active (p <.001) (Patrick et al., 2012). Patrick and colleagues, however, have not yet reported the effect of their CPT intervention on physical activity outcomes, according to our communication with the authors. Jacobs and colleagues (PreCardio) (n = 236) found that increases in autonomous motivations predicted

increases in intentions toward performing physical activity, and in turn predicted greater levels of minutes per week of self-reported physical activity in highly educated healthy adults ($p < .05$) (Jacobs, Hagger, et al., 2011). Therefore, Jacobs and colleagues demonstrated an indirect association between autonomous motivations and a physical activity outcome. However, in another report of the same RCT, Jacobs, De Bourdeaudhuij, et al. (2011) ($n = 252$) found no differences in change between baseline (343 [EG] versus 352 [CG]) and six months (353 [EG] versus 351 [CG]) or in differences between groups in minutes per week of self-reported physical activity ($p = .14$). Jacobs, De Bourdeaudhuij, et al. suggested that this lack of effect may be explained in part by too many choices in intervention content and mode of delivery presented, which resulted in participants receiving suboptimal intervention doses (e.g., only 10% visited the website section dedicated to moderate-intensity physical activity). Another consideration in PreCardio was that it was not only based on SDT, but also on other theories of behaviour change (see Table 5).

Friederichs and colleagues (I MOVE), an RCT in progress (Friederichs, Oenema, et al., 2014), argued that current RCTs based on Social Cognitive Theory, the Transtheoretical Model, and Theory of Planned Behavior are limited by the lack of testing the construct of autonomous motivations from SDT, given its solid relationship with physical activity (Friederichs, Oenema, et al., 2014). The use of autonomous motivations, consisting of three variables (identified, integrated, and intrinsic), in tailoring allows targeting motivation along a degree of relative autonomy, from the lowest (identified) to the highest (intrinsic) degree, rather than treating motivation as a single variable. Web-based interventions may therefore provide a new avenue through which SDT can produce efficacious results.

In summary, we retained the following SDT constructs to be targeted by the proposed intervention: perceived autonomy support from a web-based tailored nursing intervention and from a significant other, autonomous motivations (identified, integrated, and intrinsic), and confidence (perceived competence, and barrier self-efficacy).

Delineate the integrated framework with its intervention strategies

Integrated framework

We conceptualized an integrated framework consisting of SBNC and SDT such that insufficiently active CAD patients will be helped to increase their physical activity levels through an SBNC approach to nursing practice that specifies nursing values, and through SDT on human motivation that specifies three theoretical constructs to be targeted by intervention strategies, and to drive the tailoring process (Figure 5).

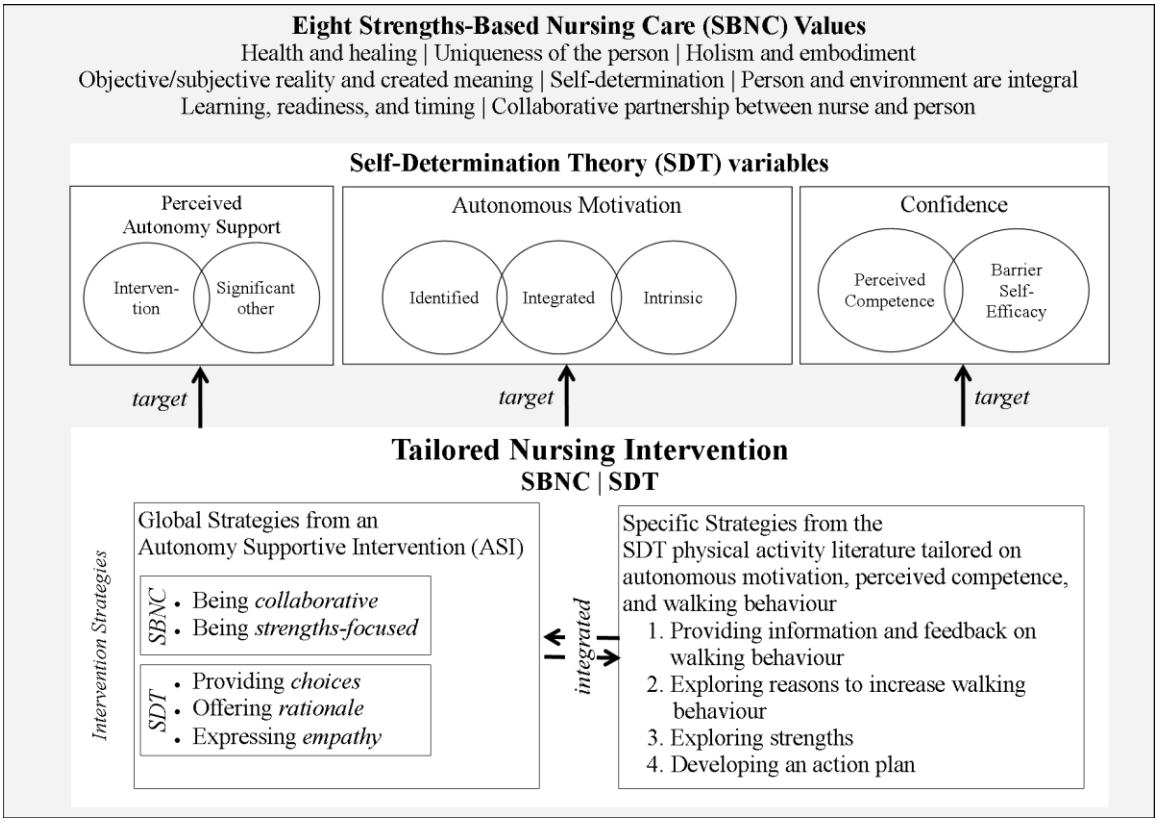


Figure 5. The integrated theoretical framework

The eight SBNC values are listed within a grey box that surrounds the illustration because we propose that the SBNC values serve as a backdrop for the entire intervention. This means that SBNC influenced our overall choices such that the proposed intervention overall aims at attaining consistency with SBNC values. For instance, 'Holism and embodiment,' means that nurses view patients in their entirety or as an integrated whole. This view influenced our approach to conceptualize the intervention framework and strategies to represent an integrated

whole. Also, the SBNC value of 'Self-determination' influenced our consideration of retaining SDT as the theory used to provide the theoretical constructs explaining change in physical activity behaviour, to be targeted by the intervention strategies, and to tailor the intervention (upper-mid section of Figure 5). Considering the retained SDT constructs, perceived autonomy support from a significant other is consistent with the SBNC value, Person and environment are integral, because social interactions with family, spouse, or a significant other are integral to the person's environment and nurses can intervene on this construct to create environments that foster health and healing. In addition, the notions of autonomy, competence, and self-efficacy are found in the SBNC values of 'Self-determination,' and 'Collaborative partnership between nurse and person.'

The bottom section of Figure 5 presents the Tailored Nursing Intervention. Tailoring was retained because of the paucity of tailored interventions in the web-based CAD RCT literature, and because tailored interventions in general are consistent to the SBNC values of 'Uniqueness of the person.' Tailoring addresses notions of uniqueness because it can individualize the intervention based on assessments of patients' qualities or strengths such as motivation, confidence, behaviour and choices rather than providing the intervention as a generic 'one size fits all' approach. As such, tailoring may help customize the proposed intervention to patients' individual differences or uniqueness. Therefore, one general implication of tailoring is that intervention strategies received by patients will depend on assessments of their motivation, confidence, behaviour and choices.

An SBNC 'way of being' is manifested in the intervention strategies through non-verbal and verbal behaviours. Non-verbal behaviours include tone of voice that is nuanced based on the type of message being conveyed. Non-verbal behaviours also include body language such as a welcoming smile or a sincere non-judgmental expression. Verbal behaviours are also part of the SBNC 'way of being,' and are manifested by the intervention strategies. Intervention strategies are divided between the global strategies from an Autonomy Supportive Intervention (ASI) (bottom-left), and the specific strategies from the SDT physical activity literature (bottom-right). Overall, the SBNC 'way of being' underpins the nurse's non-verbal and verbal behaviours, and in turn facilitates a collaborative partnership between the nurse and patients.

Intervention strategies

The intervention strategies retained are divided among global and specific strategies. These strategies together are proposed to produce the desired changes in the three retained SDT constructs of perceived autonomy support, autonomous motivation, and confidence.

Global strategies

The term *Autonomy Supportive Intervention* (ASI), was retained to denote the global strategies. Drawing from the Concept Analysis Article reported in Section 1 (Kayser, Cossette, & Alderson, 2014), we propose five global strategies from an ASI: Being *collaborative*, Being *strengths-focused*, Providing *choice*, Offering *rationale*, and Expressing *empathy* (Table 6).

Table 6. Global strategies from an autonomy supportive intervention (ASI)

Global strategies	Definition
Being *collaborative*	Refers to sharing power in an interpersonal interaction between the health care professional and patient where the professional's aim is to engage patients in a collaborative and active process toward health related goals
Being *strengths-focused*	Refers to the action of identifying, exploring and providing feedback on clients' strengths (e.g., personal qualities, capacities, values, and goals)
Providing *choices*	Refers to providing choice(s) to the individual in health behaviour changes and strategies without coercion or the use of controlling language such as 'should' and 'must'
Offering *rationale*	Refers to offering meaningful and factual information (or recommendations) to the individual in a neutral manner
Expressing *empathy*	Refers to expressing empathy, which is the expressed acknowledgment towards the patient's perspective, feelings, and opinions

These global strategies from an ASI represent a 'way of being' such that they interact with the specific strategies influencing *how* the specific strategies are presented to CAD patients. Global strategies from an ASI can be thought of as the fabric in which the entire intervention

content is woven, and taken together represents an integrated whole (i.e., two-way arrows between global and specific strategies).

The global strategies from an ASI are consistent to the SBNC values of 'Self-determination,' and 'Collaborative partnership between nurse and person.' Because the global strategies Providing *choices*, Offering *rationale*, and Expressing *empathy* all aim at fostering autonomy, they are linked to the value of 'Self-determination.' These three global strategies are also consistent with a collaborative approach, and hence speak to the value of 'Collaborative partnership between nurse and person.' Because the global strategies Being *collaborative* and Being *strengths-focused* foster both autonomy and self-efficacy, they are consistent with both values of 'Collaborative partnership between nurse and person,' and 'Self-determination.' In addition, Expressing *empathy* is also consistent with the SBNC value 'Objective/subjective reality and created meaning' because patients' subjective realities must be understood to express empathy.

Specific strategies and behaviour change techniques

Specific strategies represent a grouping of one or more behaviour change techniques that are communicated to ACS patients by the nurse. The behaviour change techniques were retained through two main iterative processes.

First, to identify behaviour change techniques aimed at influencing one or more of the three SDT target constructs (perceived autonomy support, autonomous motivation, and confidence), we reviewed the SDT body of literature which consisted of nine RCTs testing SDT-based physical activity interventions (face-to-face and web-based) (Duda et al., 2014; Fortier et al., 2007; Friederichs, Oenema, et al., 2014; Jacobs, De Bourdeaudhuij, et al., 2011; Mildestvedt et al., 2008; Patrick & Canevello, 2011; Silva et al., 2010; Van Hoecke et al., 2014; Van Hoecke et al., 2013). In addition, Teixeira et al. (2012), a review of SDT-based studies that were mainly observational and fewer RCTs, was reviewed because they specified a behaviour change technique that targeted intrinsic motivation. This body of literature was the main source of identified behaviour change techniques. Some examples include feedback on physical activity performance, goal setting, and self-monitoring. Another behaviour change technique used in SDT-based interventions was Motivational Interviewing in which the most recent work from the original authors was reviewed (W. R. Miller & Rollnick, 2012) along with its French translation

(W. R. Miller & Rollnick, 2013). Due to the paucity of RCTs testing SDT-based physical activity interventions in CAD patients, we reviewed mainly CAD literature for other behaviour change techniques adapted to this population on health benefits of physical activity (Shepherd & While, 2012; Stone et al., 2009), barriers or facilitators to physical activity such as fatigue (Alsén & Brink, 2013; Crane et al., 2015), low mood or depression (Lichtman et al., 2014; Rogerson et al., 2012) (including general education material for depression screening by the Acti-Menu Health Program [2010]), and others such as lack of time, fear of another cardiac event, social support, reasons to become physically active or to maintain physical activity (Fleury et al., 2004; Kärner et al., 2005; Rogerson et al., 2012), and educational materials for CAD patients (Deschênes et al., 2009; Patenaude, Simard, Vanasse, & Verchuere, 2010). Literature on the most popular leisure-time physical activities (i.e., walking) in the general population (Statistics Canada, 2013), as well as longitudinal cohort data on physical activity and mortality risk (Moore et al., 2012) were also reviewed. This process resulted in identifying 26 behaviour change techniques and their content for the intervention focus of increasing moderate-intensity walking up to 150 minutes per week in insufficiently active ACS patients.

Second, the behaviour change techniques found in the first process were examined in light of personal nursing experience in health behaviour change counselling to select those that might be used during a face-to-face nurse-patient encounter within a given context, aimed at a particular SDT construct. We asked ourselves what behaviour change techniques might be used for a patient who is insufficiently active after a cardiac event (context), and feels that there are few personal reasons for increasing their walking behaviour (SDT construct: autonomous motivation)? This process resulted in retaining 19 behaviour change techniques. The terminologies of the 19 behaviour change techniques were made consistent with the terminologies of the CALO-RE taxonomy (Michie et al., 2011) for physical activity and healthy eating behaviours.

These 19 behaviour change techniques were classified under four specific strategies:

1. Providing information and feedback on walking behaviour;
2. Exploring reasons to increase walking behaviour;
3. Exploring strengths; and
4. Developing an action plan

In summary, the intervention strategies as a whole (i.e., global strategies integrated with specific strategies) target all three SDT constructs (vertical arrows between "Tailored Nursing Intervention" and SDT constructs): perceived autonomy support, autonomous motivation, and perceived competence/barrier self-efficacy. Chapter 3 presents the four specific strategies and the 19 behaviour change techniques with their links to the targeted SDT constructs. The intervention manual (Appendix A) presents the operationalization of the intervention.

Delineate the modes of delivery and intervention dose

The goal of this literature review was to delineate the modes of delivery and intervention dose of the proposed intervention, TAVIE en m@rche. The planned intervention is fully-automated, web-based and tailored to focus on increasing walking behaviour. TAVIE^{TM} is also primarily video-based. Therefore, modes of delivery here refer to mediums used within or complimentary with a tailored website (using videos as a central mode of delivery), such as online text, SMS, and others. Intervention dose refers to the number, frequency, and length of sessions or contacts, and to the intervention duration (Sidani & Braden, 2011).

We retained the 10 web-based interventions presented in Tables 1 and 5, which combines the CAD literature in our field, as well as SDT-based interventions. These RCTs or RCT protocols were supplemented with reports of the interventions' development. The modes of delivery of these interventions are presented according to the type of content, which included educational or motivational information, prompts, or reminders for intervention utilization, health care professional counselling or advice and peer contact, and self-monitoring or goal setting. In addition, we added the summaries of the interventions' modes of delivery and dose, duration, utilization, acceptability, and theory. These interventions are listed in chronological order in Table 7.

Table 7. Summary of web-based interventions

Author, Intervention Name, Country	Population	Educational or Motivational Information	Prompts or Reminders	HCP Counselling or Advice / (*Peer Contact)*	Self-monitoring / Goal setting	Intervention mode of delivery and dose, duration, acceptability, utilization, and theory
Health care professional involvement						
(Southard et al., 2003), *Internet based management system*, USA	CAD *n* = 104	Modules		Phone, Email / *(Forum)*	BP monitor, results of entered data in graphs	Weekly 30 min website logins from home to access education modules, self-tests, interactive graphs showing progress on entered self-reported PA and other clinical data. Contacts with HCP by email through system. **Duration:** 6 months **Utilization:** Mean website logins: 1.8 to 2/week. About 10.8 total hours of HCP clinical time spent. **Acceptability:** EG participants rated on average high satisfaction, helpfulness, and usability for the Internet-based management system. **Theory:** None specified
Jacobs and colleagues, *Tailored PreCardio intervention*, Belgium	Healthy *n* = 314	Tailored-text, non-tailored text	Email	Phone, Email, Chat, Forum / *(Forum)*	Calendars & diaries	Contact with psychologist and other HCP by face-to-face, phone, email, and forum. Website provided information and motivational assessments for tailoring, behaviour change techniques, calendar, diary, and peer forum. Dosage and choice of mode of delivery varied based on patient preference. **Duration:** 12 months **Utilization:** 50% of the EG visited the tailored website. 10% visited the PA section, "Minimove." Low utilization was explained by too many choices in mode of delivery and dose **Acceptability:** No data found **Theory:** TPB, SDT, and stages of change

Author, Intervention Name, Country	Population	Educational or Motivational Information	Prompts or Reminders	HCP Counselling or Advice / (*Peer Contact)*	Self-monitoring / Goal setting	Intervention mode of delivery and dose, duration, acceptability, utilization, and theory
Reid et al. (2012), *Tailored CardioFit intervention*, Canada	CAD *n* = 223	Tailored-text in tutorials, print booklet	Email	Email	Pedometer, results of entered data in graphs	Five online tutorials from 2 to 20 weeks (10-20 minutes each) post-hospital discharge. Tailored feedback on tutorials, tailored feedback on steps per day, and tailored PA plan. Behaviour change techniques included goal setting, and self-monitoring. Non-tailored email reminders. Emails for "motivational feedback" on progress, and responding to ad lib emails. Daily PA entries on website. After last tutorial at 20 weeks, new tailored PA plan every 6 weeks until 50th week. **Duration:** 20 weeks tutorials / 50 weeks PA plans **Utilization:** 2.7 tutorials / 5. 123 emails received. **Acceptability:** No data found **Theory:** Self-efficacy, and social support
Devi et al. (2014), Tailored *"ActivateYour Heart" intervention*, England	CAD *n* = 94	Tailored-text, non-tailored text		Email, chat	Diary, results of entered data in graphs	Weekly contacts with HCP through chat room and intended logins (3 to 4/week for PA, diet, emotions, and smoking). Results on assessments of behaviours presented in graphical format. Tailored feedback messages on performance and goals were established by the system. Behaviour change techniques included goal setting, and self-monitoring (online exercise diary). Information provided on several other CAD risk factors. **Duration:** 6 weeks **Utilization:** Mean website logins: 3/week. Those that completed the intervention were 19 (39.6%). **Acceptability:** Not measured **Theory:** None specified

Author, Intervention Name, Country	Population	Educational or Motivational Information	Prompts or Reminders	HCP Counselling or Advice / (*Peer Contact)*	Self-monitoring / Goal setting	Intervention mode of delivery and dose, duration, acceptability, utilization, and theory
Lear et al. (2014), *Internet-based cardiac rehabilitation program (vCRP)*, Canada	CAD *n* = 78	Slides		Individual chat, email / (*Ask-the-expert group chat forum*)	HR & BP monitor, weight, glucose, and other blood tests	Data entry of PA and clinical data (1 to 2/week to 1/month). One-on-one chat sessions with HCPs (3 times per participant of ~ 1-hour session in 4 months) plus monthly ask-the-expert group chat sessions (60 min/session). Weekly slide presentations. Biweekly upload of self-reported PA and other data at other frequencies. Ad lib emails. **Duration:** 4 months **Utilization:** Total mean website logins = 27 (we calculated about 1.7 per week). Mean 3.6 chat sessions with each participant using between 2.4 to 2.7 hours of HCP time per patient. **Acceptability:** Positive feedback on vCRP was reported based on qualitative interviews (*n* = 19) in which participants reported feeling more confident due to the support from the HCP and information received during the intervention. **Theory:** None specified
Mobile phone						
Maddison and colleagues *HEART intervention*, New Zealand	CAD *n* = 171	Non-tailored text, video, SMS			Pedometer	Three to 5 SMS per week: 118 total. Personalized SMS content included exercise prescription, tips, and 'motivational' messages (Maddison et al., 2011). Encouraged 1/week website views for videos of peer role models (30-60 seconds each), and other features such as self-monitoring, advice on PA and diet, and links to other website resources. Total estimated time: 10 min/week. **Duration:** 24 weeks

Author, Intervention Name, Country	Population	Educational or Motivational Information	Prompts or Reminders	HCP Counselling or Advice / (*Peer Contact)*	Self-monitoring / Goal setting	Intervention mode of delivery and dose, duration, acceptability, utilization, and theory
						Utilization: 82% read some or all SMS messages; 57% viewed some or all website videos (30-60 seconds each). Mean website views: once every 2 weeks. **Acceptability:** Based on pre-test data (*n* = 20): SMS good but too many of them can be "nagging." Based on qualitative focus-group data (*n* = 38): including both HCP and/or peers in videos is best. **Theory:** Self-efficacy
Antypas and Wangberg (2014), *Tailored mobile and web-based intervention*, Norway	CAD *n* = 69	Tailored-SMS, tailored-text, non-tailored text	SMS, email	(*Forum*)	Online calendar, results of entered data in graphs	Tailored-SMS and tailored website (i.e., text) every two weeks that were based on assessments of theoretical variables, and personal PA goals. Behaviour change techniques such as goal setting, and feedback on planned activities. SMS reminders. **Duration:** 3 months **Utilization:** Median time between first and last login for the EG was 45 days (data for time spent logged in was “not reliable” thus not analyzed). **Acceptability:** Nearly 70% of the EG would recommend website to friends (*n* = 9). EG rated usefulness as “yes” in any mode of delivery ranging between 60% and 100% (*n* = 3 to 7). **Theory:** Multiple including stages of change, regulatory focus, Health Action Process Approach, self-efficacy, social support, and relapse prevention.

Author, Intervention Name, Country	Population	Educational or Motivational Information	Prompts or Reminders	HCP Counselling or Advice / (*Peer Contact)*	Self-monitoring / Goal setting	Intervention mode of delivery and dose, duration, acceptability, utilization, and theory
Portal with peer support forum						
Lindsay et al. (2008), *Hearts of Salford web-based portal*, UK	CAD *n* = 108	Non-tailored text (and links to other websites)		Forum moderation (*Forum*)		Described on the European Commission website as a "relaxed online meeting place…(serving) as a gateway to information about heart disease healthy living and local services." Central features were the use of discussion forms and portal to other websites, but no clear report on modes of delivery was found. Both groups (EG and CG) were given new computers and Internet access, but only the EG obtained password access to the intervention (Hearts of Salford portal), and training. **Duration:** 6 months **Utilization:** No data found (Qualitative data was not focused on acceptability) **Acceptability:** No data found **Theory:** None specified
Tailored-videos						
Patrick and Canevello (2011), *Tailored need-supportive computerized personal trainer (CPT)*, USA	Healthy *n* = 197	Tailored-video			PDA	Seven weekly sessions with CPT meeting in research laboratory. Daily data entry of PA behaviour in PDA. Duration: 7 weeks **Utilization:** No data found **Acceptability:** No data found Theory: SDT

Author, Intervention Name, Country	Population	Educational or Motivational Information	Prompts or Reminders	HCP Counselling or Advice / (*Peer Contact)*	Self-monitoring / Goal setting	Intervention mode of delivery and dose, duration, acceptability, utilization, and theory
Friederichs, Oenema, et al. (2014), *Tailored I MOVE intervention*, Netherlands	Healthy *n* = 600	Tailored-video	Email			Four sessions: one every three weeks. Multiple tailored-videos of coach and non-tailored videos of peers and physician. Tailored-videos of coach based on assessments used in Motivational Interviewing. **Duration:** 12 weeks **Utilization:** No data found (protocol). **Acceptability:** No data found (protocol). **Theory:** Integration of SDT and Motivational Interviewing.

Notes. BP = blood pressure; CAD = coronary artery disease, HCP = health care professional; HR = heart rate; *n* = sample size at randomization; PA = physical activity; PDA = personal digital assistant; SCT = Social Cognitive Theory; SDT = Self-Determination Theory; SMS = short service message; TPB = Theory of Planned Behaviour.

We grouped the interventions in the following categories of modes of delivery: health care professional involvement, mobile phone, portal with peer support forum, and tailored-videos. We considered classification into these categories according to a prominent mode of delivery of intervention. Although, the categories are not mutually exclusive and modes of delivery overlap across these categories, the present classification allows for some simplification for analysis.

Health care professional involvement

We identified five interventions that had health care professional involvement as one important mode of delivery of the web-based intervention (Devi et al., 2014; Jacobs, De Bourdeaudhuij, et al., 2011; Lear et al., 2014; Reid et al., 2012; Southard et al., 2003). Although one other intervention included health care professional involvement, the amount of involvement was unclear, and it better fit the category of 'portal with peer support forum' (Lindsay et al., 2008). In these five interventions, health care professional involvement consisted of contacts by phone, email, chat or forum involving health behaviour change counselling or advice that exceeded technical support for the web-based system. The intervention dose of these contacts varied in frequency from ad lib, weekly, to approximately bimonthly. Two RCTs estimated time spent by health care professionals. Southard et al. (2003) estimated a total of 10.8 hours or about 25 minutes spent per patient among all health care professionals including time spent in monthly team meetings in the six-month Internet based management system. Lear et al. (2014) reported an average of 2.4, 2.6, and 2.7 hours spent per patient with nurses, dieticians, and exercise specialists respectively for a total of less than 8 hours of staff time per patient in the four-month vCRP. One intervention reported the number of emails received by health care professionals. Reid et al. (2012) reported 123 emails were received concerning questions on how to exercise, when is it safe to exercise, intervention utilization, symptoms, and other information unrelated to the CardioFit intervention.

Identified in three of these five interventions was the use of educational online formats such was modules, tutorials, and slides that were delivered from weekly to bimonthly (Lear et al., 2014; Reid et al., 2012; Southard et al., 2003). The duration of four of these five interventions were 4 months or greater (Jacobs, De Bourdeaudhuij, et

al., 2011; Lear et al., 2014; Reid et al., 2012; Southard et al., 2003). Only Devi et al. (2014) tested a six-week intervention. Therefore, an overall implication of these interventions included patients' commitment to maintaining contact with health care professionals, peers and educational materials provided through the web-based system.

Three of these five interventions were tailored (Devi et al., 2014; Jacobs, De Bourdeaudhuij, et al., 2011; Reid et al., 2012). In the "ActivateYourHeart" intervention by Devi et al. (2014), tailored feedback on behavioural performance using graphical illustrations was provided, as well as tailored goal setting based on assessments of behavioural performance and on goals in physical activity and in smoking. In the other two interventions (Jacobs, De Bourdeaudhuij, et al., 2011; Reid et al., 2012), tailored-text on the websites was provided as users interacted with tutorials and entered data on assessments of their behaviours such as step-count in CardioFit (Reid et al., 2012), or on assessments based on motivation such as stage of change and autonomous motivation in PreCardio (Claes & Jacobs, 2007). In both the CardioFit and PreCardio interventions reminder emails were sent (i.e., non-tailored text), which included encouragement to log in to the website in addition to motivational messages (Jacobs, De Bourdeaudhuij, & Claes, 2010; Reid et al., 2012). Jacobs et al. (2010) found that occurrence of emails that invited participants to visit the website, or provided motivational messages or feedback, was associated with an increased number of logins in the PreCardio website.

Mobile phone

The use of automated SMS delivered by mobile phone, in addition to a website was identified in two out of 10 RCTs (Antypas & Wangberg, 2014; Maddison et al., 2015). Both of these two interventions were fully automated (i.e., no health care professional involvement) (Antypas & Wangberg, 2014; Maddison et al., 2015). SMS frequency ranged between every two weeks in three months (Antypas & Wangberg, 2014), and three to six per week in 24 weeks (Maddison et al., 2015). Although Maddison et al. (2015) reported high adherence to viewing some or all SMS (82%), the CAD patients in the pre-test study warned that receiving "too many" SMS could be "nagging" (Pfaeffli et al., 2012, p. 6).

In addition to SMS, CAD patients in the HEART intervention had access to non-tailored educational videos on the website (Maddison et al., 2015). Based on their pre-test study testing brief 30 to 60 second videos, Pfaeffli et al. (2012) concluded that highest acceptability may be achieved by providing a mix of health care professionals or peers educational videos. In addition, the HEART intervention retained access to videos via website only, rather than both website and mobile phone, because Pfaeffli et al. found that CAD patients were not confident enough to access videos by mobile phone.

The intervention of Antypas and Wangberg (2014) provided tailored messages by SMS and online text based primarily on assessments of self-reported intention to increase physical activity within a given time-frame (or stage of change). Other theoretical constructs, such as self-efficacy, were assessed to tailor the message further within a particular stage of change. Moreover, whereas the intervention included a peer support forum, it was also present in the control group, thus not a distinguishing mode of delivery of the experimental group.

Portal with peer support forum

Another intervention, the Hearts of Salford, was described as a web-based health portal. However, little information on the details of this intervention was reported. Overall, it was mainly focused on peer support via an online discussion forum (moderated by health care professionals), and supplemented with health information within the portal and links to public websites (Lindsay et al., 2008).

Tailored-videos

Tailored-videos refers to tailored messages provided through pre-recorded videos. The use of tailored-videos of a coach or personal exercise trainer was identified in two out of 10 RCTs (Friederichs, Oenema, et al., 2014; Patrick & Canevello, 2011). These two interventions mainly relied on tailored-videos, rather than relying on other modes of delivery, and had no health care professional involvement (i.e., were fully automated). Notably, tailored-videos were not found in the web-based CAD literature.

Friederichs, Oenema, et al. (2014) (I MOVE, RCT in progress) argued that using tailored-videos of a real person rather than an animated representation of a person may

address relational aspects in web-based interventions because users see a face demonstrating facial expressions during message delivery. Friederichs, Oenema, et al.'s suggestion in using videos of a real person was based on their past work that tested three conditions in an RCT: 1) a Motivational Interviewing intervention (without SDT) involving tailored-videos of an animated coach, 2) an identical intervention without the video-coach using tailored-text only, and 3) a no-intervention control group (Friederichs, Bolman, Oenema, Guyaux, & Lechner, 2014). Although significantly greater increases in physical activity were found in either the tailored-videos or the tailored-text interventions compared to the no-intervention control group, no differences were found between either intervention (i.e., tailored-videos versus tailored-text) (Friederichs, Bolman, et al., 2014). Friederichs, Oenema, et al. hypothesized that tailored-videos may be more efficacious on physical activity outcomes than tailored-text only, if the tailored-videos represent a realistic coach, which is best implemented through videos of a real person.

In I MOVE, Friederichs, Oenema, et al. (2014) integrated SDT with Motivational Interviewing, such that SDT was used to determine the theoretical constructs to target by the Motivational Interviewing intervention, and to explain the intervention's effects on planned physical activity outcomes. I MOVE consists of sessions with tailored-videos of a real coach every three weeks for 12 months (Friederichs et al., 2013), tailored on assessments used in Motivational Interviewing such as rating levels of importance and confidence towards behaviour change and a mix of multiple choice and short answer questions consistent with this approach (Friederichs, Oenema, et al., 2014). It also includes generic educational videos of health care professionals explaining, for instance, the benefits of physical activity and peers stating their reasons for becoming more physically active, and how they attained their goals (Friederichs, Oenema, et al., 2014).

Patrick et al. (2012) consisted of seven weekly sessions (i.e., seven-week duration) with tailored-videos of a coach who provided advice on how to overcome barriers to physical activity (Patrick & Canevello, 2011). The CPT videos were tailored on assessments of past physical activity, current physical activity goals, and daily assessments derived from participants' personal digital assistants (PDA). The PDA included assessments of physical activities, and expectations, motivation and emotion related to performing physical activity the next day (Patrick & Canevello, 2011).

In summary, given that the use of videos as a mode of delivery in the CAD literature is sparse, testing our proposed intervention, which is primarily video-based, may help advance knowledge in our field. We retained the use of tailored-videos of a real nurse (the Virtual Nurse) and peers who provide educational and motivational information viewed via a website. Our choice is supported by the works by Friederichs and colleagues who suggested that the use of tailored-videos of a real person in fully automated web-based interventions may address relational aspects in intervention delivery. In addition, evidence shows that brief videos (< 60 seconds) of health care professionals and peers are both appreciated (Pfaeffli et al., 2012).

Non-tailored information seems fundamental in most web-based interventions and supplements tailored information. Therefore, non-tailored educational and motivational information in online text or printable format, which is allowable in TAVIE^{TM}, was retained.

Reminding patients to use the intervention may be important for intervention utilization (Jacobs et al., 2010), and can be achieved through their preferred mode of delivery (email or SMS), noting that too many reminders may not be appreciated (Pfaeffli et al., 2012). Therefore, email or SMS reminders for intervention utilization was retained.

We retained a dose of approximately weekly frequency within a short intervention duration. Although there is a paucity of RCTs in the CAD literature testing shorter duration interventions, the video-tailored SDT-based CPT intervention tested weekly sessions in seven weeks finding promising results (Patrick et al., 2012). We retained this same weekly frequency, but within an intervention duration of four weeks, which is sufficient to include intervention content guided by the integrated SBNC and SDT theoretical framework.

Summarize the strengths and limitations of TAVIE en m@rche

An important strength of the proposed intervention design is its grounding in a solid theoretical framework that integrates an approach to nursing practice (SBNC) with a theory on human behaviour (SDT). Although SBNC delineates nursing values, it does not propose theory on health behaviour change. Although SDT provides theory on health behaviour change, it lacks a clear set of values that may be used in the design of interventions provided by health care professionals, namely nurses. Therefore, the integration of SBNC and SDT allowed us to delineate the intervention strategies in a way that could not be achieved with either SBNC or SDT alone.

One limitation is the discrete number of constructs that the intervention targets, and therefore some efficacious intervention strategies may have been overlooked. The results of the proposed intervention may be viewed as building blocks that could lead to further improvements in the theoretical framework and target constructs. Other limitations involve the challenges in keeping the intervention consistent with SBNC because the intervention is web-based rather than face-to-face. SBNC assumes nurse-to-person interactions, and computer-to-person interactions may lack in the degree that it attains consistency to SBNC values. We present how this limitation is addressed in the operationalization of the intervention (see the Intervention Manual in Appendix A)

In summary, our intervention is unique in that it is a shorter duration (i.e., four weeks) than what is found in the web-based CAD RCT literature. In addition, our intervention is unique such that the integrated SBNC and SDT intervention framework guided the choices of the intervention elements including the theoretical constructs to be targeted by the intervention. To our knowledge, no RCTs have tested a web-based tailored intervention aimed at increasing physical activity in ACS patients, guided by an approach to nursing practice such as SBNC, in which tailoring was based on SDT constructs.

Research Hypotheses

We propose one primary hypothesis related to change in steps per day, five secondary hypotheses related to physical activity, and 16 exploratory hypotheses.

Primary

Steps per day was the chosen primary outcome because it can objectively capture walking behaviour (Ainsworth et al., 2015), which is a step-based activity. Two solid RCTs in our field, testing web-based tailored interventions in CAD patients, demonstrated significant improvements in their primary outcome of steps per day at six weeks (Devi et al., 2014), and at six and 12 months (Reid et al., 2012) post-randomization. Therefore, we hypothesize that in ACS patients receiving the web-based tailored nursing intervention EG as compared to the usual care public websites CG will demonstrate a greater *increase* in:

H1: steps per day between randomization and 12 weeks

Secondary

The secondary hypotheses include greater increases in steps per day immediately post-intervention at five weeks post-randomization. Other secondary hypotheses are related to change in walking and MVPA. Two solid RCTs in our field have demonstrated significant improvements in secondary outcomes for self-reported walking (Maddison et al., 2015), and MVPA (Maddison et al., 2015; Reid et al., 2012). Because the focus of our intervention is on increasing walking in ACS patients, we expect to capture most of the change in energy expenditure through walking. However, there may be a few patients that will increase MVPA in addition to walking if they attend a secondary prevention program during the study, as this is encouraged at hospital discharge, and then reinforced during the intervention to all EG participants. Therefore, we hypothesize that in ACS patients receiving the web-based tailored nursing intervention EG as compared to the usual care public websites CG will demonstrate a greater *increase* in:

H2: steps per day between randomization and 5 weeks

H3: energy expenditure for walking between randomization and 5 weeks

H4: energy expenditure for walking between randomization and 12 weeks

H5: energy expenditure for moderate to vigorous intensity physical activity between randomization and 5 weeks

H6: energy expenditure for moderate to vigorous intensity physical activity between randomization and 12 weeks

Exploratory

SDT applied in health care settings suggests that increased physical activity levels, such as through walking, can be explained by improvements of three SDT constructs: perceived autonomy support, self-determined motivation continuum (controlled versus autonomous motivations), and perceived competence (Ng et al., 2012). Given that these hypotheses are exploratory, we consider both perceived autonomy support from a significant other and the allocated research website as one construct to simplify the hypotheses. Although the support for barrier self-efficacy in explaining increased physical activity is weak in the web-based CAD literature (Maddison et al., 2014), CAD patients nonetheless report barriers (Fleury et al., 2004; Rogerson et al., 2012), and variables related to barrier self-efficacy are consistently associated with physical activity in CAD patients (Petter et al., 2009). We expect an indirect effect of the intervention on steps per day, such that improvements in the proposed SDT constructs and barrier self-efficacy will in turn influence increases in steps per day. Therefore, we hypothesize that the effect of the web-based tailored nursing intervention EG on greater steps per day at 12 weeks compared to the usual care public websites CG will be mediated by:

H7: *a greater level* of perceived autonomy support from a significant other and from the intervention website at 5 weeks

H8: *a greater decrease* in controlled motivation between randomization and 5 weeks

H9: *a greater increase* in autonomous motivation between randomization and 5 weeks

H10: *a greater increase* in perceived competence between randomization and 5 weeks

H11: *a greater increase* in barrier self-efficacy between randomization and 5 weeks

Depression and fatigue were not retained as outcomes because of the uncertainty that web-based interventions in CAD populations can decrease depression symptoms (Antypas & Wangberg, 2014; Devi et al., 2014; Southard et al., 2003), and because it is unknown if fatigue is amenable to change by such interventions as this variable was not tested previously in the web-based CAD literature. These two variables are nonetheless retained as covariates because of their associations with physical activity found in the CAD observational studies.

We retained quality of life as an exploratory outcome because the literature in our field found it to be influenced, but inconsistently by the interventions. In addition, despite the proposed 'gateway' effect of increased physical activity on other health behaviour changes, evidence supporting the 'gateway' effect is weak. Diet was not retained as an outcome because of the uncertainty that it can be improved in a web-based intervention focused only on increasing walking. However, smoking status was retained because of its importance in secondary prevention programs and because nicotine withdrawal and craving may be temporarily relieved with moderate-intensity physical activity. Medication adherence was retained because most, if not all ACS patients will leave hospital discharge with a medication prescription, and is another important outcome in secondary prevention. Attendance to a secondary prevention program was retained because attendance is reinforced in the intervention. Although the evidence is preliminary, fewer emergency department visits and hospitalizations have been consistently found in favour of web-based interventions in the CAD literature. As such, emergency department visits, and hospitalizations were retained as exploratory outcomes. Therefore, we hypothesize that ACS patients receiving the web-based tailored nursing intervention EG as compared to the usual care public websites CG will demonstrate <u>at 12 weeks</u>:

H12: *a greater level* of global quality of life

H13: *a greater level* of emotional quality of life

H14: *a greater level* of physical quality of life

H15: *a greater level* of social quality of life

H16: *a greater* proportion reporting having not smoked

H17: *a greater* proportion reporting optimal cardiac medication adherence

H18: *a greater* proportion reporting attendance in a secondary prevention program

H19: *a lower* proportion of emergency department visits

H20: *a lower* proportion of hospitalizations

No RCT in our field examined whether the effect of the intervention depended on the sex of the patient, although observational studies in CAD have found that females are less active than males. Therefore, we hypothesize that the effect of the web-based tailored nursing intervention on steps per day at 12 weeks compared to usual care public website will depend on:

H21: the sex of the participant, such that the intervention will be *less* efficacious on steps per day in females than in males

Although angina frequency may be amenable to change by a web-based intervention, significant reduction in angina symptom frequency was found in only one of the two RCTs measuring this variable in the CAD literature (Devi et al., 2014). We therefore hypothesize that ACS patients receiving the web-based tailored nursing intervention experimental group compared with the usual care publicly available websites control group will demonstrate at 12 weeks:

H22: *an equal* level of angina frequency

Chapter 3. Methods

This chapter presents the methods as published in the *Journal of Medical Internet Research Protocols* (Kayser et al., 2017), named the "Protocol Article." Following this article, we included the statistical methods that were implemented for the exploratory outcomes not presented in either the Protocol or the Primary Results Articles.

Protocol Article

Citation : Kayser, J. W., Cossette, S., Cote, J., Bourbonnais, A., Purden, M., Juneau, M., Tanguay, J. F., Simard, M. J., Dupuis, J., Diodati, J. G., Tremblay, J. F., Maheu-Cadotte, M. A., Cournoyer, D. (2017). Evaluation of a web-based tailored nursing intervention (TAVIE en m@rche) aimed at increasing walking after an acute coronary syndrome: A multicenter randomized controlled trial protocol. *JMIR Research Protocols*, 6, e64. doi:10.2196/resprot.6430

Abstract

Background: Despite the health benefits of increasing physical activity in the secondary prevention of acute coronary syndrome (ACS), up to 60% of ACS patients are insufficiently active. Evidence supporting the effect of Web-based interventions on increasing physical activity outcomes in ACS patients is growing. However, randomized controlled trials (RCTs) using Web-based technologies that measured objective physical activity outcomes are sparse.

Objective: Our aim is to evaluate in insufficiently active ACS patients, the effect of a fully automated, Web-based tailored nursing intervention (TAVIE en m@rche) on increasing steps per day.

Methods: A parallel two-group multicenter RCT (target N=148) is being conducted in four major teaching hospitals in Montréal, Canada. An experimental group receiving the 4-week TAVIE en m@rche intervention plus a brief "booster" at 8 weeks, is compared with the control group receiving hyperlinks to publicly available websites. TAVIE en m@rche is based on the Strengths-Based Nursing Care orientation to nursing practice and the Self-Determination Theory of human motivation. The intervention is centered on

videos of a nurse who delivers the content tailored to baseline levels of self-reported autonomous motivation, perceived competence, and walking behavior. Participants are recruited in hospital and are eligible if they report access to a computer and report less than recommended physical activity levels 6 months before hospitalization. Most outcome data are collected online at baseline, and 5 and 12 weeks postrandomization. The primary outcome is change in accelerometer-measured steps per day between randomization and 12 weeks. The secondary outcomes include change in steps per day between randomization and 5 weeks, and change in self-reported energy expenditure for walking and moderate to vigorous physical activity between randomization, and 5 and 12 weeks. Theoretical outcomes are the mediating role of self-reported perceived autonomy support, autonomous and controlled motivations, perceived competence, and barrier self-efficacy on steps per day. Clinical outcomes are quality of life, smoking, medication adherence, secondary prevention program attendance, health care utilization, and angina frequency. The potential moderating role of sex will also be explored. Analysis of covariance models will be used with covariates such as sex, age, fatigue, and depression symptoms. Allocation sequence is concealed, and blinding will be implemented during data analysis.

Results: Recruitment started March 30, 2016. Data analysis is planned for November 2017.

Conclusions: Finding alternative interventions aimed at increasing the adoption of health behavior changes such as physical activity in the secondary prevention of ACS is clearly needed. Our RCT is expected to help support the potential efficacy of a fully automated, Web-based tailored nursing intervention on the objective outcome of steps per day in an ACS population. If this RCT is successful, and after its implementation as part of usual care, TAVIE en m@rche could help improve the health of ACS patients at large.

Trial Registration: ClinicalTrials.gov NCT02617641

Introduction

Acute coronary syndromes (ACS) are among the leading causes of coronary artery disease mortality and are among the top reasons for health care utilization in North America (Ko et al., 2010; Statistics Canada, 2012; Writing Group et al., 2016) and worldwide (World Health Organization, 2016). Physical activity is one behavior associated with several health benefits in ACS patients, including reduced mortality and health care utilization. Accumulating an equivalent of 150 minutes per week of moderate-intensity physical activity is associated with reduced all-cause (Apullan et al., 2008; Gerber et al., 2011; Janssen & Jolliffe, 2006) and cardiac mortality risk (Apullan et al., 2008) compared with lower levels of physical activity. Evidence from cohort data suggests that all-cause mortality risk can be reduced by accumulating half of the recommendation compared with zero minutes, and further reductions are obtained as physical activity increases (Moore et al., 2012), which may also be applicable to ACS populations. Other health benefits of increased physical activity in ACS include improved quality of life (Shepherd & While, 2012), reduced cardiac risk factors such as dyslipidemia and hypertension, and reduced health care utilization such as hospitalizations (Stone et al., 2009). Moreover, positive change in one health behavior, such as an increase in physical activity, may increase overall confidence and serve as a gateway to changing other health behaviors (Prochaska et al., 2008), such as increased smoking cessation, improved diet, medication adherence, or attendance in a cardiac secondary prevention program. Therefore, these multiple health benefits place increased physical activity as a cornerstone in the secondary prevention of ACS (Stone et al., 2009). Despite these benefits, between 40% and 60% of patients were insufficiently active after an ACS event (Gerber et al., 2011; Janssen & Jolliffe, 2006; Reid et al., 2006).

Increased physical activity is promoted in traditional secondary prevention programs that consist of face-to-face or phone health behavior change counseling, which may range from brief to intensive counseling, and most include supervised exercise in affiliated hospital settings (Grace et al., 2014). However, only 22%-30% of cardiac patients attend face-to-face secondary prevention programs (Grace et al., 2002; Karmali

et al., 2014). Barriers include the difficulty of accessing these programs among those living in remote locations where secondary prevention programs are not offered, traveling to meetings, or reaching those who lack motivation or are unwilling to participate in these programs. Therefore, alternative ways of delivering these programs are being examined in research, including use of the Web (Grace et al., 2014).

Web-based interventions aimed at improving health behaviors have been tested mostly in general adult populations. These interventions include modes of delivery such as online text, videos, and discussion forums, and include other modes complementary to websites such as email and text message (Eysenbach & CONSORT-EHEALTH Group, 2011). A meta-analysis of randomized controlled trials (RCTs) and quasi-experimental studies in mainly general adult populations or adults with cardiac risk factors found a significantly greater effect on physical activity outcomes in Web-based interventions compared with usual care control groups that were not Web-based (d=0.14, P<.001) (Davies et al., 2012). Although intervention effects were small, a greater effect was found in studies that included only insufficiently active participants compared with those that included any level of physical activity (d=0.37 vs 0.12, respectively, P<.05) (Davies et al., 2012).

Web-based tailored interventions are expected to increase the relevancy of and attention to the information delivered, which in turn is expected to improve effects on health behavior change (Kreuter et al., 2013; Lustria et al., 2009). Tailoring can be static, such that tailored messages are provided based on a single baseline assessment, or dynamic, such that tailored messages are provided based on multiple assessments from baseline to follow-up (Krebs, Prochaska, & Rossi, 2010). Although a meta-analysis of RCTs and quasi-experimental studies in mainly general adult populations or adults with cardiac risk factors found no differences between tailored versus non-tailored interventions on physical activity outcomes, the authors found a significant effect in favor of tailoring (static or dynamic) on smoking cessation and healthy diet outcomes (Lustria et al., 2013). Therefore, increased physical activity in Web-based interventions may not depend only on tailoring. Perhaps the combination of components within Web-based tailored interventions matters, such as the variables on which tailoring was based (eg, motivation and confidence), modes of delivery used (eg, combining online text, videos,

email, and others), level of intervention intensity delivered, and target population characteristics. Therefore, further research is needed to test innovative combinations of these components in tailored interventions to influence greater increases in physical activity.

In ACS patients, a Cochrane review found some evidence in eight RCTs to support the effect on increased physical activity outcomes in favor of Web-based interventions (tailored or not) compared with usual care (Devi et al., 2015). However, heterogeneity between these RCTs prevented a meta-analysis on physical activity outcomes (Devi et al., 2015). Among these eight RCTs, one was a pilot (Zutz et al., 2007), two were not powered on physical activity outcomes (Lindsay et al., 2008; Southard et al., 2003), and one was powered on a self-reported physical activity outcome, but results were limited by the majority of participants dropping out (Antypas & Wangberg, 2014). Only four RCTs were full-sized and powered on objective physical activity outcomes (Devi et al., 2014; Lear et al., 2014; Maddison et al., 2015; Reid et al., 2012), among which, two tested tailored interventions (Devi et al., 2014; Reid et al., 2012). Both found significantly greater levels in the primary outcome of steps per day in favor of the tailored experimental groups (Devi et al., 2014; Reid et al., 2012). These data suggest that in ACS populations, the effects of tailored interventions on steps per day outcomes are promising.

The other two RCTs tested nontailored interventions measuring the primary outcome of exercise capacity compared with usual care (Lear et al., 2014; Maddison et al., 2015). One RCT found a significantly greater increase in a proxy outcome of exercise capacity, maximal time on treadmill, in favor of the experimental group (Lear et al., 2014). In contrast, the other RCT found no difference between groups in treadmill-measured peak oxygen uptake, despite finding significantly greater increases in a subjective secondary outcome of self-reported physical activity in favor of the experimental group (Maddison et al., 2015). Considering these four RCTs, the content of the Web-based interventions tested were sufficient to increase steps per day (Devi et al., 2014; Reid et al., 2012) and maximal time on treadmill (Lear et al., 2014), but the exercise intensity was insufficient to increase peak oxygen uptake (Maddison et al., 2015). No RCTs tested Web-based interventions, with or without tailoring, in ACS

patients performing insufficient physical activity. The paucity of strong evidence highlights the need for future full-sized RCTs testing Web-based tailored interventions on objective physical activity outcomes in ACS populations.

Theoretical framework

We designed the fully automated, Web-based tailored nursing intervention TAVIE en m@rche in French. "TA VIE" means your life, and "en marche" means walking as the intervention is focused on increasing walking behavior in one's daily life after an ACS-related hospitalization. The tailored content of TAVIE en m@rche is presented to participants by prerecorded videos of a nurse. We used Strengths-Based Nursing Care (SBNC) integrated with Self-Determination Theory (SDT) as the intervention's theoretical framework. SBNC describes an orientation to nursing practice or a "way of being" that is manifested through person-centered, holistic, knowledgeable, and compassionate nursing care (Gottlieb, 2013). SBNC is driven by eight values that focus on "understanding the whole, … and understanding how strengths and weaknesses interact to promote health, and healing" (Gottlieb, 2013, p. 120): (1) health and healing refers to creating and restoring persons' sense of wholeness in all domains of human functioning, (2) uniqueness of the person refers to understanding unique experiences and strengths, (3) holism and embodiment refers to understanding the complexities underlying the relationships among the mind, brain, and other body systems, (4) objective/subjective reality and created meaning refers to understanding along with objective observations, subjective realities through created meanings of persons' experiences, (5) self-determination refers to respecting persons' right to a life grounded in volition and free will, (6) person and environment are integral refers to understanding how persons' environments influence health and healing, (7) learning, readiness, and timing refers to being sensitive to readiness and timing when engaging patients in an active learning or change process, and (8) collaborative partnership between nurse and person refers to both nurse and patient sharing knowledge and strategies that foster health and healing.

Self-determination, one of the eight SBNC values, is particularly relevant in nursing care, and in human motivation to adopt health behavior changes. This value was

drawn from literature on self-determination including past works on the SDT of human motivation (Deci & Ryan, 1985). Empirical work in SDT applied in health care settings has presented two models (Ng et al., 2012). The first model suggests that improvements in physical and mental health can be explained by the satisfaction of the psychological needs of autonomy, competence, and relatedness (Ng et al., 2012). However, our Web-based intervention that has a minimal focus on encouraging social support from others may not be powerful enough to influence the construct of relatedness, which refers to the "feeling of being respected, understood, and cared for by others" (Ng et al., 2012, p. 327), such as exercise companions. Therefore, the second model that excludes the construct of relatedness (Ng et al., 2012) was retained. This model suggests that improvements in health behavior can be explained by improvements in three SDT constructs: increased perceived autonomy support, improved self-determined motivation (decreased controlled vs increased autonomous motivations), and increased perceived competence (Ng et al., 2012; Williams et al., 2006). Perceived autonomy support refers to the perception that during an intervention or interaction with a significant other, choices were provided, rationale was offered, and acknowledgement or empathy was expressed (Ng et al., 2012). Controlled motivation refers to actual or future behavior change that is imposed by others or that is motivated out of a sense of guilt and shame in the presence of failure in change (Ng et al., 2012). Autonomous motivation refers to actual or future behavior change that is volitional, aligned with one's goals and values, or motivated by sheer enjoyment (Ng et al., 2012). Perceived competence, similar to self-efficacy (Williams et al., 2006), refers to the degree of confidence in one's capability in achieving a health behavior change goal (Ng et al., 2012). From the cardiac literature, barrier self-efficacy refers to degree of confidence in overcoming barriers towards health behavior change (Blanchard et al., 2002). A systematic review found that the relationships between these SDT constructs and physical activity outcomes were well supported (Teixeira et al., 2012), suggesting that interventions that are efficacious at influencing positive changes in SDT constructs may also influence improvements in physical activity outcomes.

SDT is a novel approach to theoretical grounding in the Web-based physical activity literature as no studies using SDT were found in past meta-analyses in either general adult populations (Davies et al., 2012) or ACS patients (Devi et al., 2015).

However, we found three full-sized RCTs testing the effect of Web- and SDT-based interventions in general adult populations that were powered on self-reported physical activity outcomes (Friederichs, Oenema, et al., 2015; Patrick et al., 2012) or a composite outcome that included physical activity (Jacobs, De Bourdeaudhuij, et al., 2011). Among the two RCTs powered on a self-reported physical activity outcome, the most recent found a significant increase of 71 minutes in weekly moderate to vigorous physical activity at 12 months in favor of the SDT-based intervention compared with a waitlist control (Friederichs, Oenema, et al., 2015). In this RCT, the SDT-based intervention consisted of tailored messages delivered in text format and nontailored information (motivational and educational) delivered by videos of a physical activity expert. In the other RCT, the authors did not report effects on physical activity outcomes in their conference abstract (Patrick et al., 2012). In the RCT powered on a composite outcome of self-reported weight, diet, smoking, and physical activity, the authors reported no effect on the physical activity outcome, which was possibly due to a lack of intervention utilization because too many choices were given in intervention intensities and modes of delivery in the experimental group (Jacobs, De Bourdeaudhuij, et al., 2011). Therefore, the Web- and SDT-based intervention literature is sparse (Friederichs, Oenema, et al., 2015; Jacobs, De Bourdeaudhuij, et al., 2011; Patrick et al., 2012), despite the solid evidence supporting the positive associations between SDT constructs and physical activity outcomes (Teixeira et al., 2012). To our knowledge, no RCT has tested a Web- and SDT-based intervention on physical activity outcomes in ACS patients whether sufficiently active or not. In addition, an innovation not yet examined in the Web-based ACS literature is the use of fully automated videos in tailored interventions. Use of videos could better convey the nurses' strengths-based "way of being" because patients can view and listen to the nurse who presents tailored motivational and educational information instead of reading this same information in text format.

Study aim and hypotheses

The aim of this RCT is to evaluate in insufficiently active ACS patients, the effect of a fully automated, Web-based tailored nursing intervention (TAVIE en m@rche) on increased steps per day. Our primary hypothesis is that ACS patients in the experimental group receiving TAVIE en m@rche compared with the control group receiving

hyperlinks to publicly available websites will demonstrate a greater increase in change in steps per day between randomization and 12 weeks (H1). Secondary hypotheses are a greater increase in change in steps per day between randomization and 5 weeks (H2), and in energy expenditure for walking and moderate to vigorous physical activity between randomization and 5 weeks, and randomization and 12 weeks (H3 to H6).

We are interested in assessing if the change in SDT variables immediately postintervention at 5 weeks will explain the hypothesized increase in steps per day at 12 weeks. Therefore, we will explore the mediating role of the SDT constructs (perceived autonomy support, controlled and autonomous motivations, perceived competence) and barrier self-efficacy on the effect of TAVIE en m@rche on increased steps per day at 12 weeks (H7 to H11 respectively).

We will also explore the effect of TAVIE en m@rche at 12 weeks on improved quality of life (global, emotional, physical, and social), smoking, medication adherence, secondary prevention program attendance, emergency visits, and hospitalizations (H12 to H20). The potential moderating role of sex on the effect of TAVIE en m@rche on steps per day at 12 weeks will also be explored (H21). Finally, we expect no adverse effect, which is represented by an equal level of angina symptom frequency at 12 weeks in both groups (H22).

Methods

This section is presented according to the SPIRIT 2013 statement in defining standard protocol items for clinical trials (Chan et al., 2013). The completed CONSORT EHEALTH checklist (Eysenbach & CONSORT-EHEALTH Group, 2011) is found in Multimedia Appendix 1 of the online publication.

Study design and settings

The study design is a two-group parallel multicenter RCT testing the effect of an experimental group that is receiving access to a 4-week Web-based tailored nursing intervention (TAVIE en m@rche) and a brief "booster" at 8 weeks, compared with a control group that is receiving access to hyperlinks of publicly available websites on

increased steps per day. Study settings are at four major teaching hospital centers in Montreal, Canada.

Eligibility criteria

Patients are eligible if they are home the third week after an ACS-related hospitalization, have no serious medical condition that would impede adhering to moderate-intensity physical activity, report access in any location to a computer with a USB port that is connected to the Internet, and report the ability to read and speak French. Patients are ineligible if they self-report sufficient physical activity during 6 months prior to the hospitalization where they are recruited (ie, performed at least 150 minutes [30 minutes 5 days a week] of moderate-intensity physical activity per week or at least 75 minutes [25 minutes 3 days per week] of vigorous-intensity physical activity per week), have documented New York Heart Association Class III-IV heart failure, or reported planned involvement in intensive regular clinical follow-up (eg, an outpatient heart failure clinic) during TAVIE en m@rche. One hospital center asked that those who are eligible for participation in their onsite secondary prevention program (ie, new diagnosis of ACS and age <75 years) be ineligible for study participation to avoid delivery of parallel secondary prevention interventions at that center.

Interventions

Both groups receive usual care from hospital entry to return home. At all four recruitment centers, from hospital entry to hospital discharge, usual care consists of brief counseling by hospital staff on discharge issues such as new medications and their side effects and on health behavior changes such as progressively increasing physical activity at home. Printed materials are provided as teaching aids to complement the brief counseling. As well, patients receive referrals to onsite or community-based secondary prevention programs.

After hospitalization, all centers offer secondary prevention programs, but at varying doses. All offer an educational group program on the topic of cardiac risk factors and health behaviors aimed at reducing these risk factors, but the number of sessions varies between one and eight across the four centers. Also, three of the four centers offer onsite supervised exercise programs, but the number of sessions vary between one to

three times per week. Two of the programs are 12 weeks in duration, and the other lasts 1 year.

Control group

The control group receives a list of four hyperlinks on a unique webpage of available online information that is Canadian, French, and that included information on walking. Three major Canadian nonprofit or public organizations are included: Montreal Heart Institute, Heart and Stroke Foundation, and Canadian Society for Exercise Physiology. In addition, because key recommendations on walking post–ACS-related hospitalization were derived from a patient education booklet published by the Montreal Heart Institute that is available online, the walking program in this booklet is also included in the list of hyperlinks. All websites provide information in text format without the use of videos.

Experimental group

The experimental group receives access to TAVIE en m@rche. The central feature of TAVIE en m@rche is the prerecorded videos of a nurse (see Multimedia Appendix 2 of the online publication) who presents the fully automated tailored intervention content delivered according to patients' baseline assessments of autonomous motivation, perceived competence, and walking behavior. Other modes of delivery include online text that appears beside the videos to allow simultaneous reading of the video's content, and downloadable PDF files referred to by the nurse. Access to TAVIE en m@rche starts at randomization between the fourth and fifth week after hospitalization, which depends on when the baseline online assessment is submitted. The suggested completion time of the intervention is 4 weeks but access to the intervention ends at 11 weeks postrandomization. An additional brief "booster" is added at 8 weeks postrandomization. We estimate about 60-75 minutes is sufficient to complete the intervention. TAVIE en m@rche consists of 73 videos, each lasting on average nearly 1 minute with most (n=68) lasting less than 2 minutes. The TAVIE platform has simple webpage layouts and is easy to navigate (Côté et al., 2012).

The intervention goal is to encourage a progressive increase in walking behavior, up to the recommended 150 minutes per week at moderate-intensity, which is determined

by an adapted version of the Borg Rating of Perceived Exertion (Deschênes et al., 2009). This walking level is recommended to all patients at discharge for an ACS-related hospitalization by their treating physician unless a contraindication is present such as comorbid physical condition or an environmental constraint. Such patients are ineligible for study participation.

The intervention is based on a theoretical framework that integrates SBNC with SDT. SBNC focuses on nursing values such as fostering a collaborative partnership with the person, supporting the person's self-determination in their decisions and actions, and working with the person's strengths in the aim of achieving health and healing. The SDT on human motivation specifies theoretical constructs for physical activity to be targeted by the intervention strategies and to drive the tailoring process. The intervention strategies are specifically targeted toward increasing self-reported perceived autonomy support, autonomous motivation, and/or confidence (combined perceived competence and barrier self-efficacy).

The appeal of using videos as the main mode of delivery, rather than text-only format, is the greater ability to convey the strengths-based nursing way of being that is manifested in part by nonverbal behaviors such as tone of voice (eg, energetic vs neutral) and body language (eg, smiling vs a sincere nonjudgmental expression), and by verbal behaviors (ie, the nurse's script). This script, consistent with both SBNC and SDT, drawn from our past literature review (Kayser et al., 2014), followed five global strategies: being collaborative, being strengths-focused, providing choice, offering rationale, and expressing empathy. These global strategies can be thought of as the fabric in which the entire intervention content is interwoven. As such, we expect that the use of videos instead of text-only format will be more interesting and motivating to participants because the SBNC way of being will be better conveyed.

The intervention consists of four specific strategies targeting increasing perceived autonomy support, autonomous motivation, and/or confidence aimed at increasing walking behavior: Strategy (1) Providing information and feedback to build motivation and confidence; Strategy (2) Exploring reasons to build motivation; Strategy (3) Exploring personal strengths to build confidence; and Strategy (4) Developing an action

plan to build and consolidate motivation and confidence. These strategies are operationalized by 19 behavior change techniques. The terminologies of those 19 techniques were made consistent with those of the CALO-RE taxonomy (Michie et al., 2011) (Table 8). These behavior change techniques were drawn from three main literary sources: (1) SDT-based physical activity face-to-face or Web-based interventions and Motivational Interviewing due to its consistency with SDT (Markland et al., 2005), (2) facilitators of physical activity such as improved cardiac health and quality of life, and barriers of physical activity such as lack of time and the presence of fatigue and depressive symptoms found in cardiac patients, and (3) two patient education booklets on the secondary prevention of ACS (Deschênes et al., 2009; Patenaude et al., 2010). The content validity of comparing intervention strategies (global and specific) with the theoretical background was done by the Université de Montréal scientific PhD jury of the first author. One cardiac nurse reviewed the operationalization of the entire intervention, and two clinical kinesiologists in secondary prevention reviewed the operationalized information on walking.

The strategies are conveyed through a set of videos that build toward participants' commitment to developing their own action plan. The order of the strategies is determined by the primary static tailoring method that is driven by participants' baseline self-reported autonomous motivation (low vs high), confidence (low vs high), and walking behavior, which resulted in four tailored profiles: A, B, C, and D (Figure 6). Profiles A, B, and C are assigned from scores that are below the recommended 150 minutes per week of walking. Profile A receives Strategies 1 (information), 2 (reasons), 3 (strengths), and 4 (action plan) because this profile is low in motivation and confidence. Profile B receives Strategies 1 (information), 2 (reasons), and 4 (action plan) because this profile is low in motivation. Profile C receives Strategies 1 (information), 3 (strengths), and 4 (action plan) because this profile is low in confidence. Profile D receives Strategies 1 (information), and 4 (action plan) because this profile is high in motivation and confidence. In addition, participants who attained the recommended minutes per week of walking between hospital discharge and baseline receive Profile D.

Table 8. Specific strategies, intermediate intervention goals, behavior change techniques, and targeted SDT variables

Specific strategy	Intermediate intervention goal	Behavior change technique	Targeted SDT variable[a]
1. Providing information and feedback on walking behavior	To help patients build or consolidate motivation and confidence to increase walking behavior or maintain sufficient walking behavior	1.1 Provide information on consequences of behavior in general by providing information on potential advantages of physical activity through walking	▫Perceived autonomy support from the intervention ▫Autonomous motivation
		1.2 Provide instruction on how to perform the behavior of attaining the recommended minutes per week of physical activity through walking	▫Perceived autonomy support from the intervention ▫Confidence
		1.3 Provide feedback on performance tailored to minutes per week of walking in the past 7 days	▫Perceived autonomy support from the intervention ▫Confidence
2. Exploring reasons to increase walking behavior	To help patients build motivation to increase walking behavior	2.1 Motivational interviewing, asking evocative questions to explore advantages of increasing walking behavior, and to explore goals and values[c]	▫Perceived autonomy support from the intervention ▫Autonomous motivation
		2.2 Motivational interviewing, sharing a list of potential reasons to increase walking behavior[c]	▫Perceived autonomy support from the intervention ▫Autonomous motivation
3. Exploring strengths	To help patients build confidence to increase walking behavior	3.1 Motivational interviewing, asking evocative questions to explore strengths[c]	▫Perceived autonomy support from the intervention ▫Confidence
		3.2 Motivational interviewing, sharing a list of potential strengths[c]	▫Perceived autonomy support from the intervention ▫Confidence
4. Developing an action plan	To help patients consolidate their motivation and confidence to increase walking behavior or maintain sufficient walking behavior	4.1 Provide instruction on how to perform the behavior of perceived exercise exertion assessment and planning walking in four steps	▫Perceived autonomy support from the intervention ▫Confidence
		4.2 Teach to use prompts/cues using flash card of perceived exertion and the four steps	▫Perceived autonomy support from the intervention ▫Confidence
		4.3 Goal setting using SMART	▫Perceived autonomy

Specific strategy	Intermediate intervention goal	Behavior change technique	Targeted SDT variable[a]
		goals	support from the intervention ▫Confidence
		4.4 Provide information on consequences of behavior in general by providing information on potential advantages of walking, and how to make walking enjoyable	▫Perceived autonomy support from the intervention ▫Autonomous motivation
		4.5 Teach to use prompts/cues using flash card of SMART goals and reasons for walking	▫Perceived autonomy support from the intervention ▫Autonomous motivation ▫Confidence
		4.6 Prompt self-monitoring of behavior of SMART goals	▫Perceived autonomy support from the intervention ▫Autonomous motivation[b] ▫Confidence
		4.7 Provide information on where and when, and instruction on how to perform the behavior using practical tips to increase walking behavior or to maintain sufficient walking	▫Perceived autonomy support from the intervention ▫Confidence
		4.8 Prompt review of the identification of behavioral goals (SMART goals, and reasons for walking)	▫Perceived autonomy support from the intervention ▫Autonomous motivation ▫Confidence
		4.9 Barrier identification/problem solving	▫Perceived autonomy support from the intervention ▫Autonomous motivation[b] ▫Confidence
		4.10 Plan social support to elicit support from significant others in	▫Perceived autonomy support from the intervention

Specific strategy	Intermediate intervention goal	Behavior change technique	Targeted SDT variable[a]
		the attainment of increasing walking behavior or maintaining sufficient walking behavior	▫Perceived autonomy support from a significant other
		4.11 Provide an example of action planning	▫Perceived autonomy support from the intervention ▫Autonomous motivation[b] ▫Confidence
		4.12 Provide feedback on performance (action plan and walking behavior)	▫Perceived autonomy support from the intervention ▫Confidence

[a]Perceived autonomy support from the intervention is targeted throughout because the global strategies (Being Collaborative, Being Strengths-Focused, Providing Choices, Offering Rationale, and Expressing Empathy), which are consistent with both SBNC and SDT, are integrated within each specific strategy.

[b]Autonomous motivation targeted 4.6 in the enjoyment in monitoring the accomplishments of a SMART goal; 4.9 in two barriers: (1) not having enough time to walk, and (2) having no reason to walk; and 4.11 in the example of reasons for increasing walking behavior within an action plan.

[c]Motivational Interviewing is reported here as behavior change techniques consistent with the CALO-RE taxonomy and is limited to open-ended questions consistent with Motivational Interviewing, without the back-and-forth aspect of face-to-face counseling found in an interview.

Secondary methods are the use of tailored messages based on "yes" versus "no" responses to questions after intervention login on identifying symptoms of exercise intolerance in the past 7 days (Introduction). Participants who respond "yes" to having identified symptoms of exercise intolerance are provided an onscreen video message asking them to not initiate the intervention, to consult a free 24-hour province-wide phone service for general health problems if the symptoms are nonurgent, or to call 9-1-1 or go to the emergency department if the symptoms are urgent, and then to log out of the intervention. Two weeks later, participants are asked to log in to the intervention, and only if no symptoms of exercise intolerance are identified by the participant, they are invited to continue the intervention. Static tailored messages on walking behavior (ie, feedback on performance) are also provided to participants in all four profiles (Strategy 1 information) based on their responses of walking behavior assessed only at baseline. Other tailored messages based on "yes" versus "no" responses to questions after

intervention login pertain to the identification of personal reasons for walking (Strategy 2 reasons), personal strengths (Strategy 3 strengths), personal goals that are SMART (Specific, Measurable, Attainable, Realistic, and within a Timeframe) (Strategy 4 action plan), social support, and solutions to barriers (Strategy 4 action plan).

Timeline and procedures

The study duration is 16-17 weeks, from hospitalization (-T2) to the last assessment at 12 weeks postrandomization (T3). We estimate that 4 hours in the experimental group and 2.5 hours in the control group are needed to participate in the study, which includes time spent in either experimental or control interventions, and the completion of the questionnaires (Table 9).

Recruitment (-T2) takes place in-hospital. Potential participants are identified through patient lists during hospitalization, and we then proceed with preliminary eligibility screening using patients' medical charts (Figure 7). Eligibility screening, rather than being based on a 24-hour and 7-day a week schedule, is based on the recruiters' irregular schedules, which vary depending on their availability to present at one of the four sites or on other constraints such as work (academic or other) unrelated to recruiting. When potential participants are approached in hospital, eligibility is confirmed (ie, inclusion/exclusion based on in-person interview), and the study protocol is explained. After signed consent is obtained, self-administered paper questionnaires on sociodemographic data and depressive symptoms are completed. Participants are then given an accelerometer and an open prepaid envelope to use when sending it back to the researcher at the end of the study. After hospital discharge, clinical data are collected from the medical chart.

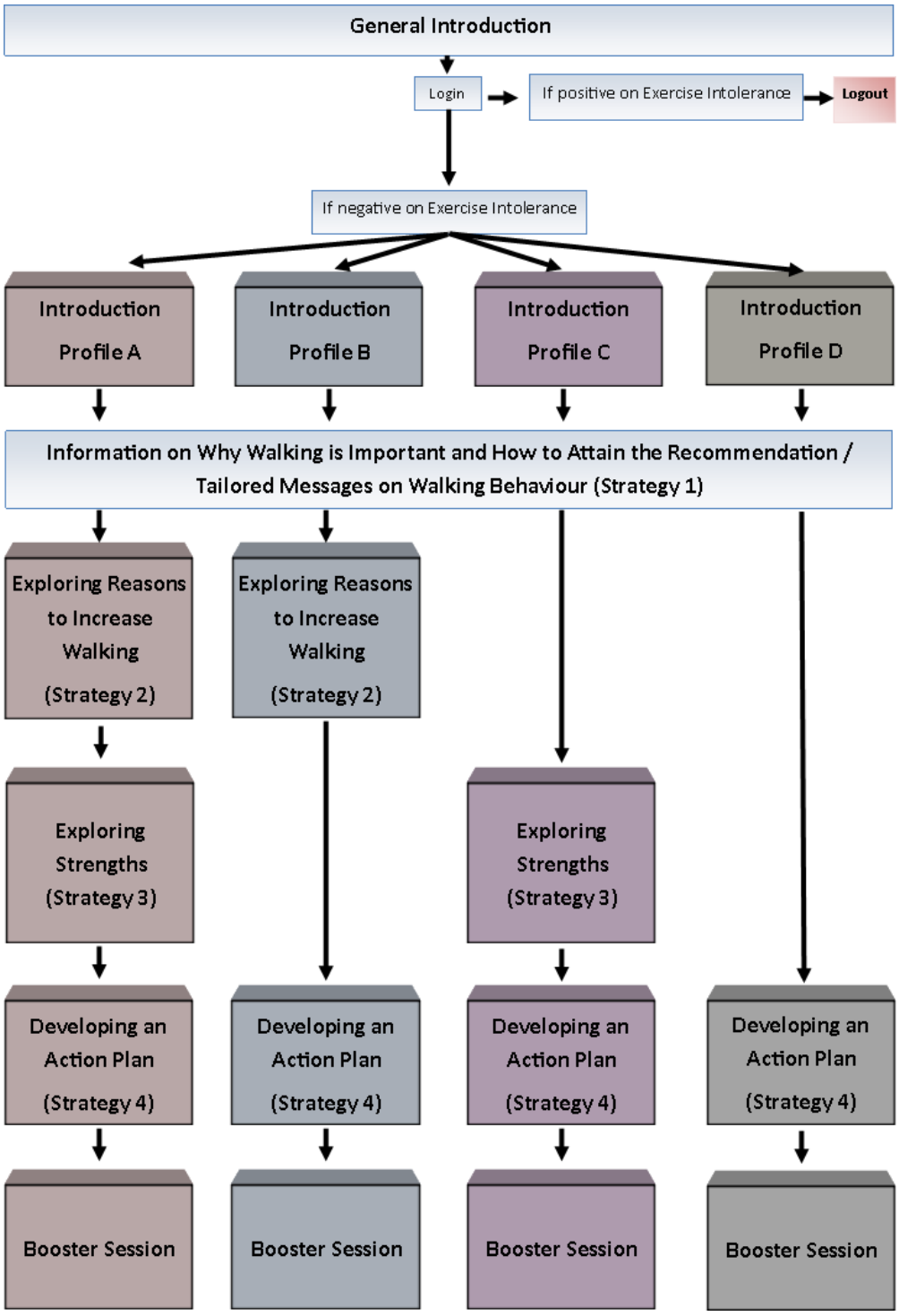


Figure 6. Schema of the intervention's general and per profile introductions, and the four specific intervention strategies

Table 9. Schedule of enrollment, interventions, and assessments

Activity	Items	Minutes per patient	Recruitment -T2	Baseline -T1	Randomization T0	Interventions T1	Follow-up 5 weeks T2	Follow-up 12 weeks T3
Eligibility screening								
Patient lists		N/A	x					
Inclusion/exclusion interview		~10	x					
Screening log		N/A	x					
Consent and signing		~30	x					
Instruction to wear accelerometer and complete questionnaires		~10		x				
Randomization and allocation to group		N/A			x			
Access to experimental or control group interventions		60 to 75				x		
Documentation		N/A	x	x	x	x	x	x
Assessments in-hospital								
Sociodemographic data and depression questionnaire	19	~15	x					
Give and explain accelerometer wear		~10	x					
Clinical data (eg, history, tests, events, and cardiac risk factors)		N/A	x					
Assessments at home								
Intervention adherence		N/A				x		
Primary outcome (X) steps per day		N/A		X			x	X
Questionnaires		30 to 45						
Self-reported physical activity and location of	7			x			x	x

		Minutes per patient	Recruitment	Baseline	Randomization	Interventions	Follow-up 5 weeks	Follow-up 12 weeks
Activity	Items		-T2	-T1	T0	T1	T2	T3
accelerometer wear								
Perceived autonomy support of significant other	6						x	
Perceived autonomy support of websites	6						x	
Autonomous and controlled motivations	12			x			x	
Perceived competence	4			x			x	
Barrier self-efficacy	8			x			x	
Quality of life	27			x				x
Smoking status	1			x				x
Medication adherence	4			x				x
Secondary prevention program enrollment	2							x
Angina frequency	2			x				x
Fatigue	7			x				
Clinical data								
Emergency visits and hospitalizations		N/A						x

Baseline (-T1) is at the beginning of the third week posthospital discharge. In conjunction with an email, participants are contacted by phone to confirm their willingness to participate. This email includes a hyperlink to download and install the software into the participants' computers, allowing the accelerometer data to be synced to the company's server. Thereafter, the data can then be downloaded into the researcher's computer. During the same phone call, participants are instructed to wear the

accelerometer daily for 7 days from awakening to bedtime. After 7 days of accelerometer wear, a second email is sent that includes a hyperlink to access the first online questionnaire. Although we expect most participants to complete the baseline accelerometer wear followed by the online questionnaire within 1 week, a maximum window of 2 weeks is allowed to complete baseline assessments.

Randomization (T0) and allocation to the experimental or control groups occur upon submission of the baseline questionnaire at the fourth or fifth week posthospital discharge, allowing participants the window of 2 weeks to complete baseline assessments. Each participant receives, by automated email from the TAVIE platform, access to either TAVIE en m@rche or the control group involving publicly available websites.

Interventions (T1) start immediately after allocation to the experimental or control groups. Follow-ups at 5 weeks (T2) and 12 weeks (T3) postrandomization are planned. At both follow-ups, participants in both groups (experimental and control) are sent an email with instructions to wear the accelerometer for 7 days. If participants accept, a brief text message is sent to remind them to read the email. After 7 days of accelerometer wear, a second email is sent to complete the online questionnaires. In addition, at the end of data collection, participants are instructed to return the accelerometer by mail via the prepaid envelope provided. During participation, the first author is available by phone and email to resolve technical difficulties in accessing the intervention or questionnaires.

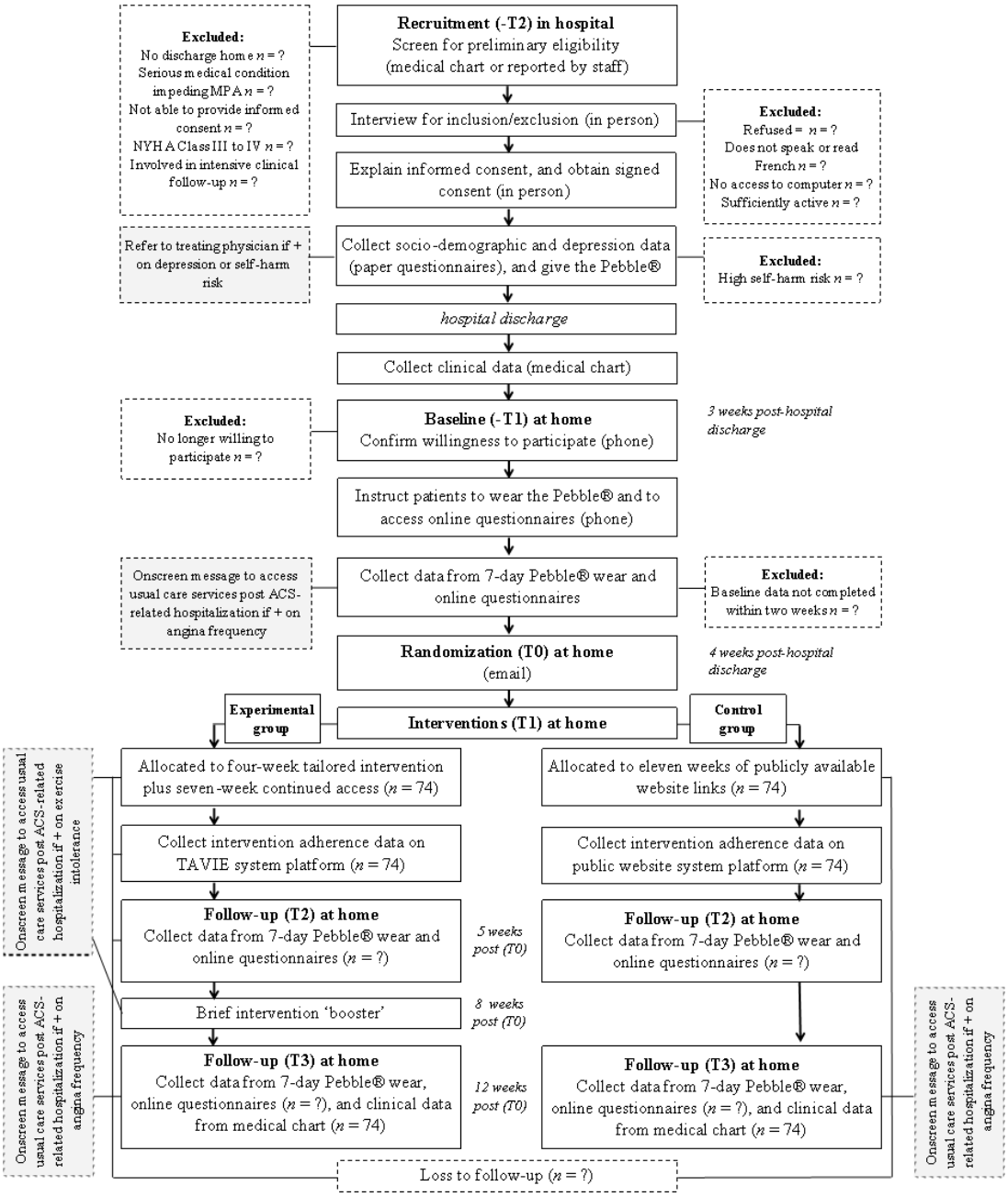


Figure 7. Flow of participants (Protocol Article)

Sample size calculation

To detect a difference in change between randomization and 12 weeks of 1500 steps per day (SD 2824) in favor of the experimental group compared with the control group, a total of 148 participants (n=74 participants per group [57 plus 17 for attrition],

and n=37 per recruitment center) is needed, given a two-sided 5% significance level, power of 80%, and an expected attrition of 23%. The 1500 steps per day is an approximation of half of the recommended daily minutes of moderate-intensity physical activity (Marshall et al., 2009). The attrition of 23% was reported in a meta-analysis of Web-based interventions, in which the experimental groups had an average intervention duration of 13 weeks (Davies et al., 2012). The SD of 2824 steps per day was estimated using data found in an RCT of a counseling intervention in ACS patients in Quebec (Houle et al., 2011).

Randomization and allocation

Randomization is planned by an offsite coordinating center. It is stratified by study center to help protect against between group imbalances if recruitment differs in one or more study centers (Friedman, Furberg, DeMets, Reboussin, & Granger, 2015). Per stratum, random numbers are given for each assignment. Random assignments follow a 1:1 allocation using random block sizes determined by the coordinating center to minimize the chance of group imbalances (Friedman et al., 2015).

The assignment sent by the coordinating center in electronic list (.xls) format was uploaded in the TAVIE platform. The allocation sequence is concealed. Upon submission of the baseline questionnaire, the TAVIE platform sends an automated email of the assignment to the participant. This email includes the hyperlink and password to access the experimental TAVIE en m@rche or to receive a different hyperlink to access the control of publicly available websites.

Blinding

Care providers during hospitalization (treating physicians, nurses, and others) are blinded to group assignment because randomization occurs posthospitalization. The first author must know of the assignment after it is revealed, in order to manage the emails sent to participants in either the experimental or control group. The outcome data completed online are anonymized allowing blinding to group assignment. Participants are not blinded to group assignment because they consent to randomly receiving one of two website hyperlinks. Although participants are not informed as to which website is experimental versus control, they are informed that one website takes about 60-75

minutes to complete (ie, experimental), and the other website takes an undetermined number of minutes to complete (ie, control).

Outcomes

Primary outcome of steps per day

The primary outcome is change in steps per day measured by an accelerometer between randomization and 12 weeks. We chose 12 weeks as the primary endpoint rather than 5 weeks to assess the persistence of steps performed beyond the end of the intervention's 4-week period. The accelerometer step count data are concealed, uploaded wirelessly to a server (Brown, Grimwade, Martinez-Bussion, Taylor, & Gladwell, 2013), and downloaded in the first author's computer. Similar to step counts measured by a previously validated pedometer, step counts measured by the accelerometer worn on a shoe had less than 2% error compared with observed step counts measured by hand tally counter (Brown et al., 2013). Participants are instructed to clip the accelerometer on one of their shoes during waking hours. If they are not wearing shoes, they are then instructed to clip it at their waistline clothing (belt or pants) as recommended by the manufacturer.

The steps per day mean will be estimated using ≥3 valid step-days within the 7-day wear period, which is an accepted norm in adult populations (Aadland & Ylvisaker, 2015). A valid step-day will be determined by a wear time of ≥10 hours per day (Aadland & Ylvisaker, 2015). Fewer than 3 valid step-days will be treated as missing data.

Secondary outcomes of steps per day and energy expenditure

Secondary outcomes are change in steps per day measured by an accelerometer between randomization and 5 weeks, and in self-reported energy expenditure for walking, and for moderate to vigorous physical activity measured by the French short version International Physical Activity Questionnaire (IPAQ) (The IPAQ group, 2002) between randomization, and 5 and 12 weeks (Appendix B). For self-reported energy expenditure, we retained six of the seven items that provided a single continuous score of Metabolic Equivalent of Task (METs)-minutes per week in the last 7 days. The score of energy expenditure for walking is the product of days performed in walking, minutes performed per day, and 3.3 METs. The score of energy expenditure for moderate to vigorous

physical activity is the sum of two products: the product of days performed in moderate-intensity physical activity (eg, carrying light loads or bicycling at a regular pace), minutes performed per day, and 4.0 METs; and the product of days performed in vigorous-intensity physical activity (eg, heavy lifting, or fast bicycling), minutes performed per day, and 8.0 METs. International studies found that the reliability (test-retest) and criterion validity (self-report vs accelerometer data) of the IPAQ generally score around .80 (reliability) and .30 (criterion validity), which is comparable with psychometrics of other self-report physical activity questionnaires (Craig et al., 2003).

Outcomes of theoretical variables

Two outcomes assessed only at 5 weeks for Perceived autonomy support (PAS) were drawn from a French version of the Important Other Climate Questionnaire: (1) from a significant other (PAS-SO) and (2) from the intervention (PAS-WEB) (Appendices C and D). These measures assess autonomy support felt from a significant other (PAS-SO) and from either research website visited (PAS-WEB). The two scores are the mean of responses of 6 items for each PAS (significant other [SO] vs intervention [WEB]) rated between “not at all true” (1) and “very true” (7). Higher scores represent greater levels of PAS. Reported Cronbach alphas across three assessments were between .86 and .89 (Fortier et al., 2007).

Self-determined motivation is assessed at baseline and 5 weeks by the French version of the Treatment Self-Regulation Questionnaire (Appendix E). This measure assesses reasons to attain the recommendation of walking 150 minutes per week. We retained the 12 items that assess controlled motivation (6 items) and autonomous motivation (6 items). The two scores are the mean of responses of 6 items for each motivation (controlled vs autonomous) rated between “not at all true” (1) and “very true” (7). Higher scores represent greater levels of controlled and autonomous motivation. Reported Cronbach alphas across four populations were between .73 and .91 for controlled motivation, and between .85 and .93 for autonomous motivation (Levesque et al., 2007).

Perceived competence is assessed at baseline and 5 weeks by the French version Perceived Competence Scale (Fortier et al., 2007) (Appendix F). This measure assesses

confidence to attain the recommendation of walking 150 minutes per week. The score is the mean of responses of 4 items rated between "not true at all" (1) and "very true" (7). Higher scores represent greater levels of perceived competence. Reported Cronbach alphas across two assessments were .93 and .96 (Fortier et al., 2007).

Barrier self-efficacy is assessed at baseline and 5 weeks by the French version Barrier Self-Efficacy Scale for cardiac patients (Blanchard et al., 2002) (Appendix G). This measure assesses confidence to walk for the recommended 150 minutes per week even if one or more of eight barriers listed are experienced. We retained 8 of the 9 items. The item removed referred to the barrier of experiencing angina or chest pain. Instead of overcoming this barrier, we expect that participants treat the pain and consult a health care professional if the pain is not relieved instead of continuing to increase their walking behavior. The score is the mean of responses of 8 items rated between "(0%) not at all confident" and "(100%) very confident." Higher scores represent greater levels of barrier self-efficacy. A reported Cronbach alpha was .86 in the original 9-item scale (Blanchard et al., 2002).

Clinical outcomes

Quality of life is assessed at baseline and 12 weeks by the French version MacNew Heart Disease Health-related Quality of Life Questionnaire for cardiac patients (Hofer, Lim, Guyatt, & Oldridge, 2004) (Appendix H). The 27 items assess, in the previous 2 weeks, global quality of life and its 3 subdimensions: emotional (14 items), physical (13 items), and social (13 items) (Hofer et al., 2004). Items include reverse scores and overlap across dimensions. The scores for global quality of life and each dimension are the mean of responses that range between 1 (poor quality of life), and 7 (high quality of life). Reported Cronbach alphas were .94, .94, .89, and .90 in global, emotional, physical, and social respectively (Pavy et al., 2015).

Self-reported 7-day point prevalence smoking status, an accepted norm in assessing smoking status outcomes (U.S. Department of Health and Human Services, 2008), is assessed at baseline and 12 weeks (Appendix I). The following question is used: "Have you smoked a cigarette, even a puff, in the past 7 days?" (Ossip et al., 2013, p. 4), answered with "yes" (0), "no" (1), or "never smoked" (2). Point prevalence assessment

had a sensitivity of 96.9% and specificity of 93.4% in detecting dichotomous smoking versus nonsmoking status compared with urinary cotinine (Noonan, Jiang, & Duffy, 2013).

Medication adherence is assessed at baseline and 12 weeks by the Self-Reported Morisky Medication Adherence Scale (MMAS-4) (Morisky, Green, & Levine, 1986) (Appendix J). This measure assesses barriers to cardiac medication use in the previous 2 weeks such as forgetting to take them and stopping them because one feels well. The score is the sum of 4 items rated "no" (0) or "yes" (1) such that lower scores indicate better medication adherence. Scores are dichotomized between medium to low (1 to 4) and high (0). The MMAS-4 had a sensitivity and specificity of 81.0% and 44.0% respectively in predicting controlled blood pressure (Morisky et al., 1986).

Secondary prevention program attendance is measured at 12 weeks by self-report rated by "no" (0) or "yes" (1) of at least one visit, since hospitalization, to a secondary prevention program that offers clinical follow-up with a health care professional for general health, medication adherence, healthy diet, smoking cessation, or exercise (Appendix K). No data on baseline attendance are collected because programs may start 4 weeks or later posthospitalization, which falls around the planned time of randomization.

Data for both emergency department visits and hospitalizations are collected from the medical records at 12 weeks at each study center. For each outcome, one or more emergency department visits or hospitalizations for any reason indicate a score of 1 and no emergency department visits or hospitalizations indicate a score of 0.

Angina frequency is assessed at baseline and 12 weeks by the angina frequency scale of the Seattle Angina Questionnaire (Appendix L). This measure assesses frequency of angina pain and nitroglycerin use that we changed from "in the past 4 weeks" to "in the past 2 weeks." The score is the sum of responses of 2 items rated between "4 or more times per day" (1) and "none over the past 2 weeks" (6), which is then transformed to score between 0 (worst) and 100 (best). Lower scores represent greater angina frequency. A reported significant positive association was r=.31 between greater angina frequency and greater number of refills of sublingual nitroglycerin tablets in the previous year (Spertus et al., 1995).

Sociodemographic and clinical data

At recruitment in hospital (-T2), sociodemographic and clinical data are collected. Nine items in a paper-based self-report questionnaire assess employment, education, marital status, and other demographics (Appendix M). Other data including medical history, diagnosis, laboratory tests, in-hospital events, cardiac risk factors, intermittent claudication, and documented referral to a secondary prevention program are collected from the medical chart after hospitalization (Appendix N). Also, depressive symptoms are assessed at recruitment (-T2) by the 9-item French version Patient Health Questionnaire (PHQ-9) (Appendix O). The PHQ-9 administered at recruitment in hospital allowed us to refer participants with abnormal scores to the treating cardiologist. At baseline (-T1), fatigue is measured by the 7-item short form French version (PROMIS, 2012) (Appendix P). Based on our literature review prior to commencing our RCT, depression and fatigue were retained as potential covariates rather than outcome variables because of the uncertainty that Web-based interventions in ACS populations can decrease depression symptoms (Devi et al., 2014) and because it is unknown if such interventions can decrease fatigue as this variable has not been previously tested in the Web-based ACS literature.

Intervention adherence

During the intervention (T1), intervention adherence data are collected. For TAVIE en m@rche, data are collected on the number of times videos and webpages are viewed and documents are downloaded. Time spent in the intervention will be estimated from these data. For the control group website, data on the number of website visits per person are collected by Google Analytics. Because the control group is provided a single webpage of hyperlinks of publicly available websites, collecting data from these websites is not possible.

Statistical methods

The Montreal Health Innovations Coordinating Center provided expertise for the statistical methods. Baseline characteristics will be compared using descriptive statistics to identify trends in group imbalances, and the analyses will be consistent with intention-to-treat principles, in which data at a given time point will not be excluded from the

analysis (Consort Group, 2013). Missing data will be examined and handled according to best practice in that field (Graham, 2009).

For the analyses of single continuous variables (eg, the primary outcome of change in steps per day), repeated measures analysis of covariance models will be used with covariates that include gender, age, diabetes, intermittent claudication, baseline smoking status, depression symptoms, and fatigue. For analyses of multiple continuous variables (eg, the secondary outcomes of change in walking and moderate to vigorous physical activity), repeated measures multivariate analysis of covariance models will be used with the same covariates as the above model. For single dichotomous variables with baseline values (eg, smoking status), sequential logistic regression models will be used. For single dichotomous variables without baseline values (eg, hospitalizations), chi-square models will be used. A mediation analysis will use a sequence of one-way analysis of variance models with Bonferroni adjustments, in which the alpha will be divided by the number of tests performed. Adjusted and unadjusted means or proportions in each group (experimental and control) will be provided along with a 95% confidence interval. No adjustments in P values will be made for the hypotheses on secondary and tertiary outcomes because these are aimed at supporting the primary hypothesis on steps per day rather than claiming intervention effect (European Medicines Agency, 2002).

Ethical considerations

Ethics approval for this multicenter RCT was obtained from the Scientific and Ethics Committee of the Montreal Heart Institute Research Center (reference #MP-33-2015-1887). Procedures follow the mechanism of multicenter studies outlined by the Quebec Ministry of Health and Social Services (Ministère de la Santé et des Services sociaux, 2014). The approved consent form and procedures for data collection are found in Appendices Q and R respectively.

We expect that the study population has no additional adverse effects in participating in this RCT because the recommendation for physical activity (ie, walking 150 minutes per week) is consistent with current cardiology practice. Also, past research found that cardiac patients can safely participate in physical activity at home (Brosseau et

al., 1995; N. H. Miller, Haskell, Berra, & DeBusk, 1984). As such, we hypothesize that angina frequency will be equivalent in both groups (experimental vs control).

Results

This RCT is currently recruiting. Recruitment started March 30, 2016, and data analysis is planned for November 2017.

Discussion

Limitations

We aim to test in insufficiently active ACS patients, the effect of receiving a Web-based tailored nursing intervention (TAVIE en m@rche) on increasing steps per day compared with receiving hyperlinks to publicly available websites. There exist potential limitations in our RCT pertaining to outcomes, intervention, and generalizability.

Outcomes

First, although our primary outcome of steps per day was retained based on the literature showing the association between increased physical activity and reduced mortality in ACS patients (Apullan et al., 2008; Gerber et al., 2011; Janssen & Jolliffe, 2006), we did not plan mortality as primary or secondary outcomes. Trials that aim to improve physical activity outcomes usually establish eligibility criteria to select populations that are capable of attaining the amount of physical activity recommended in the intervention. As such, these populations have few comorbidities resulting in low serious adverse cardiac events or mortality. Two RCTs testing Web-based interventions in ACS patients measured an objective physical activity outcome (steps per day or exercise capacity) and reported serious adverse cardiac or mortality events requiring hospitalization per treatment group (Lear et al., 2014; Reid et al., 2012). Reid et al. (2012) reported four hospitalisations for chest pain and no deaths in the experimental group, and six hospitalisations for chest pain, one for cardiac surgery and two deaths in the control group during 12 months of follow-up. Lear et al. (2014) reported three (9%) major cardiac events (e.g., revascularisation, stroke, and death) in the experimental group, and six (16%) in the control group during 16 months of follow-up. These data suggest that fewer serious adverse cardiac or mortality events are found in favor of Web-based

experimental groups, and too few events occur to plan mortality as a primary or secondary outcome within a feasible timeframe.

Second, for our secondary outcome of energy expenditure, we plan estimates from self-reported data instead of from accelerometer data. Accelerometers require the entry of participants' weight in the devices to produce the estimates. However, we do not collect data on weight from participants at home before randomization (baseline [-T1]) because these data may be missing or unreliable from self-report or from participants' own weighing scales.

Third, we planned a relatively short follow-up of 12 weeks for feasibility reasons as this RCT is part of a doctoral degree. A longer follow-up on steps per day and other health behavior changes in a future RCT testing TAVIE en m@rche could improve clinical relevance.

Fourth, it is possible that accelerometers are worn by or data from online questionnaires are entered by someone other than the study participant because the outcome data are completed by participants at home. Although we will treat this possibility when examining the outliers, which could reveal some data clearly out of range entered by a different respondent, there are no other provisions made for this limitation.

Fifth, there is a possibility of missing outcome data. Different scenarios for handling missing data will be followed according to best practice in that field (Graham, 2009) by a statistician who is part of an internationally recognized clinical trial reference center (Montreal Health Innovations Coordinating Center). The method of handling missing data will be reported in a future publication of the results.

Interventions

The platform is limited to using static tailoring rather than dynamic tailoring (Krebs et al., 2010). However, a recent meta-analysis found that dynamic tailoring has not improved effects on health behavior change outcomes compared with static tailoring (Devi et al., 2015).

Generalizability

Our sample will likely have similar characteristics as the four other RCTs testing a Web-based intervention using steps per day or another objective physical activity outcome in an ACS population (Devi et al., 2014; Lear et al., 2014; Maddison et al., 2015; Reid et al., 2012). Such populations have no important comorbidities or environmental constraints that would impede performance in moderate-intensity physical activity. ACS populations with important comorbidities are neither eligible to participate in our study nor eligible to receive the recommendation to gradually attain moderate-intensity walking beginning the fourth or fifth week after hospitalization, as is recommended in TAVIE en m@rche. Therefore, the eligibility criteria for our RCT is comparable to the ACS population intended for TAVIE en m@rche. Another related cardiac population that could benefit from TAVIE en m@rche, after some minor modifications, are those with stable coronary artery disease, such as stable angina patients requiring elective percutaneous coronary intervention. However, our future results will not be generalizable in stable coronary artery disease populations.

Conclusion

Alternative interventions aimed at increasing the adoption of health behavior changes in the secondary prevention of ACS are clearly needed. Our proposed intervention fills a gap in the literature because no RCT has tested a Web- and SDT-based tailored intervention using videos of a nurse on an objective physical activity outcome in insufficiently active ACS patients. Study strengths include the retained design, a full-scale RCT, which will confirm with confidence the effect of receiving TAVIE en m@rche on the objective primary outcome of steps per day in ACS patients. Also, the intervention's theoretical framework and its operationalization enhance reproducibility. Finally, the framework allows the examination of theoretical processes, such as the SDT constructs, which may explain the intervention's effects on the primary outcome. If this RCT is successful, and after its implementation as part of usual care, TAVIE en m@rche could help improve the health of ACS patients at large.

Complementary Information on the Methods

Timeline of measures

Only one RCT in our field tested a shorter duration intervention, and found a significant effect immediately after the designated six-week intervention completion, but no significant effect six-months post-intervention (Devi et al., 2014). Therefore, measuring endpoints at both intervention completion and beyond will help determine how the intervention effect evolves over time. Accordingly, as the designated intervention duration of TAVIE en m@rche is four weeks, we retained the first follow-up (T2) at five weeks post-randomization, and the second follow-up 12 weeks post-randomization (T3).

Statistical methods

Physical activity recommendation at baseline

The IPAQ score was dichotomized to determine the number and proportion of participants meeting the physical activity recommendation of 500 to 1000 MET-minutes per week (Garber et al., 2011). According to the measure, "five or more days of any combination of walking, moderate-intensity or vigorous intensity activities achieving a minimum total physical activity of at least 600 MET-minutes per week…is defined as accumulating a minimum level of activity" (The IPAQ group, 2005, p. 6). As participants can attain the recommendation by performing one or any combination of the three types of intensity even in less than five days, we summed all three activities (i.e., total activity) regardless of the number of days in the week they were performed. Thereafter, we assigned a value of one to those attaining 600 MET-minutes per week or greater, and zero to those attaining less than 600 MET-minutes per week.

Exploratory outcomes

For the theoretical measures, mediation analysis was planned, as we hypothesized that improvements in these variables during the intervention may explain a significant increase in steps per day (H7 to H11). As described in Tabachnick and Fidell (2013), and

consistent with Baron and Kenny (1986), four conditions (a, b, c, and d) must be met to test the effect of mediation:

a) the effect of the independent variable on the dependent variable is significant;

b) the effect of the independent variable on the proposed mediator is significant;

c) the association between the mediator and the dependent variable is significant after controlling for the independent variable; and

d) the effect of the independent variable on the dependent variable is reduced when controlling for the mediator.

As we found a non-significant minimal increase in steps per day, the first criterion for mediation analysis was not met and we therefore did not proceed with this analysis. Instead, we proceeded with only condition b to test the effect of the independent variable of group (experimental, control) on each of the mediators (perceived autonomy support at 5 weeks, and change in controlled and autonomous motivations, perceived competence, and barrier self-efficacy at 5 weeks). As planned, but not published in the Protocol Article, a single perceived autonomy support score was produced by calculating a single mean from both questionnaires (perceived autonomy support from the intervention and significant other). No additional information is required for the other mediators (see the Protocol Article).

As planned in condition b, the effect of group (experimental, control) on each of the five mediators was tested using one-way ANOVA models for each of the five tests. For the assumptions required for ANOVA, only the change score for perceived competence in the experimental group showed lack of normal distribution. However, as this distribution was not extremely different to its respective control group distribution upon visual examination of histograms, the ANOVA model was retained because of its robustness with variables that deviate from a normal distribution (Cohen, 2008). Homogeneity and normality were otherwise met. To reduce error of yielding false significance from multiple testing, Bonferroni inequality adjustment was used per model in which the significance level of $p = .05$ was divided by the five planned tests producing a significance level of $p = .01$ (Cohen, 2008). Means for perceived autonomy support and

mean change values for controlled and autonomous motivations, perceived competence, and barrier self-efficacy in each group (experimental, control) are provided along with their respective 95% confidence interval.

For the exploratory hypotheses H12 to H15 on global, emotional, physical, and social quality of life at 12 weeks (T3), a single one-way MANCOVA model was used for all four outcomes. Specifically, this model included group (experimental, control), and the baseline values of global, emotional, physical and social quality of life. For the assumptions required for MANCOVA, each of the subdimensions (emotional, physical, and social) showed one value lacking a normal distribution in either the experimental or control group. However, comparing these distributions with their respective group (experimental versus control), did not appear extremely different to each other upon visual examination of histograms (Cohen, 2008). The planned MANCOVA model was retained because of its robustness with variables that deviate from a normal distribution even in relatively small samples (Tabachnick & Fidell, 2013). To reduce error of yielding false significance from multiple testing, Bonferroni inequality adjustment was used per test within the single MANCOVA model in which the significance level of $p = .05$ was divided by the four planned tests producing a significance level of $p = .0125$ (Cohen, 2008). As the multivariate tests of each variable showed significance only in physical quality of life ($p = .006$, which is smaller than the Bonferroni adjustment), the test of between-subjects effects was performed. Adjusted means for each of the four outcomes (global, emotional, physical, and social) in each group (experimental, control) was provided along with their respective 95% CI.

For the hypotheses H16 and H17 on smoking status, and high cardiac medication adherence at 12 weeks, two sequential logistic regression models were used, one for each outcome. As only one covariate (i.e., baseline value) was included in each of the two models, verifying for correlation between covariates was not applicable. Also, assessment of linear relationships between continuous variables and the dependent variables was not applicable, as all variables are dichotomous. The logistic regression models retained included group (experimental, control), and baseline values of the tested outcome. Adjusted odds ratios for each of the two outcomes (smoking status, and high cardiac

medication adherence) in each group (experimental, control) is provided along with their respective 95% CI.

For the hypothesis H21 of subgroup sex of the participant on the primary outcome of change in steps per day between baseline and 12 weeks, only two females were randomly allocated to the experimental group, and both had incomplete data on the change value of the primary outcome. Therefore, conducting the planned single two-way ANCOVA model was not possible.

The statistical methods for the hypotheses on secondary prevention program attendance, emergency department visits, hospitalizations (H18 to H20) and angina frequency (H22) are presented in the Primary Results Article found in Chapter 4. We now bring your attention to amendments to the original consent form, prior to presenting the Primary Results Article.

Ethical Considerations

Four amendments to the original consent form were approved by the Research Ethics Board of the Montreal Heart Institute. In Appendix Q, we present the original consent form approved before recruitment on October 15, 2015 (version 1 of the same date), and the last consent form approved towards the end of recruitment on May 2, 2017 (version 5 dated April 11, 2017). Amendments primarily involved a change in reminders for accelerometer wear (approved February 3, 2016), two changes in procedures using the new pedometer brand (approved June 28, 2016 and December 20, 2016), and one change in the number of participants permitted to recruit per site (approved May 2, 2017).

Chapter 4. Results

This chapter presents the manuscript, named the "Primary Results Article," intended for submission. This article presents the results of the primary and secondary outcomes of physical activity (H1 to H6). To help explain these results, we also present the exploratory outcome of secondary prevention program attendance (hypothesis 18), because it is related to physical activity behaviour. Finally, to determine harm or benefit from participating in TAVIE en m@rche, we present the exploratory outcomes of emergency department visits and hospitalizations (H19 and H20), as well as the outcome of angina frequency (H22). Following this article, we present the results of the remaining exploratory outcomes.

Primary Results Article

Citation: Kayser, J. W., Cossette, S., Côté, J., Tanguay, J. F., Tremblay, J. F., Diodati, J. G., Bourbonnais, A., Purden, M., Juneau, M., Terrier, J., Dupuis, J., Maheu-Cadotte, M. A., Fontaine, G., Cournoyer, D. (Manuscript preparation, 2018-08). A web-based tailored nursing intervention (TAVIE en m@rche) aimed at increasing walking after an acute coronary syndrome: Multicenter randomized trial.

Abstract

Aim: To evaluate a web-based tailored nursing intervention on increasing steps per day after an acute coronary syndrome.

Background: Few randomized controlled trials evaluated web-based interventions on objective physical activity outcomes in patients after an acute coronary syndrome.

Design: Parallel two-group multicenter randomized controlled trial.

Methods: Insufficiently active acute coronary syndrome patients were recruited from three hospitals. An experimental group receiving a fully automated, web-based tailored nursing intervention (TAVIE en m@rche), was compared to a control group receiving hyperlinks to public websites. Steps per day were measured between randomization and 5 weeks (secondary outcome), and 12 weeks (primary outcome). Secondary outcomes of self-reported energy expenditure for walking and for moderate to vigorous physical

activity were measured between randomization, 5 and 12 weeks. Secondary prevention program attendance, emergency department visits, hospitalizations, and angina frequency were explored. The 1:1 allocation of random block assignments was concealed, and the analysis was blinded.

Results: Sixty participants were randomized, and 39 (n = 20 experimental; n = 19 control) were analyzed for the primary outcome. No significant effects were found. For the primary outcome, a minimal increase of 275.9, 95% CI [-1,043.0 to 1,594.8] steps per day was found in favour of the experimental group. An increase in energy expenditure for moderate to vigorous physical activity of 1,464.3, 95% CI [-469.2 to 3,397.8] Metabolic Equivalent of Task-minutes per week was found in favour of the experimental group. No differences were found between groups for secondary prevention program attendance, emergency department visits, hospitalizations, and angina frequency.

Conclusions: Although no significant effects were found, a non-significantly greater increase in self-reported energy expenditure for moderate to vigorous physical activity may represent gains in health among the participants receiving access to TAVIE en m@rche. In context with previous randomized controlled trials in our field, our primary result supports the need to explore novel combinations of web-based modes of delivery to augment the effect on steps per day.

Introduction

Increasing physical activity is key in the secondary prevention of acute coronary syndromes (ACS) among coronary artery disease (CAD) patients. Increased physical activity or participation in an exercise-based secondary prevention program has been associated with reduced mortality risk, reduced hospitalizations, and increased quality of life in CAD patients (Anderson et al., 2016). Increasing moderate intensity physical activity to the recommended 150 minutes per week in the secondary prevention of CAD is associated with reduced mortality risk (Moholdt et al., 2018). Despite these benefits, evidence has shown that 40% to 60% of CAD patients self-report insufficient levels of physical activity (De Smedt et al., 2016; Janssen & Jolliffe, 2006; Reid et al., 2006).

Web-based interventions offer novel modalities to encourage increased physical activity (Grace et al., 2014). Randomized controlled trials (RCTs) testing web-based

interventions reported significantly improved physical activity outcomes in healthy adults (Jahangiry et al., 2017). Significantly improved physical activity outcomes are also found in adults with or without a chronic disease (including one cardiac), with a greater effect found in studies that recruited insufficiently active participants (Davies et al., 2012). To our knowledge, five RCTs were conducted in CAD populations that objectively measured physical activity behaviour using activity tracker measuring step counts or physical fitness using treadmill measuring exercise capacity (Devi et al., 2014; Lear et al., 2014; Maddison et al., 2015; Reid et al., 2012; Widmer et al., 2017). In each RCT, participants were recruited regardless of baseline physical activity levels. Interventions typically used online written information, with or without smartphone messages, apps, video, or health care professional involvement.

Interventions were nontailored (Lear et al., 2014; Maddison et al., 2015; Widmer et al., 2017) or tailored (Devi et al., 2014; Reid et al., 2012). The three RCTs testing non-tailored web-based interventions measured the primary outcome of exercise capacity (physical fitness) compared to usual care (Lear et al., 2014; Maddison et al., 2015; Widmer et al., 2017). Only one found a significant effect in favour of the experimental group (Lear et al., 2014). Among the two tailored interventions, both reported a significant effect on steps per day (physical activity behaviour) in favour of the experimental groups compared to usual care (Devi et al., 2014; Reid et al., 2012). In addition, significant effects were found in self-reported minutes per week of walking (Maddison et al., 2015) and in moderate to vigorous physical activity (MVPA) in favor of the experimental groups (Reid et al., 2012). Despite these positive findings, the paucity of RCTs highlights the need for future investigations to test the effect of web-based tailored interventions on objective physical activity outcomes in ACS populations.

We designed the fully automated (i.e., no health care professional involvement), web-based tailored nursing intervention TAVIE en m@rche, to increase walking among ACS patients, post-hospitalization. “TA VIE” means *your life*, and “en marche” means *walking.* At the heart of the TAVIE en m@rche intervention is a Virtual Nurse who provides a series of tailored information sessions. The messages provided by the Virtual Nurse were delivered in French using videos of a real nurse. Drawing from our past work

(Kayser et al., 2014), elements from Strengths-Based Nursing Care (Gottlieb, 2013) and Self-Determination Theory (Teixeira et al., 2012) guided the design of the intervention.

The purpose of this RCT was to evaluate a web-based tailored nursing intervention on increasing steps per day after an acute coronary syndrome. We report findings for the primary hypothesis (H1) that TAVIE en m@rche will increase steps per day between randomization and 12 weeks, and the secondary hypotheses of increased steps per day between randomization and 5 weeks (H2) and increased energy expenditure for walking and MVPA between randomization, 5 and 12 weeks (H3 to H6). Findings are also reported for selected exploratory hypotheses that TAVIE en m@rche will yield more participants attending a secondary prevention program; fewer participants with emergency department visits or hospitalizations; and no differences between groups in angina frequency.

Methods

Methods are organized according to CONSORT (Consort Group, 2010). As the study protocol was previously published (Kayser et al., 2017), we provide a summary, with the changes that occurred after study commencement (Trial registered in ClinicalTrials.gov NCT02617641).

Study design and settings

This two-group parallel multicenter RCT included four teaching hospital centers in Montréal. Randomization occurred at three sites due to lack of recruitment at one site.

Eligibility criteria

Participants were eligible if they reported physical activity that was less than 150 minutes per week of moderate intensity or 75 minutes per week of vigorous intensity six months prior their hospitalization for an ACS event, and had no important comorbidity impeding participation in moderate intensity physical activity by the third week posthospital discharge. Those awaiting cardiac surgery were not approached because low intensity activity is recommended for two to three months post-surgery.

Interventions

During hospitalization at all recruitment sites, all participants received usual care, which included regular discharge planning, and access to an onsite secondary prevention program at the treating hospital.

Experimental group

The experimental intervention was described previously (Kayser et al., 2017). Briefly, TAVIE en m@rche is a fully automated web-based tailored intervention consisting of a Virtual Nurse who presented the content in pre-recorded videos. This content was presented also in text format beside the video capsules, in addition to extra content accessible in downloadable electronic documents. The intervention goal is to encourage a progressive increase in moderate-intensity walking behavior, up to the recommended 150 minutes per week. Participants had continued access to the intervention until the last data collection period at 12 weeks. Participants could revisit any session of TAVIE en m@rche at their discretion.

Following a general introduction tailored to each profile, the theoretically active content was delivered in four sessions with an additional booster at eight weeks postrandomization (Table 10).

The tailoring method of the TAVIE platform assigned each participant to one of four profiles (A to D) according to three baseline tailoring measures. Profiles A, B, and C represented patients that performed < 150 minutes per week of walking and had low motivation and/or confidence to increase walking. As some participants were expected to attain recommended walking levels before randomization, Profile D characterized participants that had either high motivation and confidence or performed ≥ 150 minutes per week of walking regardless of their level of motivation or confidence. Additional tailoring methods were implemented within the profiles, which allowed personalized web-based messages to participants.

Table 10**.** Profiles, tailoring measures, and sessions per profile

	Tailoring Measures[a]			*Sessions (1 to Booster)*				
Profiles	Autonomous Motivation (Range 1 – 7)	Perceived Competence (Range 1 – 7)	Walking (minutes/week)	*1*	*2*	*3*	*4*	*Booster*
A	<6	<6	<150	√	√	√	√	√
B	<6	≥6	<150	√	√		√	√
C	≥6	<6	<150	√		√	√	√
D[b]	≥6	≥6	<150	√			√	√
	---	---	≥150	√			√	√

Note. Session 1—**Information** on the importance of walking and provision of **tailored feedback** on walking level; Session 2—Exploration of reasons to increase **motivation** for walking; Session 3—Exploration of personal strengths (unique qualities) to increase **confidence** for walking; Session 4—Development of an **action plan** to increase walking; and Booster—Provision of **tailored feedback** on attained walking levels and intervention use, and invitation to view the past intervention components ad lib.

[a]Tailoring measures were the baseline Treatment Self-Regulation Questionnaire for autonomous motivation, the Perceived Competence Questionnaire, and the Short version International Physical Activity Questionnaire for minutes per week in walking. Higher scores, ranging from 1 to 7, represent greater levels of autonomous motivation and perceived competence to attain the walking recommendation.

[b]Profile D was attributed to those that were either below the recommended minutes per week of walking and have high autonomous motivation and perceived confidence; or have recently attained the recommended minutes per week of walking before randomization.

Control group

This group, regardless of recruitment site, received a list of hyperlinks on one unique webpage of four public websites that contained information on walking in French Canadian language.

Timeline and procedures

After obtaining patients' consent, demographic and clinical characteristics were collected from medical charts and in person during hospitalization using self-report questionnaires of socio-demographics and depressive symptoms (covariate). At the third week post-hospitalization, baseline values of outcomes were collected for 7-day step count, energy expenditure, and angina frequency. Also, autonomous motivation and

perceived competence were collected as tailoring measures for the intervention, and fatigue was collected for covariate adjustments. To improve data collection, participants were given two extra weeks to complete baseline measures, such that randomization occurred between the fourth and sixth week post-hospitalization. At randomization, access to the allocated webpage was proved by email. Primary and secondary measures for steps per day and energy expenditure were collected at 5 and 12 weeks post-randomization. Exploratory outcome measures for secondary prevention program attendance, emergency department visits, hospitalizations, and angina frequency were collected at 12 weeks.

Outcome measures

Steps per day

Change in steps per day between randomization and 12 weeks (primary outcome), and 5 weeks (secondary outcome) were measured by accelerometers. Mean steps per day was calculated using a norm of ≥3 days of ≥10 hours per day of accelerometer wear within seven days. Fewer than 3 valid days of measurement, or missing data to establish valid days, were assigned a missing value and excluded from the analyses.

Two accelerometer brands were used. The Pebble by FitLinxx, given to the participants recruited from April to May 2016, was phased out by the manufacturer along with data access by October 2016. The Pebble, having no display, was naturally concealed, and worn on one shoe or on any-side waistline clothing during waking hours (Brown et al., 2013). The Zip by Fitbit was given to participants recruited from June 2016 to June 2017. The Zip, having a display, was concealed by turning the display inwards into its clip case. The Zip was worn on the right-side waistline clothing during waking hours (Paul et al., 2015).

Energy expenditure

Four other secondary outcomes were measured online with the short version International Physical Activity Questionnaire (IPAQ) (The IPAQ group, 2005), which measured changes in energy expenditure in Metabolic Equivalent of Task (MET)-minutes per week for walking and MVPA, between randomization, and 5 and 12 weeks.

Participants reported days spent in the activity, and average time spent in the activity in the last 7 days. Time was then multiplied by predetermined MET for walking (3.3), moderate intensity (4.0), and vigorous intensity (8.0) (The IPAQ group, 2005). Participants without completed data on days spent in an activity and time spent per day were assigned a missing value and excluded from the analyses.

Exploratory outcomes

Secondary prevention program attendance was measured by an online questionnaire at 12 weeks. Participants responded either "yes" or "no" to at least one visit since hospitalization to a secondary prevention program offering clinical follow-up with a health care professional for general health, medication, diet, smoking or exercise.

Data for emergency department visits and hospitalizations for any reason were collected from the medical charts at 12 weeks at each study center. Each outcome was dichotomized as either the presence or absence of at least one occurrence of an emergency department visit or hospitalization per participant.

Angina frequency was measured at randomization and 12 weeks using two questions from the Seattle Angina Questionnaire (Spertus et al., 1995). Participants rated angina pain and nitroglycerin use in the last 2 weeks between none and 4 or more times per day. The score was the sum transformed between 0 (worst) and 100 (best) where lower scores represent greater angina frequency.

Sociodemographic, clinical data, and other baseline measurements

At time of recruitment, sociodemographic data were collected in person by questionnaire. Other clinical data were collected by review of participants' medical charts. Depressive symptoms in the last two weeks were obtained by the Patient Health Questionnaire (PHQ-9). The sum of responses ranged between 0 and 27 where higher scores represent greater symptom severity. The score was dichotomized as ≥10 (moderate to greater severity) and < 10 (none to mild) (Pfizer Inc., 2015).

At baseline, patients reported fatigue felt in the last 7 days. Scores range from 7 to 35, where higher scores represent greater fatigue levels (PROMIS, 2014). After

conversion to standardized T-scores, fatigue was dichotomized into 'better than average' and 'worse than average' as compared to the general adult population.

Baseline tailoring measures

The TAVIE platform combined baseline minutes per week of walking, autonomous motivation, and perceived competence to generate the four Profiles (A, B, C, and D), which are explained in the Interventions section of this paper and in Table 10. Minutes per week of walking, measured by IPAQ, were dichotomized as < 150 and ≥ 150 minutes per week of walking. The TAVIE platform used raw data before processing, cleaning, and truncation norms were implemented (see Statistical Methods). Incomplete, missing or string data for this measure were considered missing by the TAVIE platform. Zero or missing values were assigned < 150 minutes per week of walking by the TAVIE platform.

The Treatment Self-Regulation Questionnaire (TSRQ) (Levesque et al., 2007) measured autonomous motivation to attain the recommendation of walking until the next follow-up. The Perceived Competence Scale measured confidence to attain the recommendation of walking until the next follow-up. For both measures, scores range from 1 to 7, where higher scores represent higher autonomous motivation, or higher perceived competence. To assign a profile per participant, each continuous score was dichotomized by the TAVIE platform as < 6 (low motivation/competence), and ≥ 6 (high motivation/competence) (see Table 10).

Intervention usage

Data was collected for only the experimental group, which included the last date a webpage was visited across all intervention sessions.

Sample size calculation

To detect a difference between the experimental and control groups in mean change between randomization and 12 weeks of 1,500 steps per day (Miyazaki et al., 2015) with a standard deviation (SD) of 2,824 (Houle et al., 2011), a total of 114 participants (n = 57 participants per group) was needed, given a two-sided 5% significance level and a power of 80%. Considering an expected 23 % rate of incomplete

primary outcome data (including missing), a total sample size of 148 was planned. We planned 12 months of recruitment for complete data on the primary outcome change value.

Randomization and allocation

Randomization was planned by an offsite coordinating center and stratified by study center following a 1:1 allocation using random block sizes from four to six. The assignment, sent by the coordinating center in electronic list (.xls) format, was uploaded in the TAVIE platform by a technician. The allocation sequence was concealed.

Blinding

At randomization, the first author was not blinded allowing management of the reminders to experimental group. All outcome data were anonymized allowing blinding during analysis. Participants were not blinded because they consented to procedures.

Statistical methods

The Montreal Health Innovations Coordinating Center provided expertise for the statistical methods using SAS Version 9.4. Baseline characteristics were compared using descriptive statistics to identify group imbalances. All statistical tests were two-sided with a significance level of 0.05. No adjustment for multiple testing was done as secondary hypotheses aimed at supporting the primary hypothesis on steps per day rather than claiming intervention effect (European Medicines Agency, 2002).

Primary and secondary outcomes

The primary outcome (H1) of the difference between groups in change of steps per day between randomization and 12 weeks was tested using a repeated measures analysis of covariance (ANCOVA) Model 1. Model 1 included a between factor of group (experimental, control), within factors of time (12 weeks) and group by time interaction, adjusted for covariates: baseline value, baseline value x time interaction. The secondary outcomes (H2 to H6) of change in steps per day (5 weeks), change in energy expenditure (5 and 12 weeks) used the same Model 1, but the time variables were chosen relative to each hypothesis (i.e., 5 versus 12 weeks).

Model 1 was compared to two sensitivity analyses (Models 2 and 3). Model 2 included the same covariates as Model 1 in addition to covariates that were significantly associated with our physical activity outcomes at a 0.05 significance level (see Table 12). Model 3 included the covariates in Model 1 in addition to excluding two participants without ACS (see Results section).

Exploratory outcomes

For secondary prevention program attendance, emergency department visits, and hospitalizations a single chi-square test was performed for each outcome separately. For angina frequency, a single one-way ANCOVA was used adjusted with baseline angina as the covariate.

Intervention usage

Usage was divided among uptake and engagement (West & Michie, 2016). Uptake was defined as the proportion of participants that logged in by attributed profile and across all profiles. Engagement, defined as the proportion of substantial exposure to the active content, was determined by ≥ 75% use of active content.

Ethical Considerations

Ethics approval, including changes to the protocol, was obtained from the Scientific and Ethics Committee of the Montreal Heart Institute Research Center (reference #MP-33-2015-1887).

Results

We screened 1,733 participants for eligibility from March 30, 2016 to June 21, 2017. An unplanned interim check was conducted because we suspected data loss from technical difficulties encountered with the accelerometers, and from non-adherence to the protocol. A rate of 36% incomplete primary outcome data was observed within the first two months of data. In addition, a lower than expected recruitment rate by 10 months was observed. As such, we decided to continue recruitment until 15 months, instead of the planned 12 months, to obtain the maximum sample size within a feasible time frame.

A total of 60 participants (n = 30 per group) were randomized, and 39 (n = 20 experimental; n = 19 control) were analyzed for the primary outcome (Figure 8). Two main reasons for not meeting inclusion criteria included ACS diagnosis with a serious medical condition impeding participation in moderate intensity physical activity (including those waiting for cardiac surgery) (n = 627), and potential ACS participants with confirmed non-ACS diagnosis after chart review or after percutaneous coronary intervention (n = 357). Another important category of not meeting inclusion was patients reporting a sufficient level of physical activity (n = 103). Two participants without ACS were randomized to the experimental group. One had an urgent percutaneous coronary intervention with a final diagnosis of atypical angina. The second, although diagnosed as probable unstable angina before percutaneous coronary intervention, was confirmed as non-cardiac chest pain post-procedure.

For those that declined participation, reasons included no time for data collection procedures, no interest to participate, or not at ease with Internet/computer. The logistical reasons mainly concerned patients being discharged before we were able to meet them for further screening or signing consent.

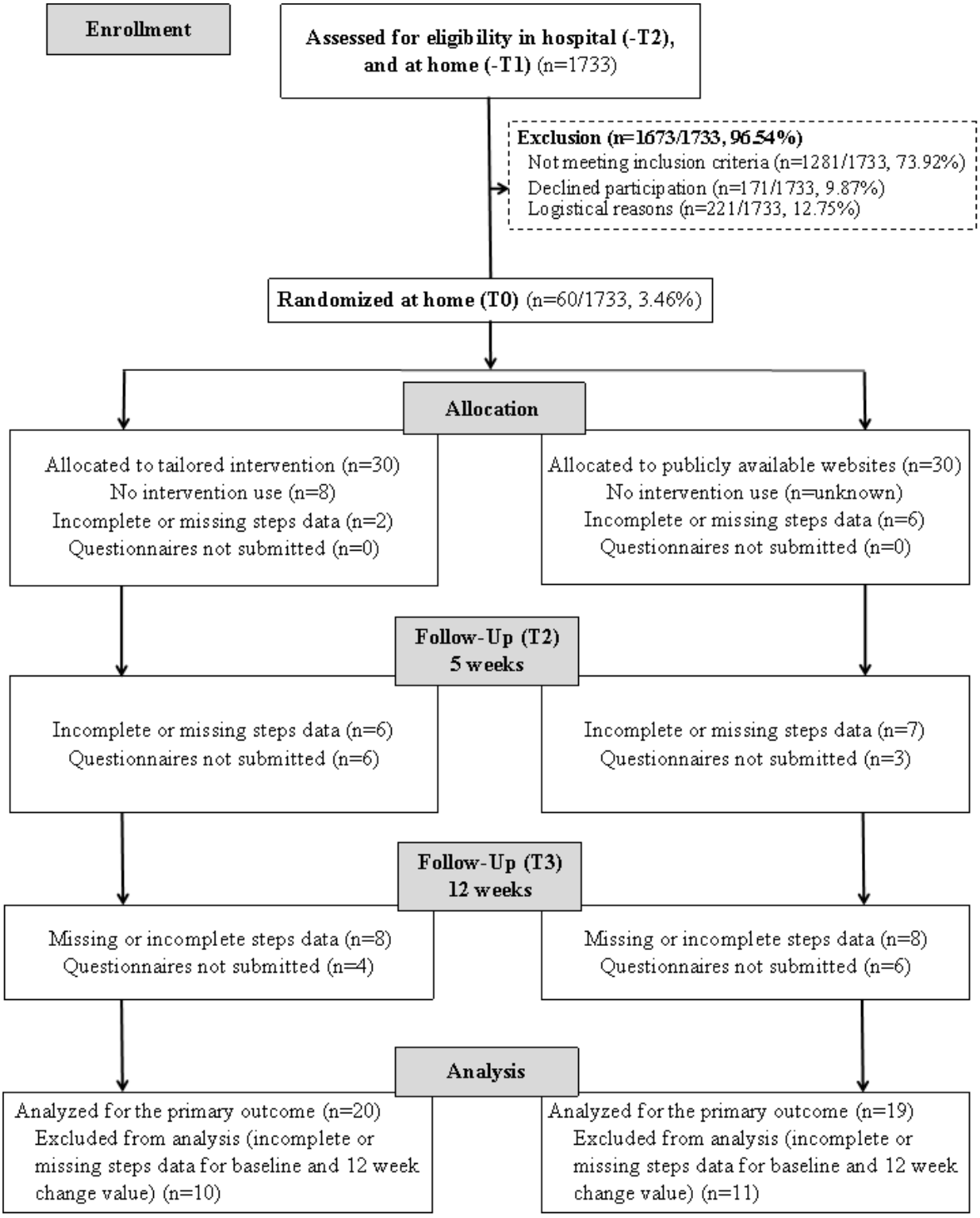


Figure 8. Flow of participants (Primary Results Article)

Demographic, clinical and theory-related characteristics

Participants were of older age, mostly men, and mostly working. They were also highly motivated and confident to attain the recommended 150 minutes per week of walking until the next follow-up. Five imbalances in baseline characteristics were found through visual examination (Table 11). A greater number of participants in the experimental group were male, attained postsecondary education, h ad abnormal ejection fraction, and had depressive symptoms of moderate severity or greater. A greater number of participants in the control group reported working. Covariates retained are presented in Table 14.

Table 11. Demographic and clinical characteristics

Characteristic	Experimental group (n = 30)	Control group (n = 30)
Collected from paper questionnaire or medical chart at hospital (-T2)		
Age (years), mean (SD)	59.2 (9.3)	58.6 (9.6)
Sex (male), n (%)	28 (93.3)	25 (83.3)
Working, n (%)	16 (53.3)	21 (70.0)
Postsecondary education, n (%)	17 (56.7)	13 (43.3)
Referred to secondary prevention program or documented physical activity prescription, n (%)	10 (33.3)	10 (33.3)
Cardiac risk factors		
Current smoking, n (%)	10 (33.3)	8 (26.7)
Dyslipidemia, n (%)	24 (80.0)	23 (76.7)
Any current drug use, n (%)	1 (3.3)	3 (10.0)
Diabetes, n (%)	12 (40.0)	11 (36.7)
Hypertension, n (%)	17 (56.7)	17 (56.7)
Family cardiac history, n (%)	14 (46.7)	14 (46.7)
First cardiac hospitalization, n (%)	22 (73.3)	22 (73.3)
Presenting acute coronary syndrome		
STEMI or NSTEMI, n (%)	22 (73.3)	23 (76.7)
Unstable Angina, n (%)	6 (20.0)	7 (23.3)
Other [a]	2 (6.7)	0 (0.0)
Treatment received		
PCI performed, n (%)	29 (96.7)	30 (100.0)
Treatment with stent, n (%)	25 (83.3)	28 (93.3)

Characteristic	Experimental group (n = 30)	Control group (n = 30)
Abnormal ejection fraction <55%, n (%)	10 (47.6) [b]	7 (33.3) [b]
Any complication during hospitalization, n (%)	5 (16.7)	7 (23.3)
Depressive symptoms		
Continuous score, range 0 to 27, mean (SD)	5.9 (5.9)	3.9 (3.3) [b]
Moderate severity or greater, score ≥10, n (%)	7 (23.3)	3 (10.0)
Collected from online questionnaire at home between the fourth and sixth week post-hospitalization (-T1), before randomization		
Attained the physical activity recommendation		
Total activity, 600 MET-minutes per week, n (%)	20 (83.3%)[b]	16 (80.0%)[b]
Motivation, range 1 to 7, mean (SD)		
Controlled motivation	3.1 (1.6)	2.7 (1.2)
Autonomous motivation	6.1 (1.1)	6.5 (0.6)
Confidence		
Perceived competence, range 1 to 7, mean (SD)	6.0 (1.4)	6.1 (1.0)
Barrier self-efficacy, range 0 to 100%, mean (SD)	47.8 (30.6)	47.0 (35.3)
Fatigue		
Continuous score, range 7 to 35, mean (SD)	14.0 (3.6)	15.0 (4.7)
Worse than average, n (%)	11 (36.7)	12 (40.0)

Note. STEMI, ST-Elevation Myocardial Infarction; NSTEMI, Non-ST segment elevation myocardial infarction; PCI, Percutaneous Coronary Intervention.

[a]One participant had atypical angina, and the other had non-cardiac chest pain.

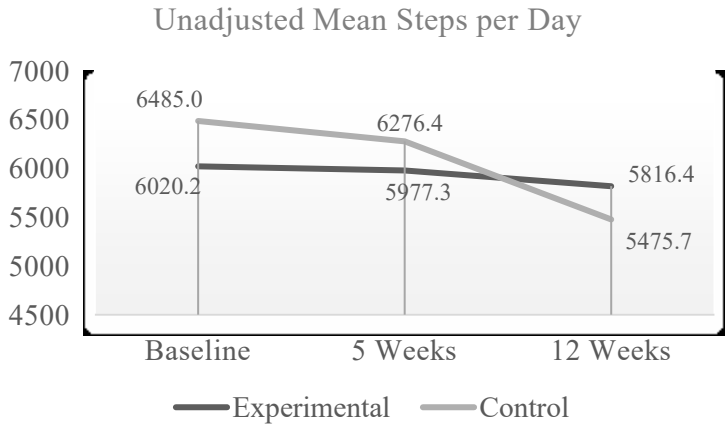
[b]Missing data: Ejection fraction was calculated on n = 21 in each group (experimental versus control). For depression, a missing datum in one participant of the control group was replaced with mean of the 8 other items. For total physical activity, denominators are according to missing data: 20/24 (83.3%) in the experimental group versus 16/20 (80.0%) in the control group.

Outcomes

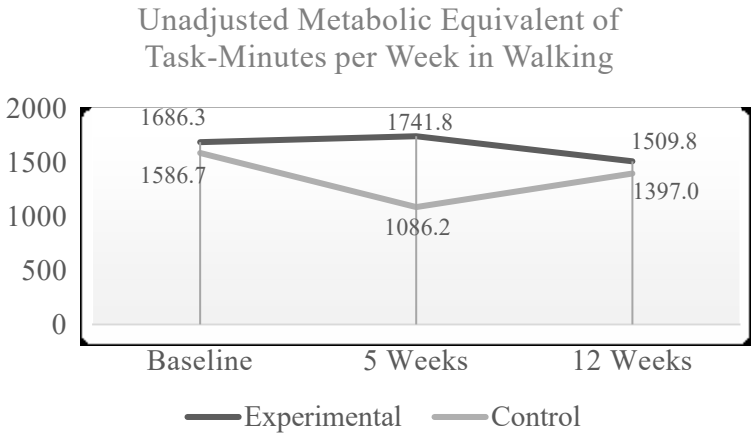
Unadjusted means of steps per day and energy expenditure are presented in Figure 9. None of the hypotheses were supported by our analyses. In addition, a lack of precision was found, evidenced by wide confidence intervals around the point estimates of change in steps per day and change in energy expenditures (Table 12). Notably, whereas the proportion of questionnaires not submitted ranged from 10% to 20% (Figure 8), the amount of resulting incomplete data for energy expenditure (from missing item data or outliers) ranged from 27% to 73% (Table 12). As sensitivity analyses for these hypotheses showed minimal changes in significance comparing Model 1 with either Model 2 or 3, we present findings for only Model 1.

Steps per day

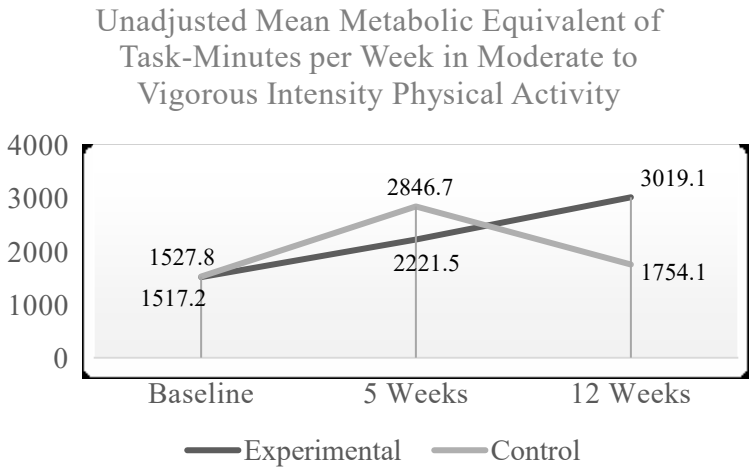
We tested both the primary (H1) and secondary hypotheses (H2) of steps per day in two repeated measures ANCOVA models. Neither hypothesis was supported (Table 12). The adjusted mean changes per group in steps per day over time were minimal and not significant, and no group by time effects were found.



Note. Means for baseline, 5 and 12 weeks were calculated on n = 28, 24, and 22 respectively in the experimental group; and n = 24, 23, and 22 respectively in the control group.



Note. Means for baseline, 5 and 12 weeks were calculated on n = 25, 16 and 24 respectively in the experimental group; and n = 23, 13, and 21



Note. Means for baseline, 5 and 12 weeks were calculated on n = 29, 16 and 23 respectively in the experimental group; and n = 23, 12, and 21

Figure 9. Unadjusted physical activity measures

Table 12. Models for change between randomization and follow-up for the primary and secondary hypotheses

Hypothesis (H)	Follow-up	n	Within experimental group mean Δ (SE)[a]	n	Within control group mean Δ (SE)[a]	Difference between groups mean Δ (SE)[a]	95% CI [a]	*P* Value Model 1[a]	*P* Value Model 2[b]	*P* Value Model 3[c]
H1: Steps / day	12 weeks	20	107.5 (445.5)	19	-168.4 (477.9)	275.9 (653.4)	-1,043.0 to 1,594.8	.68	.47	.44
H2: Steps / day	5 weeks	22	234.0 (574.0)	18	521.4 (641.7)	-287.4 (861.4)	-2,027.5 to 1,452.8	.74	.89	.89
H3: Walking / week	5 weeks	15	289.4 (363.5)	8	-430.8 (495.0)	720.2 (616.8)	-562.6 to 2,003.1	.26	.26	.16
H4: Walking / week	12 weeks	20	-155.2 (274.6)	18	-8.1 (289.6)	-147.1 (399.0)	-956.8 to 662.5	.71	.68	.77
H5: MVPA / week	5 weeks	16	509.8 (748.0)	9	402.3 (1,020.7)	107.5 (1,264.4)	-2,514.0 to 2,728.9	.93	.70	.83
H6: MVPA / week	12 weeks	22	1,260.4* (604.6)	15	-203.9 (734.3)	1,464.3 (949.7)	-469.2 to 3,397.8	.13	.15	.11

Note. Mean Δ (SE), mean change value (standard error); CI, Confidence Interval; MVPA, moderate to vigorous intensity physical activity; and Unit of measurement for walking and MVPA, Metabolic Equivalent of Task minutes per week. **P* < .05.

[a]Model 1 adjusted for prespecified covariates: baseline value, baseline value x time interaction.

[b]Model 2 adjusted for covariates in Model 1 in addition to covariates significantly associated to the tested outcome. The steps per day outcomes were adjusted for ejection fraction, depressive symptoms (dichotomized), and concealment status of accelerometers (concealed versus unconcealed). The walking outcomes were adjusted for fatigue T-score (dichotomized), and concealment status of accelerometers. The MVPA outcomes were adjusted for diabetes, fatigue T-score (dichotomized), and concealment status of accelerometers.

[c]Model 3 adjusted for covariates in Model 1 but excluded the two participants without acute coronary syndrome.

Energy expenditure

We tested the four secondary hypotheses on energy expenditure in four repeated measures ANCOVA. Neither of the two hypotheses (H3 to H4) for walking were supported (Table 12). The adjusted mean changes per group in MET-minutes per week over time were not significant, and no group by time effects were found.

Neither of the two hypotheses for MVPA were supported (Table 12). From randomization to 5 weeks (H5), the adjusted mean changes per group in MET-minutes over time were minimal and not significant, and no group by time effect was found. From randomization to 12 weeks (H6), whereas an increase in the adjusted mean change in MET-minutes per week was marginally significant only in the experimental group ($p = .045$), no significant change was found in the control group ($p = .78$). No significant effect for group by time was found.

Exploratory outcomes

No significant difference in the number of participants attending at least one visit to a secondary prevention program was found in the experimental (19.2%, $n = 5/26$) and the control group (25.0%, $n = 6/24$) at 12 weeks: $X^2(1) = 0.24$, $p = .62$.

No significant difference in the number of participants with at least one emergency department visit were found between the experimental (10.0%, $n = 3/30$) and the control group (6.7%, $n = 2/30$) at 12 weeks: $X^2(1) = 0.22$, $p = .64$. Among the nine emergency department visits, one was due to heart failure (experimental group). Another participant, who left the emergency department before receiving a final diagnosis, had chest pain during walking that resolved on rest prior to the visit (control group). The other seven visits were not cardiac related. One participant in the experimental group (3.3%, $n = 1/30$) as compared with none in the control group (0.0%, $n = 0/30$) was admitted for hospitalization, and this difference was not significant: $X^2(1) = 1.2$, $p = .31$.

Comparing means of angina frequency adjusted for baseline values, no significant difference between the experimental (96.6, 95% CI [93.9, 99.2], $n = 25$) and the control group (98.0, 95% CI [95.2, 100.7], $n = 23$) were found at 12 weeks: $F(1) = 0.56$, $p = .46$.

Intervention usage

As seen in Table 13, most were attributed to Profile D (76.7%, n = 23/30). For uptake, most logged in, and most visited at least one active content page. Engagement (i.e., ≥ 75% use of active content) with the entire intervention across all Profiles A to D was only one sixth of the participants. Because the TAVIE platform uses raw data instead of final cleaned data, a misclassification of three participants occurred with two participants categorized into Profile B and one into Profile C, instead of being correctly categorized into Profile D.

Table 13. Uptake and engagement of participants by profile

		Engagement to ≥75% of active content					
	Uptake	Session 1	Session 2	Session 3	Session 4	Booster	Completed as assigned
Profile	Logged in n/total n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
A (low motivation and low confidence)	1/2 (50.0)	1 (50.0)	1 (50.0)	1 (50.0)	0 (0.0)	0 (0.0)	0 (0.0)
B (low motivation and high confidence)	1/2 (50.0)	1 (50.0)	1 (50.0)	NA	0 (0.0)	0 (0.0)	0 (0.0)
C (high motivation and low confidence)	3/3 (100.0)	3 (100.0)	NA	3 (100.0)	1 (33.3)	3 (100.0)	1 (33.3)
D (high motivation and confidence n = 5; ≥150 minutes of walking n = 18[a])	19/23 (82.6)	15 (65.2)	NA	NA	6 (26.1)	9 (39.1)	4 (17.4)
Total	24/30 (80.0)[b]	20/30 (66.7)	2/4 (50.0)	4/5 (80.0)	7/30 (23.3)	12/30 (40.0)	5/30 (16.7)

Note. NA, Session not attributed to this profile. Categorization of Profiles used raw self-reported walking data (i.e., data before the implementation of data processing and cleaning norms).

[a]Among the total 23 participants, n = 5 had < 150 weekly minutes of walking, but were attributed in Profile D because of both high motivation and confidence; n = 18 were attributed Profile D because of ≥ 150 weekly minutes of walking. Among n = 18 with ≥ 150 weekly minutes of walking, n = 10 had both high motivation and confidence.

[b]n = 22/30 (73.3%) accessed at least one page of active content.

Table 14. Covariate associations with change in physical activity at 5 and 12 weeks

	Steps per day	**Energy expenditure walking**	**Energy expenditure MVPA**
Characteristic	*P* value	*P* value	*P* value
Age in years	.791	.326	.626
Male versus female	.496	.979	.366
Working versus not working	.629	.372	.973
Postsecondary versus less than postsecondary education	.195	.114	.318
Smoking documented in medical chart at index hospitalization	.984	.237	.944
Diabetes as documented in medical chart at index hospitalization	.978	.170	.040*
Ejection fraction of <55% versus ≥55%	.046*	.846	.234
Depressive symptoms continuous score from 0 to 27	.324	.180	.234
Depressive symptoms of moderate severity or greater versus lower severity	.016*	.390	.680
Fatigue continuous score from 7 to 35	.920	.061	.095
Fatigue worse than average versus better than average	.650	.010*	.047*
Stratification by three recruitment sites	.128	.893	.332
Fitbit Zip reported or returned unconcealed versus returned concealed	.002**	.002**	.039*

Note. MVPA, Moderate to Vigorous Physical Activity. *$P < .05$, **$P < .01$, ***$P < .001$. *P* values are presented to three decimal places to allow detection of values less than .05.

Discussion

Our data neither support the primary nor secondary hypotheses that ACS patients receiving TAVIE en m@rche (experimental group) compared to patients receiving hyperlinks to public websites (control group) will demonstrate greater increases in steps per day or self-reported energy expenditure. For the primary outcome, a minimal and non-significant increase of 275.9 more steps per day in the experimental group was found. A non-significant increase of 1,464.3 more MET-minutes per week of MVPA was found in the experimental group between randomization and 12 weeks. Limitations and possible explanations for the findings are presented, followed by interpretation of the results.

Limitations

Our RCT is inconclusive on the primary outcome due to its small sample size, which resulted in a wide confidence interval (Higgins & Green, 2011). Also, our results are not generalizable to ACS patients of younger age, women, those not working, and those with low motivation and confidence to increase walking.

Although imbalances in baseline characteristics were found, control of significant covariates did not change statistical significance between groups. As such, the resulting risk of bias may have been mitigated. Also, as the amount of and the reasons for the substantial incomplete primary outcome data (discontinued participation, non-adherence to the protocol, and technical problems with accelerometers) are comparable between groups (see Figure 8), the risk of attrition bias may have been offset by randomization (Higgins & Green, 2011). However, a risk of attrition bias is observed in the self-reported outcomes of energy expenditure as a greater number of participants with incomplete data is more pronounced in the control group for walking at five weeks, and MVPA at five and 12 weeks (see Table 12).

Study results

Steps per day

The minimal increase in our primary outcome of steps per day did not surpass findings from the two previous RCTs in our field testing a web-based intervention on steps per day in a CAD population (Devi et al., 2014; Reid et al., 2012). Given that our insufficiently active

participants, as reported in hospital at recruitment (i.e., six months prior the ACS-related hospitalization), became sufficiently active on average according to self-report at randomization (i.e., between the fourth and sixth week posthospitalization), we could reasonably expect no meaningful increase in steps per day because the intervention goal was attained prior to receiving the intervention. The intervention goal in the previous two RCTs encouraged incremental increases from previous self-reported physical activity performance, which allowed surpassing the recommended level, with health care professional involvement (Devi et al., 2014; Reid et al., 2012), instead of limiting the goal to maintain the sufficiently active level as in TAVIE en m@rche. Health care professional involvement (i.e., advice to participants) in these two RCTs consisted of emails to participants (Devi et al., 2014; Reid et al., 2012), and weekly chat room sessions (Devi et al., 2014). Gradually increasing physical activity above the recommended level in CAD populations is beneficial but should be implemented with health care professional involvement to optimize gains and minimize potential harms (Squires et al., 2018). Therefore, the lack of effect on the primary outcome in our RCT may be explained by the intervention goal that was mismatched to the needs of our mostly sufficiently active sample at randomization. Future research should investigate different needs for support in the context of web-based intervention in relation to the physical activity goals promoted by the intervention.

Interestingly, neither our RCT nor the other two in our field surpassed a difference or increase of 1,500 step per day (Devi et al., 2014; Reid et al., 2012). One possible explanation may be insufficient engagement. In our RCT, engagement overall (defined as ≥75% use of the entire intervention) was present in only one sixth of the experimental group. Engagement ranged from 40% of participants using the entire intervention in Devi et al. (2014) to 62% using at least three out of five tutorials (i.e., ≥60% use of the entire intervention) in Reid et al. (2012). As such, engagement was not optimal neither in our RCT nor in the other two in our field (Devi et al., 2014; Reid et al., 2012). Improving engagement may be key to augment effects of web-based interventions on steps per day in CAD populations.

Improving engagement represents an enduring problem in the web-based intervention literature (Perski, Blandford, West, & Michie, 2017). A theoretical analysis on the concept of engagement suggested tailoring (or personalization) as one way to improve engagement in web-

based interventions (Perski et al., 2017). In our RCT, tailoring may have been weakened by a small number of misclassifications of participants' tailored profiles, thus potentially reducing engagement. In addition, other misclassifications may have occurred due to patients' poor recall or estimate of their walking. The potential impact of misclassification on engagement remains unknown.

Personal relevance is also pertinent to improved engagement (Perski et al., 2017). From randomization, Session 1 provided the basic information about the goal of gradually increasing walking to the recommendation. As the majority of the experimental group attained this goal at randomization (see Table 13), these participants may have lost interest in further intervention due to lack of perceived personal relevance. Therefore, engagement may have been greater if content was tailored to the needs of those attaining reported walking recommendations shortly after ACS hospitalization. Taking our minimal increase in steps per day in context with previous data in our field, our data support the need to explore novel combinations of web-based intervention modes of delivery to augment engagement, which in turn would augment the effect on steps per day.

Energy expenditure

Our increase in MVPA cannot be compared to the four previous RCTs testing a web-based intervention on an objective physical activity outcome in a CAD population, as none reported MVPA in MET-minutes per week (Lear et al., 2014; Maddison et al., 2015; Reid et al., 2012; Widmer et al., 2017). Only two of these RCTs found a significant effect on increased MVPA (Maddison et al., 2015; Reid et al., 2012). Self-reported measures are known for overestimating energy expenditure due to social desirability and lack of accurate recall (Kaminsky et al., 2016). Nonetheless, each self-reported increment of energy expenditure equivalent to the recommended 150 minutes per week of physical activity, up to a maximum of three to five times greater than the recommendation, have been consistently associated with reduced mortality (Arem et al., 2015). Applied to the IPAQ measure of energy expenditure used in our RCT, 600 MET-minutes per week corresponds to the recommended minimum (The IPAQ group, 2005), in which one increment of this magnitude may result in health benefits. As we observed an increase of 1,464.31 more MET-minutes per week, this difference in change may

represent important gains in health benefits for the experimental group, although wide confidence intervals around this point estimate is observed.

The source of increased MVPA in our RCT is unknown as our short version questionnaire did not distinguish between the sources of energy expenditure. The accelerometer brands used best capture physical activities that are step-based such as walking, jogging, and running (Brown et al., 2013; Paul et al., 2015), and thus may have missed non-step-based activities such as cycling, swimming, shovelling snow, and weight-lifting. As such, our failure to find substantial change in steps per day suggests that the increased MVPA may have been from non-step-based activities. Therefore, further testing using accelerometry that may better detect non-step-based activity, in addition to more detailed self-reported energy expenditure to further support and explain findings from accelerometery, could better determine the source of activity linked to physical activity outcomes. In summary, caution in interpretation is warranted as the point estimate of moderate to vigorous physical activity found presents with a risk of attrition bias, contains marked uncertainty around the point estimate, and is without reasonable explanation.

Exploratory outcomes

No differences in emergency department visits or hospitalizations were found. As no differences were found between groups for angina frequency, this hypothesis is supported. Taken together, these data suggest that no harm or benefit was found from participating in either the experimental or control group.

Conclusion

Whereas our RCT found a minimal increase in steps per day, in context with previous RCTs in our field, our primary result supports the need to explore novel combinations of web-based modes of delivery to augment effects. Nonetheless, the non-significantly greater increase in energy expenditure for MVPA found may represent gains in health among the participants receiving TAVIE en m@rche. Further improvements and testing are required in future RCTs to produce meaningful increases in steps per day following an ACS event.

Complementary Results

The following results of the remaining exploratory outcomes are presented: theoretical variables (H7 to H11), quality of life (H12 to H15), smoking status (H16), cardiac medication adherence (H17), and the subgroup analysis of the sex of the participant (H21).

Exploratory outcomes

Outcomes of theoretical variables

As shown in Table 15, minimal and non-significant differences between groups in perceived autonomy support at 5 weeks were found (H7). In Table 16, differences between groups in mean changes at 5 weeks for controlled and autonomous motivation, and perceived competence, were minimal and not significant (H8 to H10). Although barrier self-efficacy increased in the experimental group and decreased in the control group, the between group difference in mean change at 5 weeks was not significant (H11).

Clinical outcomes

In Table 17, no differences between groups on global quality of life or the subscales were found (H12 to H15). As shown in Table 18, for seven-day smoking status, although a greater proportion of participants reporting having not smoked is found in the control group at 12 weeks, the adjusted odds ratio was not significant (H16). For high cardiac medication adherence, although the experimental group was 3 times more likely to report high adherence at 12 weeks as compared to the control group, which is concordant with our hypothesis, the adjusted odds ratio was not significant (H17).

The exploratory outcomes for secondary prevention program attendance (H18), emergency department visits (H19), hospitalizations (H20) and angina frequency (H22) are presented previously in the Primary Results Article. Also, it was not possible to present the hypothesis on the subgroup sex of the participant (H21) because only two female participants were allocated to the experimental group, and both had incomplete data on the change value of the primary outcome.

Table 15. Perceived autonomy support at 5 weeks

	Experimental Group		Control Group			
Measure	n	Mean (95% CI)	n	Mean (95% CI)	*F* (df)	ANOVA *P* Value
H7 Perceived autonomy support	18	5.4 (4.9 to 5.9)	13	5.1 (4.4 to 5.8)	0.66 (1, 29)	.42

Note. 95% CI = 95% confidence interval. df = degrees of freedom where the first value found before the comma is the between group df, and the second value found after the comma is the within group df. Bonferroni inequality adjustment significance level $p = .01$. Score range from 1 to 7. As planned, but not reported in the Protocol Article, a single perceived autonomy support score was produced by calculating a single mean from both questionnaires (perceived autonomy support from the intervention and significant other).

Table 16. Change in self-determined motivation continuum and confidence at 5 weeks

	Experimental Group		Control Group			
Measure	n	Mean Δ (95% CI)	n	Mean Δ (95% CI)	F (df)	ANOVA *P* Value
H8 Controlled motivation	18	-0.2 (-0.9 to 0.5)	14	0.2 (-1.2 to 1.7)	0.36 (1, 30)	.55
H9 Autonomous motivation	18	0.1 (-0.8 to 0.9)	14	-0.1 (-0.9 to 0.6)	0.13 (1, 30)	.72
H10 Perceived competence	18	-0.2 (-1.2 to 0.8)	14	-0.5 (-1.3 to 0.3)	0.22 (1, 30)	.65
H11 Barrier self-efficacy	18	4.5 (-14.8 to 23.9)	14	-7.3 (-38.5 to 23.8)	0.53 (1, 30)	.47

Note. Δ = change from baseline to 5 weeks; 95% CI = 95% confidence interval. Bonferroni inequality adjustment significance level $p = .01$. df = degrees of freedom where the first value found before the comma is the between group df, and the second value found after the comma is the within group df. Score range from 1 to 7 for controlled and autonomous motivation and perceived competence, and 0% to 100% for barrier self-efficacy.

Table 17. Adjusted means of quality of life at 12 weeks

	Experimental Group		Control Group			
Measure range 1 to 7	n	Mean (95% CI)	n	Mean (95% CI)	F(df)	MANCOVA *P* Value
H12 Global	26	5.8 (5.5 to 6.0)	24	5.8 (5.6 to 6.1)	0.02(1)	.903
H13 Emotional	26	5.8 (5.5 to 6.0)	24	5.8 (5.5 to 6.0)	0.00(1)	.995
H14 Physical	26	5.8 (5.5 to 6.0)	24	5.9 (5.6 to 6.1)	0.22(1)	.644
H15 Social	26	6.0 (5.7 to 6.3)	24	6.0 (5.7 to 6.3)	0.01(1)	.926

Note. 95% CI = 95% confidence interval. Bonferroni inequality adjustment significance level $p < .0125$. Means and *P* Values adjusted for baseline values of global, emotional, physical, and social. *P* values are presented to three decimal places to allow detection of values less than 1.

Table 18. Adjusted odds ratios: smoking status and medication adherence at 12 weeks

	Experimental Group		Control Group			
Measure	n	n (%)	n	n (%)	Odds Ratio (95% CI)	Logistic Regression *P* Value
H16 Status of not smoking						
Baseline	30	25 (83.3)	30	25 (83.3)		
12 weeks	26	20 (76.9)	24	23 (95.8)	0.11 (0.01 to 1.97)	.14
H17 Medication adherence						
Baseline	30	24 (80.0)	30	25 (83.3)		
12 weeks	26	20 (76.9)	24	14 (58.3)	3.16 (0.71 to 14.03)	.13

Note. 95% CI = 95% confidence interval. *P* values of odds ratios adjusted for the baseline value of the tested outcome.

Chapter 5. Discussion

Acute coronary syndromes are among the leading causes of mortality and health care utilization worldwide. Increasing physical activity is one behaviour change key in improving health in ACS patients after hospitalization. We evaluated TAVIE en m@rche, a web-based tailored nursing intervention as compared to public websites, on increasing steps per day in ACS patients. No significant effects on planned hypotheses were found in the primary and secondary physical activity outcomes. However, a non-significant improvement in moderate to vigorous physical activity at 12 weeks was found in the experimental group relative to the control group. No significant effects were found in the exploratory outcomes, which included the SDT constructs, barrier self-efficacy, quality of life, smoking status, cardiac medication adherence, secondary prevention program attendance, emergency department visits, hospitalizations, and angina frequency. Our results should be interpreted with caution because of our small sample size and a substantial amount of incomplete data. Our work nonetheless contributes to the growing body of literature on the topic of web-based tailored interventions tested in CAD populations as will be discussed in the theoretical, empirical and methodological contributions as well as practice implications for TAVIE en m@rche.

Theoretical Contributions of the Intervention Design

Integrating a nursing approach to practice with a theory on health behaviour change is novel in the web-based physical activity intervention literature. Strengths-Based Nursing Care is the values-driven nursing approach retained that served as the lens through which TAVIE en m@rche was designed. For instance, Strengths-Based Nursing Care guided our choice of retaining an explanatory theory on human motivation and its constructs. Arising from the Strengths-Based Nursing Care value of self-determination, SDT was the theory retained that explains increased physical activity. To our knowledge, TAVIE en m@rche is the first web- and SDT-based intervention aimed at increasing physical activity in a CAD population.

Considering the RCTs in our field, the theory or construct of self-efficacy dominated the theoretical frameworks, indicating that intervention strategies aimed at targeting this construct. Rather than repeating this predominant focus, TAVIE en m@rche used SDT to consider other

constructs (i.e., perceived autonomy support, and self-determined motivation continuum), in addition to self-efficacy, which are unique as compared to constructs in other health behaviour change theories (Teixeira et al., 2012). The three main categories of constructs retained in the intervention design (i.e., perceived autonomy support, autonomous motivation and confidence [perceived competence and barrier-self efficacy]), guided our choice of intervention strategies such that each construct was targeted by the intervention. Therefore, TAVIE en m@rche targeted unique constructs by the intervention not previously implemented in the web-based intervention design in our field.

Our interest in using tailoring in TAVIE en m@rche was guided by the Strengths-Based Nursing Care value of uniqueness, which favours nursing care according to unique qualities of patients. These unique qualities in TAVIE en m@rche refer to different levels of motivation, confidence and walking behaviour, which drive the computer-tailoring process in the TAVIE^{TM} platform. Whereas non-tailored interventions may be similarly efficacious as tailored interventions on physical activity outcomes, tailoring, being consistent with a Strengths-Based Nursing Care approach, was nonetheless retained. However, as we determined only four profiles of participants through questionnaires on only three constructs, tailoring was limited with respect to the whole person understanding of uniqueness, as proposed by Strengths-Based Nursing Care. As such, TAVIE en m@rche was designed to be responsive to patients' unique qualities to a degree allowable in the TAVIE platform.

The presentation of five 'global' intervention strategies from an autonomy supportive intervention was retained because it represents part of a 'way of being' consistent with Strengths-Based Nursing Care rather than retaining only 'specific' intervention strategies consistent mainly with behaviour change techniques that do not specify a 'way of being.' Determining a 'way of being,' as we did using Strengths-Based Nursing Care, allows for purposeful intervention, rather than relying on a personal or a profession's 'way of being,' other than nursing. Our conceptualization of an autonomy supportive intervention, was drawn from the original core strategies mainly from SDT (providing *choices*, offering *rationale*, and expressing *empathy*). We then added strategies of being *collaborative* and being *strengths-focused* according to our published concept analysis of an autonomy supportive intervention (see Concept Analysis

Article). As previously discussed, all five 'global' strategies are consistent not only with SDT, but also with Strengths-Based Nursing Care. As such, our conceptualization of an autonomy supportive intervention represents a 'way of being' as an inseparable whole providing the fabric in which the entire intervention, including specific intervention strategies, was woven.

Unique in TAVIE en m@rche, compared to most RCTs in our field, is the use of videos, instead of only online text, as the main mode of communicating tailored messages. Video allows a one-way verbal and non-verbal communication of information, which in turn gives greater access to the 'way of being' of the nurse, as compared to online text alone. Indeed, the use of video alone is limited by the lack of a two-way interaction as compared to adding live communication between a nurse and coronary patient. As such, although the Strengths-Based Nursing 'way of being' could not be fully implemented in a web-based intervention without live nursing involvement, the central aspect of video in the TAVIE^{TM} platform provided a good fit to convey the nursing 'way of being' in a fully-automated intervention.

Using the TAVIE^{TM} platform was advantageous in our RCT because it allowed the implementation of a web-based intervention without health care professional involvement. Also, it was flexible, allowing the operationalization of an original algorithm used for tailoring, as well as allowing written information available on the webpages, or in Portable Document Format (PDF). Moreover, some information was presented in drop-down list allowing further choices in accessing information as needed. Choice in accessing information is aligned with the Strengths-Based Nursing Care value of self-determination. However, one limitation of the TAVIE^{TM} platform, was the lack of automated reminders for intervention use, which was implemented manually during the RCT. Nonetheless, the TAVIE^{TM} platform allowed the successful implementation of a complex web-based intervention, which was fully automated, and provided choice in accessing information on walking.

The clarity of the integrated framework of TAVIE en m@rche and its operationalization (Appendix A) may promote the advancement of nursing science such that it is reproducible, and new knowledge using the same framework may be generated. For instance, each sentence or group of sentences spoken by the Virtual Nurse was classified using the characteristics of the global strategies of an autonomy supportive intervention. Also, each specific strategy, which

included a group of behaviour change techniques, targeted SDT constructs. As such, the integrated framework, which allowed this level of detail, may be translated to other modes of delivery (e.g., face-to-face interventions) and to other populations (e.g., cardiac or non-cardiac) targeting health behaviours, which have empirical support in SDT (Ng et al., 2012), such as improved outcomes for physical activity, smoking cessation, and medication adherence. In summary, considering our approach, from conceptualization to the final operationalization, Strengths-Based Nursing Care provided a unique contribution to the intervention design, making TAVIE en m@rche uniquely nursing.

Empirical Contributions of Study Outcomes

Primary outcome of steps per day

Our RCT is inconclusive on the primary outcome because its point estimate contained a wide confidence interval, which resulted from our small sample size. We nonetheless consider the non-significant minimal difference in change in steps per day valuable, as non-significant results can stimulate critical thinking on advancing knowledge in our field (Matosin, Frank, Engel, Lum, & Newell, 2014). The point estimate of the primary outcome found, in context with its confidence interval, indicates a low likelihood we would attain our desired increase in steps per day in a full-sized RCT testing TAVIE en m@rche. Therefore, empirical contributions from our RCT arises from critical thinking on the reasons for the lack of meaningful effect, and the ways that the effect of TAVIE en m@rche or other similar interventions may be increased in a full-sized RCT.

The lack of effect may be explained by a change in characteristics of the ACS patients from recruitment to randomization. Although only those insufficiently active were included at recruitment during hospitalization, once home at randomization, most of the entire sample attained the recommendation, and most of the experimental group attained the recommendation through walking behaviour alone. Therefore, we could argue that no degree of improvement may be expected by participants as the majority already achieved the intervention goal, based on self-report, before receiving access to TAVIE en m@rche.

However, baseline physical activity levels were either above or below the recommendation in the two previous RCTs in our field, and both nonetheless found significant effects on their primary outcomes of steps per day (Devi et al., 2014; Reid et al., 2012). Whereas at baseline, participants in both comparison groups were below the recommended level of physical activity in Reid et al. (2012), participants in both comparison groups were above the recommendation in Devi et al. (2014). Therefore, as significant improvements in steps per day may not only depend on the level of baseline physical activity, the lack of effect in our RCT cannot be explained entirely by our participants becoming sufficiently active at randomization. Perhaps other factors that may interact with our desired outcome.

One such factor may be the intervention goal. The intervention goal delivered to the subgroup of sufficiently active experimental group participants in Session 1, in which most visited, was to maintain their sufficiently active walking level. In contrast, the intervention goals, in the two previous RCTs in our field, encouraged incremental increases from previous self-reported performance at periodic moments during the trials (Devi et al., 2014; Reid et al., 2012), instead of limiting the goal to maintain the sufficiently active level. Given that our target population lives with a chronic cardiac disease, an intervention goal to gradually increase physical activity above the recommendation is also beneficial but should be implemented with health care professional involvement to optimize gains and minimize potential harms (Squires et al., 2018). Guidance from health care professionals is suggested in web-based interventions when the target population needs advice and support to adopt health behaviour goals safely and effectively (Yardley et al., 2016). Such guidance was implemented using email or chat room in the two previous RCTs in our field measuring steps per day (Devi et al., 2014; Reid et al., 2012). In summary, our sample of ACS patients, in which most became sufficiently active prior intervention, received an intervention goal intended for an insufficiently active sample, which in turn resulted in no meaningful change in steps per day.

Secondary outcome of moderate to vigorous physical activity

We found a non-significantly greater increase in self-reported moderate to vigorous physical activity at 12 weeks in the experimental group. As previously discussed, this increase, relative to the control, may represent important health gains for the experimental group,

indicating a clinically important improvement. However, our data are too limited to draw firm conclusions or hypotheses.

First, we lack knowledge on the source of moderate to vigorous activity that may explain this finding. Although our measure of self-reported physical activity (i.e., the IPAQ) presented examples of activities (e.g., cycling at a regular pace for moderate, and aerobic exercise for vigorous), participants were not asked to provide data on actual activities performed. Also, our finding cannot be explained by a difference in attendance to a secondary prevention program during the trial (i.e., one source of moderate to vigorous physical activity), because the number of those reporting attendance were nearly identical between comparison groups. Indeed, the lack of validation of the questionnaire used to measure attendance raises questions regarding the reliability of this result.

Second, the amount of incomplete data for this twelve-week outcome is more pronounced in the control group as compared to the experimental group, indicating a possible introduction of bias in this finding that may favour the experimental group. Third, the confidence interval shows marked imprecision around the point estimate, which resulted from the small sample size along with the inherent imprecision of the measure itself as it relies on recall. Therefore, caution in interpretation is warranted as the point estimate of moderate to vigorous physical activity found is without reasonable explanation, may be biased, and contains marked uncertainty around the point estimate.

Exploratory outcomes of theoretical variables

As we designed TAVIE en m@rche to target change in SDT constructs and barrier self-efficacy, we expected that the intervention would influence significant change in theoretical constructs or variables, and in turn explain our desired significant effect on steps per day. This expected relationship between the intervention, theoretical constructs and outcome, can be determined through mediation analyses. Mediation analysis was however not conducted because of no significant effect on the primary outcome, in addition to no significant effects on SDT constructs or barrier self-efficacy.

Considering only the SDT constructs, one possible reason for the lack of effect is that baseline values represented a highly motivated (high autonomous and low controlled motivation) and a highly confident (high perceived competence) ACS patient sample with respect to attaining recommended walking levels. As such, we could reasonably expect little or no improvement over time in these constructs because only a marginal degree in improvement was possible.

The use of SDT as theoretical grounding in RCTs testing web-based physical activity interventions is sparse. From a recent meta-analysis (Jahangiry et al., 2017), only one SDT-based intervention was identified (Friederichs, Oenema, et al., 2015). This intervention contained similarities to TAVIE en m@rche as they tested a fully automated four-session intervention, using tailored messages in text format, videos presented by an exercise coach, peers and a physician, and behaviour change techniques as compared to an active comparator website and a waitlist control. Recruitment was community-based, and targeted adults that were physically active for less than 60 daily minutes five days per week. Participants (n = 4,302) were mostly female (about 70%), and randomized to one of the three parallel groups. In a separate report presenting the effects of SDT constructs, Friederichs and colleagues found significant increases in autonomous motivation (intrinsic and identified) and perceived competence at three months, and significant increases in weekly minutes of self-reported moderate to vigorous physical activity at six months in favor of both the experimental and active comparator groups as compared to the waitlist control (Friederichs, Bolman, et al., 2015). However, a significant mediating role, explaining the effect of the interventions on increased moderate to vigorous activity, was found only for perceived competence (Friederichs, Bolman, et al., 2015). The authors posited a longer follow-up than six months on physical activity outcomes may be needed to detect significant mediating roles of other SDT constructs or variables, which as not conducted on their twelve-month endpoint. In summary, whereas we did not find effect on SDT constructs in a mostly male ACS sample, Friederichs and colleagues found evidence supporting the effect on some SDT constructs in a mostly female non-cardiac sample. However, the mediating role of SDT constructs have yet to be demonstrated in perceived autonomy support and the self-determined continuum.

Our result on barrier self-efficacy shows some potential of targeting this variable in web-based interventions. At baseline, this is the only variable at moderate levels indicating that an important degree of improvement over time is possible. Also, this is the only variable that showed some improvement in the experimental group relative to the control. Nonetheless, the non-significant improvement was minimal and insufficient to influence a greater increase in steps per day in the experimental group. In TAVIE en m@rche, content explicitly targeting an increase in barrier self-efficacy was presented in Session 4, in which only seven participants visited 75% or more of this session (i.e., low engagement). Therefore, one possibility explaining the lack of effect on barrier self-efficacy is the lack of sufficient engagement to the intervention content addressing barrier self-efficacy to produce meaningful change in this variable.

Although one RCT in our field also measured barrier self-efficacy, no effect on this variable was found. Maddison et al. (2015) used a measure with items of barriers such as "bad weather, lack of time, pain or discomfort" (p. 3), which has similarities to our measure. They also obtained near moderate levels of barrier self-efficacy at baseline. As their intervention content targeted increased levels of this variable, the reason for no effect in their measure is not clear. Taken together, the data on barrier self-efficacy may suggest some potential, although more research is needed to draw firm conclusions concerning the possible degree of improvement by a web-based intervention, and its mediating role on physical activity outcomes in ACS populations.

Exploratory outcomes of other health behaviour changes

Other health behaviour changes in our RCT were not significantly influenced by the intervention. For smoking, a non-significantly greater proportion of participants reported having not smoked in the control group, which is in the opposite direction to our hypothesis by three more participants. For cardiac medication adherence, a non-significantly greater proportion of participants reporting high adherence in the experimental group, which is in the expected direction of our hypothesis by six more participants. Other RCTs in our field have measured these outcomes, however, effects are inconclusive due to methodological limitations. Although we hypothesized improvements in these health behaviours through the 'gateway' effect, the effects in either direction of our hypotheses regarding these two outcomes do not support such

effect. Indeed, a recent meta-analysis reported that tailored web-based interventions show significantly greater proportions of those having quit smoking as compared to non-tailored information (e.g., print-based guide) in adult smokers (Taylor et al., 2017). Perhaps a parallel focus on other health behaviour changes along with physical activity may be needed to produce significant effects in these outcomes.

The few participants reporting having attended a secondary prevention program during study participation in both experimental and control groups mirrors a known problem in the use of secondary prevention interventions for CAD in Canada. Acknowledging that our sample is not representative of all cardiac patients eligible to attend a secondary prevention program, the attendance rates found in our RCT are either below or within the range of the 22% to 30% cited in the Canadian literature (Grace et al., 2014). One commonly cited barrier to attending secondary prevention is the lack of perceived need to attend (Grace et al., 2014). Indeed, among participants providing completed data in either the experimental or control group, an average self-reported moderate to vigorous physical activity was markedly above the recommendation at all time points (see Figure 9). Therefore, as physical activity recommendations were at least attained on average according to self-report, there may have been a lack of perceived need to attend an onsite secondary prevention program.

Engagement to the intervention

Once uptake (i.e., proportion of participants that logged in) is achieved as a first step in intervention use, obtaining sufficient engagement (i.e., proportion of participants using a substantial amount of the intervention) to influence outcomes is key. A known pattern of intervention usage generally follows the highest number of participants using the intervention after logging in at the start of a trial, followed by a steep drop in numbers using the intervention as time progresses (Eysenbach, 2005). It is difficult to determine a clear usage pattern in our intervention due to the small sample size, and the unbalanced assignment of participants per session due to the profiles. Nonetheless, we observed a substantial number of participants logging in (i.e., uptake) and visiting most of Session 1 (i.e., engagement), in contrast with few participants visiting most of Session 4. Specifically, only one sixth of participants visited 75% or

greater of the entire intervention content, which indicates low engagement in TAVIE en m@rche.

As discussed, the majority of our participants became sufficiently active before receiving the intervention. Consistent with expert opinion on engagement in Yardley et al. (2016), our participants may have lacked a perceived need for support from a web-based intervention to maintain gains as our intervention goal was already attained on average. We otherwise implemented several elements that are consistent with favouring increased engagement in web-based interventions that included the use of behaviour change techniques (e.g., action planning, goal setting, self-monitoring, and reminders for intervention use) (Morrison, Yardley, Powell, & Michie, 2012; Perski et al., 2017), having access to all content if desired, instead of having limited access per session (Perski et al., 2017), the use of tunnelling such that users click through predetermined pages according to their profile (Perski et al., 2017), and personalization through tailoring (Morrison et al., 2012; Perski et al., 2017; Yardley et al., 2016). These aforementioned elements are proposed to favour increased engagement based on empirical findings (Perski et al., 2017). Therefore, the low engagement found in our intervention was possibly less related to potential gaps in elements favouring engagement, but rather to a mismatch between the intervention goal and our sample of mostly active ACS patients.

Risk of biases

Assessment of the risk of bias is qualitative, and this assessment supports the confidence in claims of effect or lack thereof (Higgins, Altman, & Sterne, 2017). Among the possible biases commonly assessed, the risk of selection bias pertains to a lack of rigorous method of sequence generation of assignments and the concealment of these assignments before randomization (Higgins et al., 2017). Selection bias may result in imbalances in baseline characteristics. We delegated sequence generation to an offsite coordinating center, and these assignments were concealed. Only few baseline imbalances were observed, which most likely occurred by chance as would be expected in a small sample (Friedman et al., 2015). Therefore, selection bias in any outcome may be of less pertinence in our RCT.

Although the risk of attrition bias was previously discussed concerning the steps per day outcome in the Primary Results Article, we elaborate here on how we treated the incomplete

data. One method of treating incomplete steps per day data is to use an appropriate imputation technique (Stephens et al., 2018). Using imputation allows intention-to-treat analysis, which implies analyzing all participants randomized (Friedman et al., 2015). However, when small trials consist of substantial incomplete data, such as in our RCT, imputation may not produce reliable estimates (Stephens et al., 2018). Also, as steps per day unexpectedly decreased from randomization to 12 weeks in the total sample that provided completed data, simple imputation, for instance last observation carried forward, would have resulted in an overestimate in point estimates. We therefore did not replace incomplete data using imputation techniques.

Concerning the risk of attrition bias in the non-significant improvement in moderate to vigorous intensity physical activity at 12 weeks, we observe that the number of questionnaires not submitted is comparable between groups. However, the number of participants with incomplete data in the analysis is substantially greater in the control group. This is explained by assigning missing values to lack of recall in time spent in physical activity (e.g., number of days entered without entering time spent) or to outliers. For this reason, attrition bias may have been introduced in the self-reported measure of moderate to vigorous physical activity favouring the experimental group.

Performance bias can result from a lack of blinding of participants and personnel, such that the knowledge of assignment systematically affects outcomes (Higgins et al., 2017), which may also pertain to our moderate to vigorous intensity physical activity twelve-week result. In our RCT, participants consented to receiving access either to a website that takes up to 75 minutes to complete and accessible only to allocated research participants, or to a website that contains hyperlinks to public websites. Although participants were not informed of the hypotheses, we consider that they had knowledge of assignment as the experimental intervention was discernable from the control. Informed consent, one aspect of ethical clinical research, requires that potential participants are adequately informed about the study conditions of which they will receive by chance (Emanuel, Wendler, & Grady, 2000). As such, the lack of blinding of participants is almost always present in web-based intervention RCTs, as evidenced in a recent systematic review of such interventions in CAD patients (Devi et al., 2015). Therefore, although

the risk of performance bias is of concern in our RCT, this bias is inherent to most RCTs testing web-based interventions in CAD populations.

Blinding of personnel, when possible in RCTs testing web-based interventions, helps ensure that both experimental and control groups receive similar amounts of interaction with the research personnel, such that co-intervention is not introduced (Higgins et al., 2017). In our RCT, interaction with research participants in both experimental and control groups were kept to a minimum. In both groups, no advice or counselling was given by research personnel. In addition, the procedure for reminders to complete the study measures was identical between groups. However, one extra reminder was given to only the experimental group participants that did not log in to the intervention, and another extra reminder was given to all experimental group participants to access the booster session (see Appendix R). Considering the future implementation of TAVIE en m@rche as part of usual care, we consider reminders as an integral part of the intervention, which are aimed at optimizing intervention usage. Therefore, as the extra attention from reminders received in the experimental group is a reasonable component of TAVIE en m@rche, the risk of bias from co-intervention arising from the lack of blinding of personnel may be low.

Methodological Contributions

Randomization

Stratified randomization could provide a solution to attaining a proportion of females sufficient for subgroup analyses. Although we aimed at examining whether the primary outcome depended on the sex of participants, our sample consisted of too few females to conduct the planned subgroup analysis. Difficulty recruiting a sufficient number of females in cardiovascular RCTs is common (Melloni et al., 2010), which resulted in our RCT from fewer females than males available for screening.

Stratified randomization allows randomization (e.g., simple or block) within different levels of baseline characteristics (e.g., male, female) that are hypothesized to be associated to the desired outcome (e.g., increased steps per day) (Friedman et al., 2015). Although such a procedure primarily aims at protecting against baseline imbalances that may occur by chance in

smaller sized RCTs (implemented using a variable of 'recruitment site' in our RCT), it can also help obtain desired quotas per strata (Friedman et al., 2015). As such, stratified randomization applied to the sex of the participant in a future RCT of TAVIE en m@rche would mean that recruitment for males would cease once its quota is attained, and recruitment for females would continue until its quota is obtained.

Recruitment

First myocardial infarctions are experienced in about 62,000 Canadians yearly, and infarctions represent a leading reason for hospitalizations. As such, ACS populations represent an important proportion of patients in hospital that can be approached for cardiovascular research. Given that our study population is patients having recently experienced an acute coronary event, intensive coronary care units are among the best recruitment sites. We invited four hospitals to attain our target sample size, of which one was abandoned from the lack of recruitment. Given that we obtained recruitment of about one third of the planned sample size with completed primary outcome data, increasing the number from three to about nine actively recruiting sites would be needed. This number of recruitment sites would in turn require greater resources and financing for a future RCT.

Few solutions, which are efficacious in increasing recruitment rates and are relevant to our RCT, are found in the literature. Evidence suggests that recruitment rates are greater in RCTs that do not blind participants to group assignment as compared to using blinding (Walters et al., 2017). As such, not blinding participants in our RCT was advantageous.

Another solution could be to relax some criteria of eligibility to widen the pool of potential participants eligible to approach. Our eligibility criteria already comprised of reasonable restrictions in participating in TAVIE en m@rche at in-hospital recruitment, which included being insufficiently active prior to hospitalization, having access to the internet and a computer, and having no physical, mental or environment restrictions to attaining at least the recommended level of physical activity. Our criteria were however stringent on excluding those with stable CAD. Stable CAD populations could also benefit from increasing physical activity.

Widening eligibility criteria as such would however imply some changes in the intervention content and recruitment strategies. For the intervention content, messages in TAVIE en m@rche would need some adaptation such that patients recently experiencing an acute event (i.e., ACS patients) are acknowledged along with those without recent acuity (i.e., stable CAD). For recruitment strategies, stable CAD patients can be approached in hospital after receiving elective percutaneous coronary intervention, in out-patient medical clinics or in the community at large. Therefore, more choices in recruitment sites implies a wider repertoire of recruitment strategies to plan in a future RCT, which in turn may require expertise and resources to implement such strategies.

Although a greater number of recruitment sites and widening eligibility criteria can increase recruitment rates, these strategies do not address the problem of successfully randomizing the intended insufficiently active ACS population. Previous Canadian data has shown that physical activity decreases over time after an ACS hospitalization (Reid et al., 2006). Therefore, to gain greater access to recruit the intended population for randomization, perhaps recruiting at a later time post-hospitalization, further away from the ACS event, may provide one solution.

Data collection

Our RCT found substantial incomplete accelerometer data for either brand, Pebble or Fitbit ZIP. The lack of synchronization of data between the accelerometer and the participants' computers was one reason for incomplete data. Although we could not fully determine the causes, we suspected that some devices were defective or had weak or poor quality batteries, despite our quality checks. We also suspected poor Internet connectivity at the participants' homes, which resulted in lack of synchronization.

Researchers have also noted unique problems with this measurement that pertain to our experience (Stephens et al., 2018). Due to poor participant adherence to protocol, in addition to completely missing data for a measurement period, many participants provide data for a portion of the day or for a number of days less than the planned measure (Stephens et al., 2018). In our RCT, such partial data resulted in additional participants classified with a missing value. Adherence to accelerometer wear may be challenging for some as measurement takes place over

seven consecutive days rather than on one day (Stephens et al., 2018). Our planned reminders were possibility insufficient to optimize adherence to accelerometer wear because they were based on non-daily monitoring of data synchronization (i.e., upload of accelerometer data via participants personal computers). Perhaps planning reminders based on daily synchronization, over the seven-day collection period, would be more successful at optimizing adherence to accelerometer wear in a future RCT.

Measures

Although greater levels of self-reported energy expenditure are significantly associated with lower risk in mortality (Arem et al., 2015), self-report measures are nonetheless known for lack of accuracy resulting in overestimation, and lack of precision resulting in wide variance as compared to objectively measured energy expenditure in CAD populations (Kaminsky et al., 2016). Despite the problem of incomplete data in subjective and objective measures, accuracy and precision can be improved if the same accelerometers measuring steps per day were also used to estimate energy expenditure (Kaminsky et al., 2016). Also, multi-sensor devices measure energy expenditure by combining multiple measures including heart rate, body temperature, sweat rate, and accelerometery measured from different locations on the body (Ainsworth et al., 2015). Although objective measures of energy expenditure provide more accuracy and precision as compared to self-report, energy expenditure may be underestimated with accelerometers and overestimated multi-sensor devices as compared to measurement using a gold standard criterion (Dowd et al., 2018). As complexity of energy expenditure measurement increases, research costs for equipment and expertise, and participant burden need to be considered (Kaminsky et al., 2016). As such, accuracy and precision in measurement need to be balanced with the feasibility of implementation of retained measurements of energy expenditure.

Recall of hours and minutes of physical activity during a seven-day period in the IPAQ measure can be challenging for many, particularly for unplanned physical activities, such as walking (Finger et al., 2015). Such lack of recall can lead to missing data on items or to spurious data entry resulting in outliers, which are assigned a missing value. In our RCT, a marked difference was observed between the proportion of questionnaires not submitted by participants and the proportion of resulting incomplete data of energy expenditure. The proportion of

incomplete data unavailable for analysis from the IPAQ was also high in the two RCTs in our field using this measure (Antypas & Wangberg, 2014; Maddison et al., 2015). Efforts to improve seven-day recall could involve asking participants to complete daily physical activity logs during the seven days that is recalled (Ainsworth et al., 2012). However, completing daily logs could increase participant burden, and should therefore be considered with the RCT's main aims and burden imposed by other measures.

Implications of TAVIE en m@rche

The overarching goal of evidence-based practice in nursing is the implementation of best evidence in the delivery of high quality care (Sidani & Braden, 2011). The evidence from our RCT is limited because of methodological reasons. Importantly, we could not demonstrate our aim of increasing steps per day in the intended population of mostly insufficiently active ACS patients because most became sufficiently active without additional intervention prior randomization. Moreover, whereas the non-significant improvement in moderate to vigorous physical activity in those participating in TAVIE en m@rche may show some promise, this finding is too limited to draw firm conclusions on the potential of effect. Therefore, the implementation of TAVIE en m@rche in usual care is premature.

As previous RCTs in our field have found some improvements in physical activity outcomes in CAD populations, implementing new innovations in web-based interventions for ACS patients is nonetheless promising. However, to achieve substantial uptake to web-based innovations in usual care practice requires promotional efforts aimed at increasing awareness of the innovations in the target population. O'Connor et al. (2016) synthesized qualitative data from various types of studies to determine, in part, such promotional strategies outside the context of RCTs, representing usual care implementation. They identified face-to-face methods (e.g., through health care professionals) offline methods (e.g., print, radio, and television), and online methods (e.g., websites, email, and social networking sites) to inform target populations about the innovation as a first step to initiate uptake (O'Connor et al., 2016). However, future research should evaluate implementation efforts of web-based interventions to gain a better understanding of efficacious and cost-effective promotional strategies aimed at substantial uptake in ACS populations.

Future Directions

We summarize some future directions arising from our discussion in the Primary Results Article as well as in the research contributions, which consider ways of successfully conducting RCTs of web-based tailored interventions aimed at increasing steps per day in ACS patients, post-hospitalization.

First, is the consideration of the intervention's physical activity goal, which should be matched to the needs of the target population. We targeted ACS patients that were insufficiently active at randomization, encouraging the goal of attaining at least the physical activity recommendation. Targeting these patients should be a research priority, as they are in most need of support from an intervention, and because no RCT in our field targeted this population through the exclusion of sufficiently active CAD patients. However, in our present sample, a large majority of these insufficiently active participants before their hospitalisation, attained the physical activity goal by randomization, which occurred between four and six weeks after their hospitalization. Thus, our participants, possibly became motivated due to the threat caused by the cardiac event, the usual cardiac care received in hospital, the combination of these two factors, or due to other unknown reasons. However, perhaps the enrolled participants may need support later in their trajectory after hospitalization for a coronary event. Indeed, our data showed a decline in steps per day over time taking both experimental and control groups into consideration, which concurs with past Canadian longitudinal data in CAD. Therefore, matching the intervention goal with patients' current needs should be handled carefully by adapting the design of the study, for instance, considering the timing of randomization. Future studies should pilot test the timing of randomization in relation to patients' needs in regard to physical activity after an ACS.

Second, to advance knowledge in designing web-based interventions with greater effect on physical activity outcomes, examining other theoretical constructs, other than self-efficacy, may be germane. As attempted in our RCT, theoretical constructs from SDT were targeted by the intervention strategies, however, limitations such as population characteristics (i.e., highly motivated and confident), and low engagement prevented advancing knowledge in this area. RCTs in our field should nonetheless pursue investigations in theoretical constructs because

knowing what constructs to target, and how to influence improvements in these constructs may be one avenue to explore that may improve effects of web-based interventions on physical activity outcomes in ACS populations.

Other recommendations are related to randomization, recruitment, data collection, and measures. For randomization, we suggest planning stratified randomization on the sex of the participants to allow setting a quota for a sufficient number of female participants. Although such a design would necessitate more recruitment time, it would nonetheless allow more power for a subgroup analysis on the sex of the participant. For recruitment, widening eligibility to include stable CAD patients may be advantageous as they too would benefit from intervention. As such, recruitment strategies can expand from only hospital-based to recruiting in medical clinics and the community at large, which may require additional expertise and resources to implement. For data collection, planning daily reminders during the week of activity tracker wear may minimize incomplete data, which in turn would result in more reliable results. For measures, self-reported energy expenditure should be more detailed allowing more information on the source of the activities. Also, the consideration of objectively measuring energy expenditure should be implemented to improve accuracy and precision of measurement. In addition, methods of improving recall in self-reported energy expenditure should be considered to increase the accuracy of reporting and to minimize incomplete data.

Conclusion

We developed and tested a virtual nursing intervention, TAVIE en m@rche, aimed at increasing walking after an acute coronary syndrome. Our web-based tailored nursing intervention was no more efficacious on steps per day as compared to public websites. One explanation for this lack of effect is our sample of ACS patients, in which most became sufficiently active prior intervention, received an intervention goal intended for an insufficiently active sample, which in turn resulted in no meaningful change in steps per day. Although a non-significantly greater increase in moderate to vigorous physical activity was found in the experimental group, which may represent gains in health, the source of this improvement is unknown, and a risk of attrition bias and statistical uncertainly were found in this result.

Our work nonetheless contributes to the advancement of theory in intervention design. We tested the first web- and SDT-based intervention aimed at increasing physical activity in an ACS population. Also, TAVIE en m@rche targeted unique theoretical constructs by the intervention not previously implemented in the web-based intervention design in our field. Future directions that may improve the effect of TAVIE en m@rche include the consideration of the timing of randomization in relation to patients' needs in regard to physical activity after an ACS. Further improvements and testing of TAVIE en m@rche are required to produce meaningful increases in steps per day following an ACS event.

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Appendix A: Intervention Manual of TAVIE en m@rche

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This intervention manual is divided into two main sections: 1) the background of the intervention, and 2) the operationalization of the intervention. The background section begins with a point-form review of the study design, integrated theoretical framework, and intervention structure. Thereafter, the tailored profiles, intervention content, tailoring method, and functional topics are presented. The consistency of the intervention with the Strengths-Based Nursing Care values is presented last. In the next section, the operationalization of the intervention is presented, and written in French.

Background

Study Design

- Randomized controlled trial: two parallel groups
    - Web-based tailored nursing intervention experimental group (EG)
    - Public websites usual care control group (CG)
- Recruitment (-T2) takes place in-hospital at which potential study participants are screened for eligibility, and only those insufficiently active are retained (i.e., report performing below 150 minutes per week of moderate level physical activity). At baseline (-T1), the beginning of three weeks post-hospital discharge, willingness to participate in the study will be confirmed and baseline data are collected. At randomization (T0), four weeks post-hospital discharge, patients will be allocated to either the web-based tailored nursing intervention EG or the public websites usual care CG. Both EG and CG conditions are accessed through a study website. After four weeks of access to both EG and CG conditions (T1), access is allowed for an additional seven weeks. After the completion of the four-week intervention EG, the follow-up assessments proceed at five (T2), and 12 weeks (T3) post-randomization.

Target population

- Patients who reported insufficient physical activity prior an ACS-related hospitalization at recruitment.

Intervention goal

- To increase up to 150 minutes per week of moderate-intensity physical activity through walking.

Integrated theoretical framework

The integrated theoretical framework is illustrated in Figure 5 of Chapter 2 (Part 2), and is summarized in point form below.

- Integration of Strengths-Based Nursing Care (SBNC) and Self-Determination Theory (SDT):
    - SBNC is an orientation to nursing practice guided by eight values. The proposed nursing intervention is underpinned by the SBNC values, such that it serves as the backdrop for the intervention.
    - One SBNC value, Self-determination, refers to respecting persons' right to a life grounded in volition and free-will (Gottlieb, 2013). The SBNC perspective on this value is in part drawn from the works of Deci and Ryan (Deci & Ryan, 1985), the originators of a theory on human motivation, Self-Determination Theory (SDT).
    - SDT was retained as the theory that provided the theoretical variables (i.e., SDT variables) to explain change in walking behaviour, to be targeted by the intervention strategies, and to tailor the intervention.
        - Three main SDT constructs:
            - <u>Perceived Autonomy Support (PAS)</u> is represented by two variables: PAS from an intervention (PAS-WEB), and PAS from a significant other (PAS-SO). PAS is the perception that during interpersonal interactions, choices were provided, rationale was offered, and acknowledgement or empathy was expressed. PAS-WEB and PAS-SO are both targeted by the intervention strategies, but neither is used to tailor the intervention.
            - <u>Autonomous Motivation (AM)</u> represents 'motivation' in SDT. AM is a continuum of the three motivational subtypes: identified, integrated, and intrinsic. *Identified motivation* represents behaviour change that is motivated by personal benefits such as the advantages of physical activity. *Integrated motivation* is an extension of the latter, but aligns more closely to behaviour change motivated by the attainment of personal goals and values. At the highest end of the continuum lies *intrinsic motivation* where the behaviour change is motivated by sheer enjoyment. Each AM subtype is targeted by the intervention strategies, and AM as a single construct will be used to tailor the intervention.
            - <u>Confidence</u> is represented by two variables: Perceived Competence (PC) and Barrier Self-Efficacy (BSE). PC refers to the degree of confidence in one's capability in achieving an overall goal in behaviour change. In parallel, BSE refers to the degree of confidence in one's capability in overcoming specific barriers encountered when implementing a change in behaviour. Although BSE is more specific than PC, they are interrelated because they both refer to one's confidence in capability for successful behaviour change. Both PC and BSE are targeted by the intervention strategies, and PC will be used to tailor the intervention.

- In summary, the way one is helped to increase walking behaviour is through an SBNC orientation to nursing practice that specifies nursing values and through SDT on human motivation that specifies theoretical variables to be targeted by intervention strategies, and to drive the tailoring process. Guided by this integrated theoretical framework, the strategies are:
    - Global strategies from an Autonomy Supportive Intervention based on SBNC and SDT
        - drawn mainly from SBNC:
            - Being *collaborative*
            - Being *strengths-focused*
        - drawn mainly from SDT:
            - Providing *choice*
            - Offering *rationale*
            - Expressing *empathy*
    - Specific strategies drawn mainly from the SDT physical activity literature
        1. Providing information and feedback on walking behaviour
        2. Exploring reasons to increase walking behaviour
        3. Exploring strengths
        4. Developing an action plan

Intervention Structure

Tailoring Method Levels

- One primary level of tailoring:
    1. Tailored profiles;
- Two secondary levels of tailoring:
    2. Tailored feedback; and
    3. Tailored options for information

Modes of Delivery

- Videos of a nurse (i.e., virtual nurse) and peers who provide tailored information viewed via a website
- Non-tailored online information in text format
- Worksheets and flash cards that can be downloaded to be viewed on a computer screen or that can be printed

Intervention Timing and Dose

- The intervention is planned to start (i.e., timing) at randomization (T0), between the fourth and sixth week post-hospitalization.
- The designated intervention period is four weeks (T1). Eight weeks after randomization, a brief tailored-feedback is provided concerning the use the action plan, and progress made in walking (booster). Access to the intervention continues to the twelve-week follow-up (T3).
- We calculated that from 60 to 75 minutes is needed to complete the intervention depending on the assigned tailored profile (see Chapter 3). Participants are encouraged to complete the intervention from three to four visits that last between 15 to 25 minutes each within a duration of four weeks.

Tailored Profiles

The intervention content is driven by the primary level of tailoring, tailored profiles (see Table 10 in the Primary Results Article). The two secondary levels of tailoring will be described in the section "Tailoring Method" so that they can be put into context with the intervention strategies.

- Profile A represents patients that are below the recommended minutes per week of walking, and have low motivation and confidence,
- Profile B represents patients that are below the recommended minutes per week of walking, and have high confidence, but low motivation, and
- Profile C represents patients that are below the recommended minutes per week of walking, and have high motivation, but low confidence.
- Profile D represents patients that are below the recommended minutes per week of walking, but have high motivation and confidence to increase walking behaviour because they score high on both AM and PC. In addition, patients who recently attained the recommended minutes per week of walking between recruitment (-T2) and baseline (-T1), will be assigned to Profile D. Specifically, Profile D represents patients that either are:
    - presently below the recommended minutes per week of walking and have high motivation and confidence; or have
    - recently attained the recommended minutes per week of walking at baseline regardless of their motivation and confidence.

The intervention content is presented next, which is followed by more information about the tailoring method and the different levels of tailoring combination with the intervention strategies.

Intervention Content

The main intervention content is delivered by tailored-videos of a real nurse, we call the 'virtual nurse.' The nurse's way of 'being' is important in SBNC and is in part manifested in the proposed intervention by non-verbal behaviours such as tone of voice and body language, and by verbal behaviours. Considering the non-verbal behaviours, the tone of voice of the virtual nurse will be nuanced to the type of message being conveyed, such as a more energetic and positive tone when providing encouragement, and a more neutral tone when providing factual information or advice. Body language will also be nuanced, such as a smiling expression when communicating advantages of physical activity, and a sincere non-judgmental expression when expressing empathy.

Body language in general will follow the five SOLER skills from Egan's (2002) work that Gottlieb (2013) adapted for SBNC. We replaced the word "person" with the word "camera" with other minor adaptations in the five SOLER skills to reflect a web-based intervention context:

- Face the camera **S**QUARELY: Adopt a position that communicates interest and involvement. Turn toward the camera, not away from the camera. Sit directly in front of the camera, not at an angle or sideways.
- Adopt an **O**PEN posture: Show that you (i.e., the virtual nurse) are available, but adopt an open stance. Do *not* cross your arms.
- **L**EAN toward another: Slightly lean toward the camera.
- Maintain good **E**YE Contact: Look at the camera always to show that you are involved.
- Try to **R**ELAX: Stay calm. Do not fidget, shuffle, or turn away. Show interest.

Source: Adapted from Egan (2002)

The verbal behaviours (i.e., the scripted text) of the intervention content consist of functional topics, and intervention strategies. Whereas functional topics consist of introductory content, intervention strategies consist of *global strategies* drawn from an Autonomy Supportive Intervention (ASI), and *specific strategies* drawn from mainly the SDT physical activity literature. The intervention content represents an integrated whole because global strategies interact with both functional topics and specific strategies as will be further explained in the next section.

Intervention Strategies

Intervention strategies provided by the virtual nurse refer to an integration of five global strategies from an ASI with four specific strategies from mainly the SDT physical activity literature.

Global strategies from an ASI

The five global strategies from an ASI are:

- Being *collaborative*;
- Being *strengths-focused*;
- Providing *choice*;
- Offering *rationale*; and
- Expressing *empathy*.

These global strategies represent a 'way of being' that is manifested by verbal behaviours of the virtual nurse such that they interact with the functional topics and specific strategies. These global strategies can be thought of as the fabric in which the entire intervention content is woven, and taken together, represents an integrated whole.

The first two global strategies were drawn mainly from SBNC: Being *collaborative*, and Being *strengths-focused* (Gottlieb, 2013). These two are both linked to the SBNC value, 'Collaborative partnership between nurse and person,' and in turn this value may also be linked to PAS-WEB. This value requires nurses to "encourage people to share their expertise, to develop their autonomy and self-efficacy, and to help them (identify and develop) their strengths" (Gottlieb & Feeley, 2006, p. 6). Asking patients to "share their expertise" or knowledge and ideas (i.e., Being *collaborative*) assumes that these patients have knowledge or ideas to share, which in turn assumes existing strengths (i.e., Being *strengths-focused*). The SBNC value, Collaborative partnership between nurse and person may be linked to PAS-WEB because this value partly speaks to developing patients' autonomy, which in turn may be perceived by patients through the non-verbal and verbal behaviours of the virtual nurse, hence PAS-WEB. The last three global strategies were drawn mainly from SDT: Providing *choices*, Offering *rationale*, and Expressing *empathy* (Deci et al., 1994). These three directly target the

variable, Perceived Autonomy Support from the Intervention (PAS-WEB), because according to SDT, autonomy support is manifested through the perception that choices were provided, rationale was offered, and empathy was expressed. Table 19 shows examples of how each global strategy was integrated in the intervention content that is provided by the virtual nurse.

Taken together, although not empirically tested, we expect that PAS-WEB will be targeted by the five global strategies in its entirety. In addition, because these global strategies interact with the intervention content (i.e., functional topics and specific strategies), PAS-WEB is targeted throughout the intervention.

Table 19. Examples of global strategies used in TAVIE en m@rche

	Global strategy (in text label)	**Examples of how global strategies presented by the virtual nurse were integrated within the intervention content**

Strengths-Based Nursing Care	Being collaborative (**collaboration**)	○ Sharing or offering information about:
		  ○ intervention goals, dose, and agenda setting
		  ○ strategies, new skill, or resources that may support patients' autonomy and competence
		  ○ options for behaviour change such as setting a goal that is below the recommendation
		○ "Inviting," providing the "opportunity," or encouraging patients to participate in the intervention, or a behaviour change technique
		○ Encouraging self-initiatives by asking patients to share own knowledge or ideas, and to reflect on these ideas
		○ Asking patients if they want or are ready for particular actions or to receive information

	Being strengths-focused (**forces**)	○ Identifying existing or potential strengths/qualities ○ Recognizing uniqueness and differences in individuals ○ Providing feedback on clients' strengths, including reframing insufficient performance in a positive way and praising sufficient performance ○ Conveying hope in behaviours or efficacious strategies that could lead to positive outcomes
Self-Determination Theory	Providing choices (**choix**)	○ Providing no pressure or obligation to make changes, and no use of controlling language such as 'should' (falloir), and 'must or have to' (devoir) ○ Providing choice in behaviour change: patient decides if, when, and how changes are made ○ Providing choice in behaviour change techniques, receiving information, and intervention frequency
	Offering rationale (**rational**)	○ Offering, in a neutral manner (i.e., without judgement), factual information, recommendations from an expert source, or information on the potential benefits of using a behaviour change technique
	Expressing empathy (**empathie**)	○ Expressing acknowledgment towards patients' perspectives, emotions felt or lived situations ○ Expressing that perspectives, emotions felt or lived situations are normal

Note. In text, some phrases in the intervention content may include more than one global strategy because global strategies are not mutually exclusive.

Specific strategies from the SDT physical activity intervention literature

Specific strategies represent a grouping of one or more behaviour change techniques that are communicated to ACS patients by the virtual nurse. The process through which we retained 19 behaviour change techniques is presented in Chapter 2 (Part 2).

The terminologies of the 19 behaviour change techniques were made consistent with the terminologies of the CALO-RE taxonomy (Michie et al., 2011) for physical activity and healthy eating behaviours in Chapter 3, Table 8. Drawing from Davies et al. (2012), the behaviour change techniques consisted of educational components, which we considered either educational or motivation information. In general, educational information refers to the presentation of factual information pertaining to the goal of increasing walking. Motivational information refers to strategies aimed at building motivation and or confidence to increase walking. However, as there is considerable overlap between these two categories, which are not mutually exclusive, we did not proceed with distinguishing whether a behaviour change technique presented educational or motivational information.

The 19 behaviour change techniques were distributed among four specific strategies guided by the SBNC value, 'Learning, readiness, and timing,' in which nurses are sensitive to patients' readiness and timing for intervention, and guided by personal nursing experience. The four specific strategies were designed for the virtual nurse to address different contexts (i.e., varying levels of motivation, confidence, and walking behaviour) aimed at particular SDT construct, which is achieved by tailoring (See section on "Tailoring Method").

In the operationalization of the intervention content, all five global strategies from an ASI were integrated with these four specific strategies (see Figure 6 in Chapter 3):

1. Providing information and feedback on walking behaviour
2. Exploring reasons to increase walking behaviour
3. Exploring strengths
4. Developing an action plan

In Specific Strategy 1, three behaviour change techniques (1.1 to 1.3) delivered by the nurse address the intermediate goal of helping patients build or consolidate (translated in French

as *soutenir*) motivation and confidence in increasing or maintaining their walking behaviour. This specific strategy consists of providing all EG patients (i.e., Profiles A, B, C, and D) non-tailored (or generic) information on the advantages of physical activity through walking (1.1) (Shepherd & While, 2012; Stone et al., 2009), and information on the recommended minutes per week of physical activity through walking with realistic goals (1.2) (Deschênes et al., 2009; Moore et al., 2012; Statistics Canada, 2013; Stone et al., 2009). Thereafter, it provides tailored feedback based on assessments of past seven-day walking behaviour (1.3) (Moore et al., 2012; Stone et al., 2009). This Specific Strategy 1 targets AM because it helps patients build motivation by providing information on the advantages of walking. It also targets PC/BSE because it helps patients reframe actual walking behaviour as a strength relative to the recommended minutes per week of walking. It is brief and is included only once prior to the specific strategies received according to the tailored profile.

In Specific Strategy 2, two behaviour change techniques (2.1 to 2.2) delivered by the nurse address the intermediate goal of helping patients build (translated in French as *augmenter*) their motivation to increase walking behaviour. This specific strategy was tailored for patients who are below the recommended minutes per week of walking and are of low motivation (i.e., Profiles A and B). This specific strategy involves the virtual nurse using Motivational Interviewing techniques to interview two individual cardiac patients.

In behaviour change technique 2.1 we used two themes found in the qualitative CAD literature concerning low motivation to become more physically active. First, was the theme of patients reporting no time to participate in physical activity due to several reasons including competing demands or other priorities (Fleury et al., 2004), such that physical activity is less important than other priorities. Second, was the theme of patients reporting little or no reasons that are motivating enough to become more physically active (Fleury et al., 2004; Kärner et al., 2005; Rogerson et al., 2012).

Behaviour change technique 2.2 involves helping patients identify their own personal reasons to increase walking by sharing a list of reasons (advantages of physical activity, and goals and values), which were generated from the CAD literature for the advantages of physical activity (Kärner et al., 2005; Rogerson et al., 2012; Shepherd & While, 2012; Stone et al., 2009) and Motivational Interviewing for the goals and values (W. R. Miller & Rollnick, 2012).

Specific Strategy 2 targets AM because it helps patients build motivation to increase walking behaviour by exploring reasons for walking.

In Specific Strategy 3, two behaviour change techniques (3.1 to 3.2) delivered by the nurse address the intermediate goal of helping patients build confidence to increase walking behaviour. This specific strategy was tailored for patients who are below the recommended minutes per week of walking and are of low confidence (i.e., Profiles A and C). This specific strategy involves the virtual nurse using Motivational Interviewing techniques to interview two individual cardiac patients.

In behaviour change technique 3.1 we used two themes found in the qualitative CAD literature. First, was the theme of patients reporting that although there may be motivation to increase physical activity, a general lack of overall confidence maintains their inactive lifestyle (Rogerson et al., 2012). Second, was the theme of patients reporting a lack of confidence because they are accustomed to an inactive lifestyle (Fleury et al., 2004), or because they have never been physically active as might be expected in our study sample.

Behaviour change technique 3.2 involves sharing a list of strengths of 'successful changers', which were drawn from Motivational Interviewing (W. R. Miller & Rollnick, 2012).

Specific Strategy 3 targets PC/BSE because it helps patients build confidence to increase walking behaviour by exploring strengths.

In Specific Strategy 4, twelve behaviour change techniques (4.1 to 4.12) delivered by the nurse address the intermediate goal of helping patients consolidate their motivation and confidence to increase walking behaviour or to maintain sufficient walking behaviour. This specific strategy was tailored for patients who either have both high motivation and confidence to increase walking behaviour, or have recently attained the recommended minutes per week of walking (i.e., Profile D). It also addresses Profiles A, B, and C after they received Specific Strategies 1, 2, and 3.

Behaviour change techniques 4.1 to 4.2 provide instruction or information on planning effective and safe walking (Deschênes et al., 2009; Patenaude et al., 2010). Behaviour change techniques 4.3 to 4.8 provide information on SMART goal setting (i.e., goals are Specific, Measurable, Attainable, Realistic and set within a Time-frame) (Stone et al., 2009),

consolidating motivation (W. R. Miller & Rollnick, 2012), self-monitoring (Silva et al., 2010), and practical information about increasing walking. Behaviour change technique 4.9 involves presenting a list of possible barriers and solutions to increasing or maintaining walking behaviour (Alsén & Brink, 2013; Crane et al., 2015; Deschênes et al., 2009; Fleury et al., 2004; Kärner et al., 2005; Patenaude et al., 2010; Rogerson et al., 2012) as well as prompting patients to identify their own barriers and solutions (W. R. Miller & Rollnick, 2012). This behaviour change technique was designed in mind that Profile D patients will not have done Specific Strategies 2 and/or 3 (i.e., building motivation and confidence). Therefore, some of the listed barriers orient patients to Specific Strategies 2 and/or 3 to build motivation or confidence if necessary. Behaviour change technique 4.10 highlights the importance in identifying a support person (Duda et al., 2014; Fortier et al., 2007), and the importance of receiving autonomy support from this person. Behaviour change technique 4.11 presents a summary of the main elements of an action plan. Behaviour change technique 4.12 presents brief tailored feedback on the use the action plan, and on walking behaviour.

Specific Strategy 4 targets AM, and PC/BSE because it helps patients consolidate motivation and confidence to increase walking behaviour or to maintain sufficient walking behaviour by identifying reasons for walking (AM) and by providing information on skills (e.g., assessing perceived exercise exertion, and planning SMART goals) to effectively and to safely increase walking (PC/BSE). In addition, it targets PAS-SO because it helps patients build or consolidate perceived autonomy support that may be received from a significant other.

Specific Strategy 4 is divided between two parts: 4a (4.1 to 4.7) versus 4b (4.8 to 4.12). This division allows time for patients to apply the setting SMART goals presented in Specific Strategy 4a, which is the corner stone of the action plan. In Specific Strategy 4b, behaviour change technique 4.8 prompts the identification of SMART goals and reasons for walking, and is followed by barrier identification/problem solving (4.9), planning social support (4.10), and showing an example of an action plan (4.11). Behaviour change technique 4.12 takes place four weeks after the completion of the designated four-week intervention duration, and only serves as brief feedback (or 'booster') on the use of the action plan and on progress made in walking. This behaviour change technique provides tailored feedback on walking behaviour and intervention use, as well as brief encouragement to review the intervention strategies if needed.

Tailoring Method

There are three levels of tailoring. Level 1 is the primary tailoring method:

1. Tailored profiles based on AM, PC, and walking behaviour to determine the use of Specific Strategies 2, 3, and 4

Levels 2 to 3 are the secondary tailoring methods:

2. Tailored feedback based on behaviours in Specific Strategy 1 and 4b
3. Tailored options for information based on choices in Specific Strategy 4a/b

Level 1, tailored profiles based on AM, PC, and walking behaviour

Four profiles according to assessments of SDT variables and walking behaviour:

- **Profile A** receives Specific Strategies 1, 2, 3, and 4. Patients who are below the recommended minutes per week of walking with low motivation and low confidence, will be helped by receiving information on the importance of walking (Specific Strategy 1), exploring reasons (Specific Strategy 2), and exploring strengths (Specific Strategy 3) to increase walking behaviour before being offered the action plan (Specific Strategy 4a/b). Four visits to the intervention are expected to complete these strategies.
- **Profile B** receives Specific Strategies 1, 2, and 4. Patients who are below the recommended minutes per week of walking with low motivation only, will be helped by receiving information on the importance of walking (Specific Strategy 1), exploring reasons to increase walking behaviour (Specific Strategy 2) before being offered the action plan (Specific Strategy 4a/b). Three visits to the intervention are expected to complete these strategies.
- **Profile C** receives Specific Strategies 1, 3, and 4. Patients who are below the recommended minutes per week of walking with low confidence only, will be helped by receiving information on the importance of walking (Specific Strategy 1), exploring strengths to increase walking behaviour (Specific Strategy 3) before being offered the action plan (Specific Strategy 4a/b). Three visits to the intervention are expected to complete these strategies.
- **Profile D** receives Specific Strategies 1, and 4. Patients who have recently attained the recommended minutes per week of walking, or are high on both motivation and confidence will be helped by receiving information on the importance of walking (Specific Strategy 1), and developing an action plan (Specific Strategy 4a/b). Two visits to the intervention are expected to complete these strategies.

Level 2, tailored feedback based on behaviours

Specific Strategy 1 and 4b include tailored feedback on behaviour. Specific Strategy 1 includes tailored feedback on walking behaviour, and Strategy 4b includes tailored feedback on the behaviours of identifying SMART goals and advantages of walking, identifying social support, and identifying barriers and solutions.

The lack of performing recommended behaviours (e.g., attaining recommended minutes of walking) may be viewed in SBNC as deficits that could potentially be turned into strengths. As such, when the lack of a recommended behaviour is reported, tailored feedback by the virtual nurse reframes the deficit into a strength. In contrast, the presence of the recommended behaviours may be viewed in SBNC as existing strengths. As such, when the presence of a recommended behaviour is reported, tailored feedback reinforces the observed strength. This view is manifested through the global strategy of an ASI 'Being *strengths-focused*.'

Level 3, tailored options for information based on choices

In Specific Strategy 4, one behaviour change technique (4.9-*Barrier identification/problem solving*) is presented as a list from which patients may choose from, which allows patients to view only the information that may be meaningful to them instead of presenting all the information to patients in a didactic approach. This tailored level is related to the SBNC value 'Collaborative partnership between nursing and person,' which is manifested through the global strategy of an ASI 'Being *collaborative*,' it is assumed that patients have knowledge and capabilities, which can be used in meaningful ways to attain their goals. Also, there may be knowledge gaps in patients, in which nurses play a role of sharing information that could be meaningful to patients. As such, presenting a list from which patients may choose from allows the selection of only information that is meaningful to them.

Functional Topics

Three functional topics (*i, ii,* and *iii*), presented to all EG participants, consist of an introduction presenting the intervention goal and its benefits, the tailored profiles, and an assessment of exercise intolerance. Although these functional topics do not consist of behaviour change techniques, they represent important intervention content because they incorporate the global strategies from an ASI, and because they establish first impressions of the virtual nurse.

First impressions are important in SBNC because it is during the first minutes of an interaction that patients' may judge the nurse to be trustworthy, competent, and sincere before they accept engaging in an intervention (Gottlieb, 2013). Here the virtual nurse will use non-verbal behaviours such as a tone of voice that is welcoming and sincere, and SOLER skills. These non-verbal (i.e., tone of voice and SOLER skills) and verbal behaviours (i.e., the global strategies from an ASI), aim at manifesting a 'way of being' that is caring and accepting, which underpins the virtual nurse's trustworthiness and competence, and in turn facilitates engagement in the intervention.

Functional topics *i* and *ii* are provided once, on entry to the intervention

- *i*-General introduction: The purpose of this topic is to present general information about the goal of the intervention, and the potential benefits of the intervention.
- *ii*-Introductions per tailored profile: The purpose of this topic is to introduce the mandatory (i.e., suggested) specific strategies according to the tailored profile.

Functional topic *iii* is provided at the beginning of each intervention log in

- *iii*-Assessment of exercise intolerance: The purpose of this topic, during the first session, is to present information on how to assess the presence of exercise intolerance, and on the appropriate actions to take based on this assessment. Thereafter, patients are directed into an algorithm driven assessment of exercise intolerance, and tailored messages are provided. If positive on exercise intolerance, the algorithm (i.e., virtual nurse) directs the patient out of the intervention with encouragement to seek help from their health care professional and to consider a visit to the emergency department before participating in physical activity. If negative on exercise intolerance, the algorithm invites the patient to continue participating in the intervention. During subsequent sessions, patients are directed only into the algorithm driven assessment of exercise intolerance, without the additional information on how to assess the presence of exercise intolerance.

Notes on terminologies

For the intervention content, we retained the following terms:

- Faire de la marche à pied: refers to the physical activity of walking
- Marcher plus: refers to the goal of increasing walking if performance is less than 150 minutes/week
- Marcher régulièrement: refers to the goal of walking regularly at any level
- Suggestions pratiques: refers to behaviour change techniques in general

The use of “sessions” versus “specific strategies”:

In the Primary Results Article, we dropped the term “specific strategies” and instead used “sessions” to simplify the text. We analyzed intervention usage per “session,” and we continued using the term “sessions” in the discussion. These two terms (i.e., sessions versus specific strategies) can be considered synonymous as “sessions” was presented in Table 10 of the Primary Results Article, and the description of each “specific strategy” was linked to each session at the foot of this table. Note that the number of visits was not based on the number of sessions, but rather on the estimated time (i.e., 15 to 25 minutes) per website viewing. As such, Session 1 could be viewed on the same visit as Sessions 2 or 3. As well, Session 1 could be viewed on the same visit as Session 4a, which is followed by a second visit in Session 4b. The result is an intervention that can be viewed in two to four visits according to the primary tailoring method of profile generation.

Note about the implementation of the recordings

Before implementing the audio-visual recording of the intervention, we partnered with four cardiac patients to volunteer their time in reviewing the scripts of the intervention that pertained to the sections where cardiac patients interacted with the virtual nurse. Their role was to edit their assigned scripts as to improve the realism pertaining to the experiences and challenges cardiac patients faced when increasing walking. After these scripts were modified by the patients, they were reviewed by the first author to ensure that the theoretical integrity was retained. Our partners then read out their assigned scripts for the final recording.

Consistency of the Intervention with SBNC values

While some form of human-to-human interaction is assumed between the nurse and patient in SBNC, computer-to-human interaction is planned in the proposed intervention. However, ACS patients will interact with a ‘virtual nurse’ whose interventions are tailored to patients’ differences in motivation, confidence, behaviour, and choices. The following presents how we addressed limitations concerning the degree to which the proposed intervention is consistent with SBNC values.

The goal of increased walking behaviour is consistent to some degree with the SBNC value, ‘**Health and healing**.’ This goal, if achieved and maintained, may in turn improve overall

health, quality of life, and other health behaviour changes. These outcomes may be linked to wholeness because they could foster physical, mental, and emotional domains of functioning. Although the spiritual domain in Health and healing is not specifically addressed by the intervention, patients could potentially identify personal values such as spirituality in Specific Strategy 2.

The tailoring methods used are consistent to some degree with the SBNC values of '**Uniqueness of the person**,' and '**Learning, readiness, and timing**.' The tailoring method addresses notions of uniqueness and readiness because it individualizes the intervention based on assessments of patients' motivation, confidence, behaviour, readiness, and choices rather than providing the intervention as a generic 'one-size-fits-all' approach.

The notion of a preprogrammed computer algorithm that cannot understand complex relationships among the mind, brain and other body systems lacks consistency with the SBNC value, '**Holism and embodiment**.' However, this value influenced the notions of integration and wholeness when conceptualizing the entire intervention. As such, the integrated framework (SBNC and SDT), and the intervention content (functional topics, global strategies, and specific strategies), aims to represent an integrated whole.

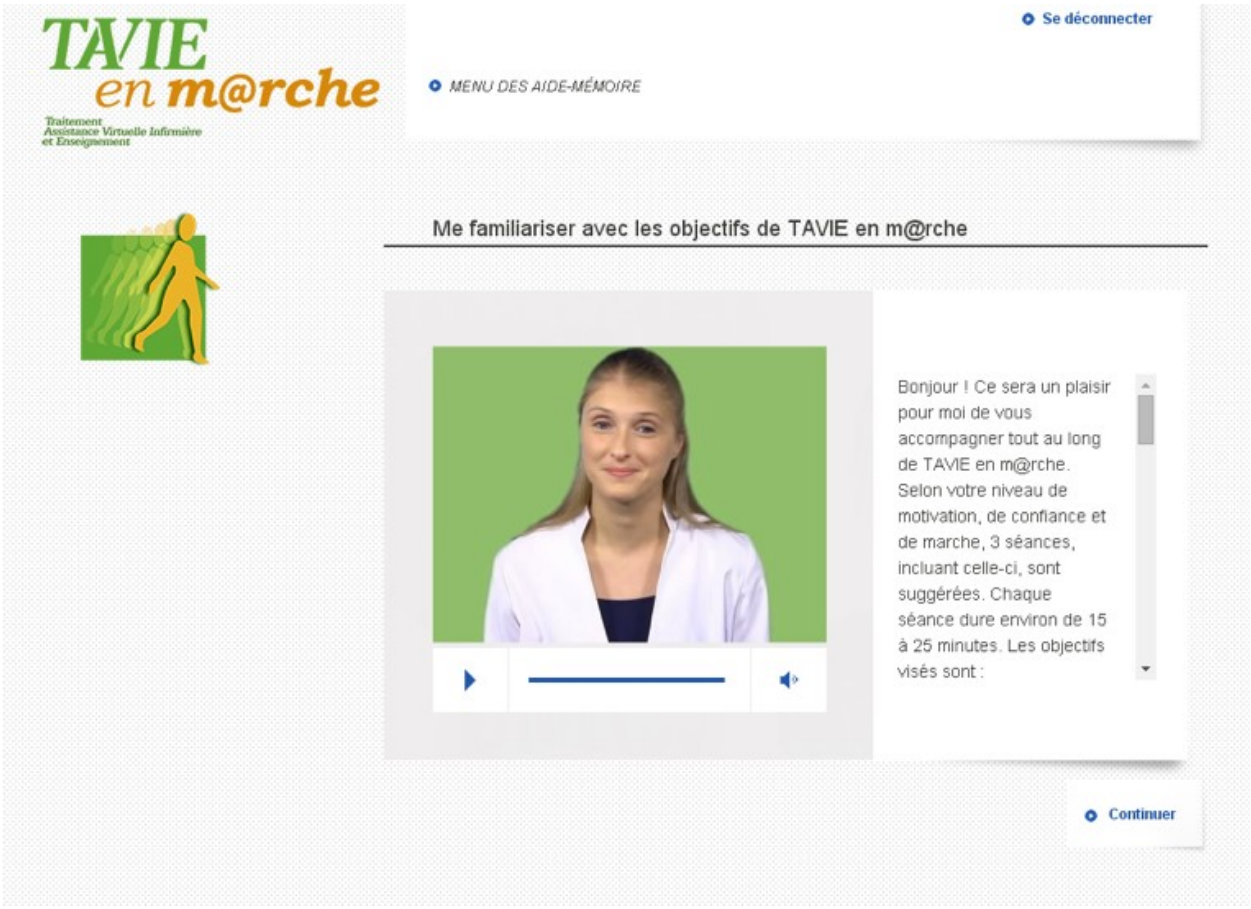
The use of an ASI is consistent to some degree with the SBNC value, '**Objective/subjective reality and created meaning**.' In particular, the global strategy Express *empathy* involves empathy statements based on empirical and clinical knowledge of general experiences of ACS patients' challenges (i.e., subjective reality) in increasing walking behaviour post-hospitalization.

The use of all five global strategies from an ASI is consistent to some degree with the SBNC values of '**Self-determination**,' and '**Collaborative partnership between nurse and person**.' Because the global strategies Providing *choices*, Offering *rationale*, and Expressing *empathy* all aim at fostering autonomy, they are linked to the value of 'Self-determination.' These three global strategies are also consistent with a collaborative approach, and hence speak to the value of 'Collaborative partnership between nurse and person.' Because the global strategies Being *collaborative* and Being *strengths-focused* foster both autonomy and self-efficacy, they are consistent with both values of 'Self-determination,' and 'Collaborative partnership between nurse and person.'

The behaviour change technique ‘4.10-*Plan social support* to elicit support from significant others’ is consistent to some degree to the SBNC value, ‘**Person and environment are integral**.’ Because this behaviour change technique encourages patients to elicit support from significant others, it considers important influences of social interactions in patients’ environments on health and healing. Also, the SBNC value, ‘Person and environment are integral’ influenced the decision to include this behaviour change technique when conceptualizing the intervention.

SCÉNARISATION DE TAVIE en m@rche

17 décembre 2015



INTRODUCTION AVANT LA CONNEXION (Profils 1, 2, 3, et 4)

G1 : l'Introduction de TAVIE en m@rche

Introduction avant la connexion

Titre de la page
L'Introduction de TAVIE en m@rche

Sous-titre
Une intervention virtuelle visant à favoriser la marche à pied auprès des personnes suite à une hospitalisation reliée à un syndrome coronarien aigu

Vidéo

G1-vid	

Contenu

Vidéo de l'infirmière	G1-vid	

Bienvenue ! Mon nom est Geneviève et je suis l'infirmière virtuelle qui vous guidera durant TAVIE en m@rche. Vous avez eu congé de l'hôpital il y a plus d'un mois pour un syndrome coronarien aigu ou autrement dit, un problème cardiaque (**collaboration**). L'hospitalisation pour un problème cardiaque peut être stressante (**empathie**). En même temps, cet évènement est aussi vu par plusieurs personnes comme un moment propice pour changer ses habitudes de vie (**empathie, forces**). Par contre, avec le temps, plusieurs reviennent à leurs anciennes habitudes, parce que ce n'est pas facile de maintenir ces changements (**empathie**). Donc, si vous vivez une situation semblable, sachez que c'est normal (**empathie**) et qu'il y a des suggestions pratiques qui pourraient vous aider à atteindre et à maintenir vos changements des habitudes de vie, comme faire de la marche à pied régulièrement (**collaboration**).

TAVIE en m@rche est une intervention virtuelle visant à favoriser la marche à pied auprès des personnes suite à une hospitalisation qui est reliée à un problème cardiaque. Le but de TAVIE en m@rche est de vous aider à être plus motivé et en confiance pour marcher au temps recommandé qui est de 150 minutes par semaine. Mon rôle sera de vous encourager à atteindre des objectifs réalistes et à votre rythme (**collaboration**). C'est vous qui déciderez quand et comment les changements dans vos habitudes de marche vont se produire (**choix**). En bref, cette intervention vous offre des suggestions pratiques pour vous encourager dans vos efforts présents ou éventuels pour atteindre le temps recommandé de marche à pied (**collaboration**).

Avant chaque connexion dans TAVIE en m@rche, vous allez compléter une évaluation des symptômes d'intolérance à l'effort afin de vérifier s'il est souhaitable pour vous, selon votre condition, de participer à l'intervention. Je vous invite maintenant à compléter cette évaluation (**collaboration**).

Message à ajouter sur page d'accueil : Pour profiter pleinement du site, un ordinateur et un des navigateurs suivants sont nécessaires : Firefox (dernière version), Chrome (dernière version).

Navigation

Connexion avec nom d'usager et mot de passe → **G2**

PRÉALABLE À SUIVRE TAVIE en m@rche (Profils 1, 2, 3 et 4)

G2 : l'Évaluation des symptômes d'intolérance à l'effort

Requis après chaque connexion
Le système va donner accès à TAVIE en m@rche chez ceux qui ont répondu NON

Titre de la page
Évaluer si j'ai des « signes d'alarme » ou symptômes d'intolérance à l'effort

Vidéo

G2-narr	

Contenu

Narration de l'infirmière avec image de l'aide-mémoire des symptômes d'intolérance à l'effort affiché à l'écran	G2-narr	

Bien évaluer vos « signes d'alarme » ou symptômes d'intolérance à l'effort, est une habileté qui vous aidera à prendre la décision de continuer, de ralentir ou d'arrêter vos activités physiques incluant la marche. Je vous présente ici les symptômes d'intolérance à l'effort :

Un essoufflement durant plus de dix minutes après la fin de l'exercice ou au repos
Des palpitations qui surviennent ou qui augmentent
Une fatigue intense et prolongée (notez qu'une fatigue légère ou modérée peut être normale après l'hospitalisation pour un événement cardiaque)(Alsén & Brink, 2013)
Une sensation de faiblesse ou d'évanouissement
Des étourdissements
Des douleurs angineuses
Des douleurs intenses aux articulations
Des nausées et vomissements
Une transpiration abondante (l'impression que vous avez des sueurs froides) (**rational**)

Navigation
Avez-vous ressenti l'un ou plusieurs des symptômes suivants au repos ou à l'effort durant les sept derniers jours ? (**collaboration**) (Deschênes et al., 2009)
Si OUI → G2-A
Si NON → G2-B

Fichier 1 accessible par le menu :

Télécharger ou imprimer de votre ordinateur le document « Évaluation des symptômes d'intolérance à l'effort » sous l'onglet Menu des feuilles de travail et des aides mémoires.

Aide-mémoire: Évaluation des symptômes d'intolérance à l'effort

Voici l'aide-mémoire qui vous aidera à vous rappeler les symptômes d'intolérance à l'effort et à vous rappeler quoi faire si vous avez ces symptômes. Il est fait en format portefeuille pour imprimer, couper et pliez.

pliez

Aide-mémoire

Symptômes d'intolérance à l'effort

- ☐Essoufflement durant plus de dix minutes après la fin de l'exercice ou au repos
- ☐Palpitations (pouls irrégulier) qui surviennent ou qui augmentent
- ☐Fatigue intense et prolongée (une fatigue légère ou modérée peut être normale après l'hospitalisation pour un événement cardiaque)
- ☐Sensation de faiblesse ou d'évanouissement
- ☐Étourdissements
- ☐Douleurs angineuses
- ☐Douleurs articulaires intenses
- ☐Nausées et vomissements
- ☐Transpiration abondante (sueur froide)

Si je ressens un ou plusieurs symptômes d'intolérance au repos ou à l'effort, je ralentis ou j'arrête les efforts qui provoquent ces symptômes. Si ces symptômes sont **urgents**, je contacte le 911 ou je me présente à l'urgence. Si ces symptômes sont **non-urgents**, je contacte Info-Santé 811 ou je considère une visite à l'urgence.

G2-A : OUI j'ai ressenti des symptômes d'intolérance à l'effort

Titre de la page

OUI j'ai ressenti des symptômes d'intolérance à l'effort

Vidéo

G2-A-vid	

Contenu

Vidéo de l'infirmière	G2-A-vid	

Vous avez indiqué avoir ressenti un ou plusieurs symptômes d'intolérance à l'effort. Malheureusement, ceci vous empêche de participer à TAVIE en m@rche pour l'instant (**empathie**), parce que cette situation peut être sérieuse et nécessiter une visite à l'urgence. Nous allons d'abord vous recommander de ralentir ou d'arrêter les efforts qui provoquent ces symptômes (Deschênes et al., 2009). Si vous ressentez que ces symptômes sont urgents, veuillez contacter le 911 ou vous présenter directement à l'urgence de votre l'hôpital. Si vous ressentez que ces symptômes ne sont pas urgents, veuillez contacter Info-Santé 811 ou considérer une visite à l'urgence (**rational**) (K. Deschênes, personnal communication, May 1, 2015). Nous vous remercions pour votre participation et nous allons vous recontacter par courriel dans environ 2 semaines (**collaboration**).

Navigation

Continuer → Déconnexion

Fichier 1 accessible par le menu :

Télécharger ou imprimer de votre ordinateur le document « Évaluation des symptômes d'intolérance à l'effort » sous l'onglet Menu des feuilles de travail et des aides mémoires.

G2-B : NON je n'ai pas ressenti des symptômes d'intolérance à l'effort

Titre de la page
NON je n'ai pas ressenti de symptômes d'intolérance à l'effort

Vidéo

G2-B-vid1	

G2-B-vid2	

Contenu

Vidéo de l'infirmière	G2-B-vid1	

Vous n'avez indiqué aucun symptôme d'intolérance à l'effort (**rational**), ce qui est une très bonne nouvelle, car votre condition physique vous permet de faire de la marche à pied et de participer à cette séance (**forces**). Bienvenue dans l'intervention TAVIE en m@rche !

Zone de gauche
Texte : Visionnez les informations sur quoi faire si vous ressentez de symptômes d'intolérance à l'effort
Bouton : Quoi faire si je ressens des symptômes d'intolérance à l'effort

Bouton-Vidéo : Quoi faire si je ressens des symptômes d'intolérance à l'effort

Contenu

Vidéo de l'infirmière	G2-B-vid2	

Si vous ressentiez un ou plusieurs des symptômes d'intolérance à l'effort, que ce soit au repos ou à l'effort, cette situation pourrait être sérieuse et nécessiter une visite à l'urgence. Si vous ressentiez de tels symptômes, je vous recommanderais de ralentir ou d'arrêter les efforts qui les provoquent. Si vous ressentiez que ces symptômes sont urgents, vous pourriez contacter le 911 ou vous présenter directement à l'urgence de votre l'hôpital. Si vous perceviez que ces symptômes ne sont pas urgents, vous pourriez contacter Info-Santé 811 ou considérer une visite à l'urgence (**rational**) (Deschênes et al., 2009) . Je vous présente un aide-mémoire disponible pour impression dans le menu qui vous aidera à reconnaître les symptômes d'intolérance à l'effort et vous indiquera quoi faire si vous avez ces symptômes (**collaboration**). Comme je vous l'ai dit plus tôt, c'est une très bonne nouvelle que de ne pas avoir de symptômes parce que ça vous permet de vous adonner à la marche et de participer à cette séance ! (**forces**)

Navigation
Continuer → selon le score du profile : P1, P2, P3 ou P4

Fichier 1 accessible par le menu :

Télécharger ou imprimer de votre ordinateur le document « Évaluation des symptômes d'intolérance à l'effort » sous l'onglet Menu des feuilles de travail et des aides mémoires.

LES OBJECTIFS DE TAVIE en m@rche (Profils 1, 2, 3 et 4)

P1 : Les objectifs de TAVIE en m@rche, Profil 1

Titre de la page

Me familiariser avec les objectifs de TAVIE en m@rche

Vidéo

P1-vid1	

P1-vid2	

Contenu

Vidéo de l'infirmière	P1-vid1	

Bonjour ! Ce sera un plaisir pour moi de vous accompagner tout au long de TAVIE en m@rche. Selon votre niveau de motivation, de confiance et de marche, 4 séances, incluant celle-ci, sont suggérées. Chaque séance dure environ de 15 à 25 minutes. Les objectifs visés sont :
1) D'augmenter vos connaissances sur pourquoi et comment atteindre le temps recommandé de marche à pied ;
2) D'augmenter votre motivation en considérant vos raisons personnelles pour marcher plus ;
3) D'Augmenter votre confiance en vos capacités de marcher plus en misant sur vos forces, c'est-à-dire vos points forts ; et
4) De soutenir votre motivation et votre confiance en élaborant un plan d'action pour marcher plus. (**collaboration**)

Contenu

Vidéo de l'infirmière	P1-vid2	

Ces séances vous aideront à mieux vous outiller pour être plus motivé et confiant et ensuite à soutenir vos efforts présents ou éventuels à marcher plus (**collaboration**). Vous pouvez progresser dans TAVIE en m@rche à votre rythme. Par exemple, cela veut dire que vous pouvez compléter une séance par semaine ou toutes les séances l'une à la suite de l'autre (**choix**). Il est prévu que l'intervention soit terminée en quatre semaines et par la suite vous aurez accès au site TAVIE en m@rche pour revoir certaines vidéos et télécharger les documents qui vous intéressent. À la huitième semaine, nous allons vous offrir une séance brève pour vous encourager à continuer sur la bonne voie de marcher régulièrement. Vous aurez également accès aux suggestions pratiques présentées dans TAVIE en m@rche (**collaboration**).

Navigation

Continuer → Page S1-1

P2 : Les objectifs de TAVIE en m@rche, Profil 2

Titre de la page

Me familiariser avec les objectifs de TAVIE en m@rche

Vidéo

P2-vid1	

P2-vid2	

Contenu

Vidéo de l'infirmière	P2-vid1	

Bonjour ! Ce sera un plaisir pour moi de vous accompagner tout au long de TAVIE en m@rche.

Selon votre niveau de motivation, de confiance et de marche, 3 séances, incluant celle-ci, sont suggérées. Chaque séance dure environ de 15 à 25 minutes. Les objectifs visés sont :

1) D'augmenter vos connaissances sur pourquoi et comment atteindre le temps recommandé de la marche à pied ;
2) D'augmenter votre motivation en considérant vos raisons personnelles pour marcher plus ; et
3) De soutenir votre motivation et votre confiance en élaborant un plan d'action pour marcher plus. (**collaboration**)

Contenu

Vidéo de l'infirmière	P2-vid2	

Ces séances vous aideront à mieux vous outiller afin d'être plus motivé et ensuite à soutenir vos efforts présents ou éventuels à marcher plus (**collaboration**). Vous pouvez progresser dans TAVIE en m@rche à votre rythme. Par exemple, cela veut dire que vous pouvez compléter une séance par semaine ou toutes les séances l'une à la suite de l'autre (**choix**). Il est prévu que l'intervention soit terminée en quatre semaines et par la suite vous aurez accès au site TAVIE en m@rche pour revoir certaines vidéos et télécharger les documents qui vous intéressent. À la huitième semaine, nous allons vous offrir une séance brève pour vous encourager à continuer sur la bonne voie de marcher régulièrement et à utiliser les suggestions pratiques présentées dans TAVIE en m@rche (**collaboration**).

Navigation

Continuer → Page S1-1

P3 : Les objectifs de TAVIE en m@rche, Profil 3

Titre de la page

Me familiariser avec les objectifs de TAVIE en m@rche

Vidéo

P3-vid1	

P3-vid2	

Contenu

Vidéo de l'infirmière	P3-vid1	

Bonjour ! Ce sera un plaisir pour moi de vous accompagner tout au long de TAVIE en m@rche.

Selon votre niveau de motivation, de confiance et de marche, 3 séances, incluant celle-ci, sont suggérées. Chaque séance dure environ de 15 à 25 minutes. Les objectifs visés sont :

1. D'augmenter vos connaissances sur pourquoi et comment atteindre le temps recommandé de la marche à pied ;
2. D'augmenter votre confiance en vos capacités de marcher plus en misant sur vos forces, c'est-à-dire vos points forts ; et
3. De soutenir votre motivation et votre confiance en élaborant un plan d'action pour marcher plus. (**collaboration**)

Contenu

Vidéo de l'infirmière	P3-vid2	

Ces séances vous aideront à mieux vous outiller afin d'être plus confiant et ensuite à soutenir vos efforts présents ou éventuels à marcher plus (**collaboration**). Vous pouvez progresser dans TAVIE en m@rche à votre rythme. Par exemple, cela veut dire que vous pouvez compléter une séance par semaine ou toutes les séances l'une à la suite de l'autre (**choix**). Il est prévu que l'intervention soit terminée en quatre semaines et par la suite vous aurez accès au site TAVIE en m@rche pour revoir certaines vidéos et télécharger les documents qui vous intéressent. À la huitième semaine, nous allons vous offrir une séance brève pour vous encourager à continuer sur la bonne voie de marcher régulièrement et à utiliser les suggestions pratiques présentées dans TAVIE en m@rche (**collaboration**).

Navigation

Continuer → Page S1-1

P4 : Les objectifs de TAVIE en m@rche, Profil 4

Titre de la page

Me familiariser avec les objectifs de TAVIE en m@rche

Vidéo

P4-vid1	

P4-vid2	

Contenu

Vidéo de l'infirmière	P4-vid1	

Bonjour ! Ce sera un plaisir pour moi de vous accompagner tout au long de TAVIE en m@rche.

Selon votre niveau de motivation, de confiance et de marche, 3 séances, incluant celle-ci, sont suggérées. Chaque séance dure environ de 15 à 25 minutes. Les objectifs visés sont :

1. D'augmenter vos connaissances sur pourquoi et comment atteindre le temps recommandé de la marche à pied ; et
2. De soutenir votre motivation et votre confiance en élaborant un plan d'action pour marcher régulièrement. (**collaboration**)

Contenu

Vidéo de l'infirmière	P4-vid2	

Ces séances vous aideront à mieux vous outiller afin de soutenir vos efforts présents ou éventuels à marcher plus et régulièrement (**collaboration**). Vous pouvez progresser dans TAVIE en m@rche à votre rythme. Par exemple, cela veut dire que vous pouvez compléter une séance par semaine ou toutes les séances l'une à la suite de l'autre (**choix**). Il est prévu que l'intervention soit terminée en quatre semaines et par la suite vous aurez accès au site TAVIE en m@rche pour revoir certaines vidéos et télécharger les documents qui vous intéressent. À la huitième semaine, nous allons vous offrir une séance brève pour vous encourager à continuer sur la bonne voie de marcher régulièrement et à utiliser les suggestions pratiques présentées dans TAVIE en m@rche (**collaboration**).

Navigation

Continuer → Page S1-1

SÉANCE 1 : INFORMATIONS GÉNÉRALES (Profils 1, 2, 3, 4)

S1-1 : Mieux savoir pourquoi et comment atteindre le temps recommandé de la marche à pied

Pour tous les Profils A, B, C et D

Titre de la page

Mieux savoir pourquoi et comment atteindre le temps recommandé de la marche à pied

Vidéo

S1-1-vid	

Contenu

Vidéo de l'infirmière	S1-1-vid	

Cette séance a pour but d'augmenter vos connaissances sur pourquoi et comment atteindre le temps recommandé de la marche à pied. D'abord, je vais vous expliquer pourquoi nous vous recommandons de marcher et comment atteindre le temps recommandé. Ensuite je vais vous donner un encouragement personnalisé selon le temps que vous avez passé à marcher au cours des 7 derniers jours (**collaboration**).

Navigation

Continuer → Page S1-2

S1-2 : Mieux savoir pourquoi faire de la marche à pied

Titre de la page

Mieux savoir pourquoi faire de la marche à pied

Vidéo

S1-2-vid	

Contenu

Vidéo de l'infirmière	S1-2-vid	

Il n'est jamais trop tard pour faire de l'activité physique, comme faire de la marche à pied, parce que les avantages peuvent être ressentis peu importe votre âge. L'activité physique est liée à plusieurs avantages tels que vivre plus longtemps, diminuer la pression artérielle et le « mauvais » cholestérol, augmenter le « bon » cholestérol, ainsi que d'autres avantages pour votre santé (Stone et al., 2009). De plus, les personnes qui ont eu un problème cardiaque et qui pratiquent régulièrement des activités physiques peuvent avoir une meilleure qualité de vie en général que les personnes qui sont moins actives (Shepherd & While, 2012). En bref, faire de l'activité physique, comme faire de la marche à pied, joue un rôle central dans le maintien de la santé de votre cœur (**rational**).

Navigation

Continuer → Page S1-3

S1-3 : Mieux savoir comment atteindre le temps recommandé de la marche à pied

Titre de la page

Mieux savoir comment atteindre le temps recommandé de marche à pied

Vidéo

S1-3-vid	

Contenu

Vidéo de l'infirmière	S1-3-vid	

Les experts recommandent de faire 30 minutes par jour d'activité physique à une intensité moyenne. L'intensité moyenne veut dire que pendant l'activité physique, vous êtes capable de dire une à deux phrases et vous ressentez un essoufflement et une transpiration légère. Il n'est pas nécessaire que les 30 minutes soient consécutives. Il suffit d'accumuler 150 minutes d'activité physique par semaine (Deschênes et al., 2009, p. 21). L'activité physique que nous vous recommandons est la marche à pied dehors, parce que c'est l'une des meilleures façons d'améliorer progressivement votre condition physique (Deschênes et al., 2009, p. 32) et c'est une activité accessible, abordable et fréquente chez ceux qui sont actifs (Santé Canada, 2011). En marchant dehors, il sera plus facile d'atteindre une intensité moyenne et cela favorisera une meilleure oxygénation dans tout votre corps (**rational**). Cependant, il est possible que de marcher 150 minutes par semaine ne soit pas un objectif réaliste pour vous si cela ne faisait pas déjà partie de vos habitudes de vie (**empathie**). Il a aussi été démontré qu'un minimum de 75 minutes par semaine à marcher à une intensité moyenne peut avoir des bénéfices pour la santé (**rational**) (Moore et al., 2012). Ceci peut représenter un but peut-être plus réaliste pour vous (**collaboration**). Quel que soit votre objectif (**choix**), c'est mieux de progresser lentement en choisissant le nombre de minutes de marche à pied qui vous convient et ensuite, augmenter par étapes et ce, jusqu'au niveau de la recommandation, qui est de marcher 150 minutes par semaine (**collboration**).

Maintenant, j'aimerais vous donner un encouragement personnalisé selon votre résultat dans le questionnaire sur la marche à pied (**collaboration**).

Navigation

Continuer → Selon le score du temps passé à marché (voir p. 5 à 9 de ce document) **Page S1-4, S1-5, S1-6, S1-7, S1-8**

S1-4: Zéro minute ou aucune journée de marche

Titre de la page

Je ne fais pas ou très peu de marche à pied

Vidéo

S1-4-vid	

Contenu

Vidéo de l'infirmière	S1-4-vid	

Vous avez indiqué que vous ne faites pas de marche à pied durant au moins 10 minutes consécutives. Ce n'est pas facile de marcher plus (**empathie**). Si vous pratiquez d'autres activités physiques que la marche à pied, je vous félicite ! (**forces**) Si non, je vous encourage à réfléchir à l'idée de marcher plus dans un avenir rapproché (**collaboration**). Votre participation à TAVIE en m@rche indique que vous avez une certaine ouverture à en connaître davantage sur la question de marcher plus (**forces**). Participer à TAVIEenMarche est donc une première étape qui vous aidera à faire ce changement positif. Dans le but d'encourager vos efforts présents ou éventuels pour marcher plus, je vous invite maintenant à continuer votre participation dans TAVIE en m@rche (**collaboration**).

Zone de gauche

Texte : Visionnez les informations générales sur pourquoi et comment atteindre le temps recommandé de la marche à pied
Bouton : Mieux savoir pourquoi faire de la marche à pied → S1-2
Bouton : Mieux connaître comment atteindre le temps recommandé → S1-3

Navigation

Continuer → Si P1 Page S2-1, Si P2 Page S2-1, Si P3 Page S3-1, Si P4 S4-1

S1-5 : Au moins un jour par semaine et les heures ou minutes par jour ne sont pas indiquées

International Physical Activity Questionnaire (IPAQ) only items 5, 6 : au moins un jour par semaine et la durée (heures ou minutes) n'est pas indiqué

Titre de la page

Je connais les nombres de jour par semaine que j'ai fait de la marche à pied

Vidéo

S1-5-vid	

Contenu

Vidéo de l'infirmière	S1-5-vid	

Vous avez identifié le nombre de journées durant lesquelles vous avez fait de la marche à pied. Bien qu'il ne soit pas facile de marcher plus (**empathie**), vous êtes sur la bonne voie, car c'est évident que vous faites des efforts (**forces**). Je vous encourage à commencer à prendre en note le nombre approximatif de minutes de marche à pied que vous faites par jour. Une meilleure évaluation du temps passé à marcher vous aidera à voir où vous en êtes afin d'éventuellement marcher plus (**rational**). Donc, continuez vos efforts et ne lâchez pas ! (**forces**) Dans le but d'encourager vos efforts présents ou éventuels pour marcher plus, je vous invite maintenant à continuer votre participation dans TAVIE en m@rche (**collaboration**).

Zone de gauche

Texte : Visionnez les informations générales sur pourquoi et comment atteindre le temps recommandé de la marche à pied
Bouton : Mieux savoir pourquoi faire de la marche à pied → S1-2
Bouton : Mieux connaître comment atteindre le temps recommandé → S1-3

Navigation

Continuer → Si P1 Page S2-1, Si P2 Page S2-1, Si P3 Page S3-1, Si P4 S4-1

S1-6 : ≥ 1 et < 75 minutes par semaine

Titre de la page

Je me rapproche des 75 minutes par semaine

Vidéo

S1-6-vid	

Contenu

Vidéo de l'infirmière	S1-6-vid	

Bravo ! C'est un bon début (**forces**). Ce n'est pas facile de marcher 150 minutes par semaine (**empathie**). Mais, vous vous rapprochez des 75 minutes par semaine de marche à pied, qui est le nombre de minutes minimum pour retirer des bénéfices importants pour votre santé (**rational, forces**) (Moore et al., 2012). C'est évident que vous faites des efforts et je vous encourage à continuer. Ne lâchez pas ! J'ai confiance qu'avec votre participation à TAVIE en m@rche et avec votre persévérance, vous serez capable de marcher plus et éventuellement vous atteindriez le temps recommandé (**forces**). Dans le but d'encourager vos efforts présents ou éventuels pour marcher plus, je vous invite maintenant à continuer votre participation dans TAVIE en m@rche (**collaboration**).

Zone de gauche

Texte : Visionnez les informations générales sur pourquoi et comment atteindre le temps recommandé de la marche à pied
Bouton : Mieux savoir pourquoi faire de la marche à pied → S1-2
Bouton : Mieux connaître comment atteindre le temps recommandé → S1-3

Navigation

Continuer → Si P1 Page S2-1, Si P2 Page S2-1, Si P3 Page S3-1, Si P4 S4-1

S1-7 : ≥ 75 et < 150 minutes par semaine

Titre de la page

Je me rapproche des 150 minutes par semaine

Vidéo

S1-7-vid	

Contenu

Vidéo de l'infirmière	S1-7-vid	

Bravo ! Vous êtes sur la bonne voie (**forces**). C'est tout un défi de marcher plus (**empathie**) et vous en retirez déjà des bénéfices importants pour votre santé ! Vous vous rapprochez du temps de marche à pied recommandé, qui est de 150 minutes par semaine (**rational, forces**). Votre participation à TAVIE en m@rche représente une occasion d'atteindre cette recommandation (**collaboration**). J'ai confiance qu'avec persévérance vous serez capable de progresser dans votre habitude de marche (**forces**). Dans le but d'encourager vos efforts présents ou éventuels pour marcher plus, je vous invite maintenant à continuer votre participation dans TAVIE en m@rche (**collaboration**).

Zone de gauche

Texte : Visionnez les informations générales sur pourquoi et comment atteindre le temps recommandé de marche à pied
Bouton : Mieux savoir pourquoi faire de la marche à pied → S1-2
Bouton : Mieux connaître comment atteindre le temps recommandé → S1-3

Navigation

Continuer → Si P1 Page S2-1, Si P2 Page S2-1, Si P3 Page S3-1, Si P4 S4-1

S1-8 : ≥ 150 minutes par semaine

Titre de la page

J'ai marché 150 minutes par semaine

Vidéo

S1-8-vid	

Contenu

Vidéo de l'infirmière	S1-8-vid	

Bravo ! Vous avez atteint la recommandation de marcher au moins 150 minutes par semaine. Vous avez réussi un défi important et vos efforts ont porté fruit, car vous en retirez des bénéfices importants pour votre santé (**rational, forces**). Le défi maintenant est de maintenir cette habitude et de marcher régulièrement. Je vous encourage à continuer vos efforts (**collaboration**) et j'ai confiance qu'avec votre participation dans TAVIE en m@rche et avec votre persévérance, vous allez continuer à maintenir le temps recommandé ! (**forces**) Je vous invite maintenant à participer à la première des deux séances du plan d'action, qui a pour but de soutenir vos efforts à continuer à marcher régulièrement (**collaboration**).

Zone de gauche

Texte : Visionnez les informations générales sur pourquoi et comment atteindre le temps recommandé de marche à pied
Bouton : Mieux savoir pourquoi faire de la marche à pied → S1-2
Bouton : Mieux connaître comment atteindre le temps recommandé → S1-3

Navigation

Continuer → Page S4-1

SÉANCE 2 : MOTIVATION (Profils 1 et 2)

S2-1 : Identifier ses raisons personnelles pour marcher plus

Pour les Profils A et B

Titre de la page

Identifier ses raisons personnelles pour marcher plus

Vidéo

S2-1-vid	

Contenu

Vidéo de l'infirmière	S2-1-vid	

Bienvenue à cette séance, qui a pour but de vous aider à être plus motivé pour marcher aux temps recommandés, en considérant vos raisons personnelles pour marcher plus (**collaboration**). Bien que les raisons de marcher plus soient généralement connues, il est parfois difficile de penser à nos propres raisons personnelles, celles qui sont motivantes pour nous-mêmes (**empathie**) (Rogerson et al., 2012). Que votre situation soit semblable ou non à des histoires d'autres personnes que je vais vous présenter (**empathie**), votre participation à cette séance vous donnera l'occasion de prendre le temps de penser à vos raisons personnelles qui vous motivent à marcher plus (**collaboration**).

Je vous invite à visionner la vidéo d'un entretien que j'ai réalisée avec M. Roy, qui a eu un problème cardiaque il y a plus d'un mois (**collaboration**).

Navigation

Continuer → S2-2

S2-2: l'Entretien avec Robert Roy « …manque de temps… »

Titre de la page

L'Entretien avec M. Roy « Je manque de temps pour marcher »

Vidéo

S2-2-narr	

S2-2-vid	

Contenu

Narration de l'infirmière et M Roy	S2-2-narr	

M. Roy : Je manque de temps pour marcher (Fleury et al., 2004). J'ai plein d'autres choses à faire, comme des travaux à la maison et des responsabilités familiales (Fleury et al., 2004). Puis en plus, quand je vais retourner au travail, mon horaire sera encore plus chargé que maintenant.

Infirmière : Vous êtes quelqu'un qui prenez ses responsabilités familiales et professionnelles au sérieux (**forces**).

M. Roy : C'est exact. Je n'ai jamais marché beaucoup parce que je suis toujours occupé par d'autres choses.

Infirmière : Vous avez d'autres choses qui sont plus importantes pour vous en ce moment que de marcher (**empathie**). Parfois, discuter de vos raisons personnelles de marcher plus vous aiderait à mieux comprendre où la marche à pied se situerait dans votre vie. Pouvez-vous me parler de ce que vous savez déjà au sujet des avantages de la marche ? (**collaboration**)

M. Roy : Oui, … c'est sûr qu'ils m'ont dit que c'est bon pour le cœur, ça améliore la santé en général (Kärner et al., 2005) et ça rallonge la vie (Rogerson et al., 2012). Mais, ces raisons ne sont pas assez importantes en ce moment pour me motiver à prendre le temps de marcher plus.

Infirmière : Si vous marchiez plus, vous pourriez en retirer des bénéfices pour votre santé (**forces**). Imaginez que vous preniez le temps de marcher malgré votre horaire chargé et que vous aviez les avantages pour votre santé que vous avez mentionnés. Comment est-ce que cela vous aiderait à atteindre votre but de maintenir vos responsabilités familiales et professionnelles ? (**collaboration**)

M. Roy : Je n'ai jamais pensé à ça … en effet, j'ai besoin d'être en santé pour atteindre tous mes buts … on peut même dire que marcher plus est aussi important que mes autres responsabilités, parce que j'ai besoin d'être en santé pour tout faire.

Infirmière : Comment vous sentez-vous quand vous pensez aux raisons que vous venez de mentionner ? (**collaboration**)

M. Roy : Je me sens plus motivé car je vois comment marcher plus m'aidera à atteindre mes buts.

Contenu

Vidéo de l'infirmière	S2-2-vid	

M. Roy se sent plus motivé parce qu'il a réalisé d'autres raisons de marcher plus qui lui tiennent à cœur. En pensant à des raisons de marcher comme renforcer son cœur, améliorer sa santé en général et rallonger sa vie, M Roy a réalisé qu'une autre raison de marcher plus est de maintenir ses responsabilités familiales et professionnelles parce que selon lui, il a besoin d'être en santé pour tout faire ! (**forces**) Je vous invite maintenant à visionner la vidéo d'un entretien que j'ai réalisé avec Mme Tremblay. (**collaboration**)

Navigation

Continuer → Page S2-3

S2-3: l'Entretien avec Gisèle Tremblay « …pas assez motivée…»

Titre de la page

L'Entretien avec Mme Tremblay « Je ne me sens pas assez motivé »

Vidéo

S2-3-narr	

S2-3-vid	

Contenu

Narration de l'infirmière et Mme. Tremblay	S2-3-narr	

Mme Tremblay : Tout le monde me dit que marcher plus est bon pour le cœur, mais on dirait que pour moi, ce n'est pas une raison suffisante pour être active. Cela ne me motive pas assez.

Infirmière : Chercher des raisons qui sont importantes ou motivantes pour vous serait une étape à franchir pour marcher plus (**forces**) (Rogerson et al., 2012). Que diriez-vous d'en discuter avec moi Mme Tremblay ? (**collaboration**)

Mme Tremblay : Avec plaisir !

Infirmière : Parfait. Pouvez-vous me parler de ce que vous avez peut-être déjà entendu dire ou que vous avez lu au sujet des avantages liés à la marche, mise à part la santé de votre cœur? (**collaboration**)

Mme Tremblay : À part le cœur…bien, c'est sûr que les gens disent qu'ils se sentent plus en forme.

Infirmière : Se sentir plus en forme est en effet un des avantages liés à la marche à pied (**forces**). Qu'est-ce qui serait différent dans votre vie actuelle si vous marchiez plus et si vous vous sentiez plus en forme ? (**collaboration**)

Mme Tremblay : J'aurais peut-être plus d'énergie pour socialiser avec mes amies, ma famille et mes petits enfants. Parfois, j'aimerais assister à des activités avec eux et j'ai besoin de me sentir en forme pour ça.

Infirmière : Comment vous sentez-vous quand vous pensez aux raisons que vous venez de mentionner ? (**collaboration**)

Mme Tremblay : C'est motivant de penser que marcher plus m'aidera à socialiser avec les autres parce j'ai besoin de me sentir en forme pour le faire.

Contenu

Vidéo de l'infirmière	S2-3-vid	

Mme Tremblay se sent plus motivée parce qu'elle a identifié deux raisons pour marcher plus qui l'interpellent, autre que c'est bon pour le cœur. La première était l'avantage de se sentir plus en forme. La deuxième était son but de socialiser avec ses amies et sa famille. En effet, selon elle, marcher plus l'aidera à socialiser avec les autres parce qu'elle a besoin de sentir en forme pour le faire (**forces**).

Identifier vos raisons personnelles peut être une étape importante pour augmenter votre motivation à marcher plus (**rational**). Sachez toutefois que les raisons personnelles de marcher plus peuvent varier d'une personne à l'autre. Rappelez-vous que les raisons que vous identifiez sont les plus pertinentes (**choix, forces**). Maintenant à votre tour d'identifier vos propres raisons pour marcher plus (**collaboration**) tout en sachant que c'est vous qui déciderez quand et comment les changements dans vos habitudes de marche vont se produire (**choix**).

Navigation

Continuer → S2-4
Page précédente

S2-4 : Identifier ses raisons personnelles pour marcher plus

Titre de la page

Identifier ses raisons personnelles pour marcher plus

Vidéo

S2-4-narr1	

S2-4-narr2	

Contenu

Narration de l'infirmière avec image de Feuille de travail à l'écran (la première partie « avantages personnels à marcher plus »)	S2-4-narr1	

Vous pouvez augmenter votre motivation en identifiant vos raisons personnelles pour marcher plus (**rational**). On peut découvrir certaines raisons personnelles en considérant les avantages de marcher plus. Pour vous aider dans cette démarche, permettez-moi de vous présenter la première partie de notre feuille de travail. Dans cette colonne, je vous présente quelques suggestions d'avantages personnels à marcher plus, comme renforcer le cœur, améliorer la santé en général et rallonger la vie (**collaboration**). Lesquels vous tiennent à cœur ? (**choix**) Pensez-y ou écrivez-les sur un papier ou sur notre feuille de travail disponible dans le menu que vous pouvez imprimer de votre ordinateur (**collaboration**).

Contenu

Narration de l'infirmière avec image de Feuille de travail à l'écran (la deuxième partie « Marcher plus m'aidera à atteindre mes buts ou valeurs personnelles de… »)	S2-4-narr2	

Vous pouvez aussi découvrir certaines raisons personnelles en considérant vos buts et vos valeurs (**rational**) (Rogerson et al., 2012). Dans cette colonne de notre feuille de travail, je vous présente quelques suggestions de buts ou valeurs lesquels représentent les choses importantes de votre vie (Miller & Rollnick, 2013, p. 85). Essayez de compléter la phrase suivante : « Marcher plus m'aidera à atteindre mon but personnel ou ma valeur de…». Par exemple, marcher plus m'aidera à atteindre mon but personnel d'avoir du bon temps parce que pour moi c'est important de prendre le temps d'apprécier la vie (**collaboration**). Et vous ? Quels buts vous tiennent à cœur ? (**choix**) Pensez-y ou écrivez-les sur un papier ou sur notre feuille de travail disponible dans le menu que vous pouvez imprimer de votre ordinateur (**collaboration**).

Navigation

Avez-vous identifié des raisons de marcher plus ?

Si OUI → **S2-4A**

Si NON → **S2-4B**

Fichier 2 accessible par le menu :

Télécharger ou imprimer de votre ordinateur le document « Mes raisons personnelles pour marcher plus » sous l'onglet Menu des feuilles de travail et des aides mémoires.

Feuille de travail : Mes raisons personnelles pour marcher plus

La colonne de la gauche présente quelques suggestions d'avantages personnels à marcher plus. Lesquels vous tiennent à cœur ? La colonne de la droite présente quelques suggestions de buts ou de valeurs. Dans cette colonne, essayez de compléter la phrase suivante : par exemple « Marcher plus m'aidera à atteindre mon but personnel … d'avoir du bon temps et de prendre le temps d'apprécier la vie ». Quels buts vous interpellent ? Pensez-y ou écrivez vos réponses sur cette feuille de travail que vous pouvez imprimer.

Mes avantages personnels à marcher plus :	« Marcher plus m'aidera à atteindre mes buts ou valeurs personnelles de… »
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
Voici quelques suggestions	*Voici quelques suggestions*
☐ renforcer le cœur, améliorer la santé en général et rallonger la vie	☐ socialiser avec d'autres personnes
☐ se sentir plus en forme	☐ avoir du bon temps, prendre le temps d'apprécier la vie
☐ avoir une meilleure endurance physique	☐ être en meilleure santé
☐ avoir une sensation de bien-être en général	☐ prendre la responsabilité de ma santé
☐ si récent ex-fumeur, aider à mieux gérer les envies de fumer	☐ vivre en harmonie avec la nature ou apprécier la beauté autour de moi lorsque je marche dans la nature
☐ améliorer la pression artérielle, si c'est un problème	☐ profiter de ma famille, parce que je prends soin de moi-même
☐ améliorer le cholestérol sanguin, si c'est un problème	☐ voir mes enfants et petits-enfants grandir, parce que je peux vivre plus longtemps
	☐ avoir une vie stimulante, parce que je bouge plus
	☐ m'amuser et avoir du plaisir
	☐ avoir une bonne estime de moi-même
	☐ avoir de l'espoir et un point de vue positif et optimiste
	☐ avoir des objectifs et donner un sens à ma vie
	☐ avoir du temps et de l'espace pour moi-même
	☐ atteindre un but fixé qui était important pour moi

Liste adapté d'une traduction de W. R. Miller, J. C'de Baca, D. B. Matthews, P. L. Wilbourne par Michaud et D. Lecallier, récupérée le 30 avril 2014 de http://www.entretienmotivationnel.org/articles/jeu-de-cartes-des-valeurs-personnelles/.

S2-4A : OUI j'ai identifié des raisons personnelles de marcher plus

Titre de la page

OUI j'ai identifié des raisons personnelles de marcher plus

Vidéo

S2-4A-vid	

Contenu

Vidéo de l'infirmière	S2-4A-vid	

Bravo ! L'identification des raisons de marcher plus est un aspect important qui peut vous aider à augmenter votre motivation et à maintenir vos efforts (**forces**). Dans les deux dernières séances de TAVIE en m@rche, je vous présenterai l'importance d'utiliser vos raisons personnelles dans un plan d'action pour marcher plus. Je vous invite maintenant à passer à la séance suivante (**collaboration**).

Navigation

Continuer → Si P1 **Page S3-1, Si P2 Page S4-1**

Fichier 2 accessible par le menu :

Télécharger ou imprimer de votre ordinateur le document « Mes raisons personnelles pour marcher plus » sous l'onglet Menu des feuilles de travail et des aides mémoires.

S2-4B : NON je n'ai pas identifié des raisons personnelles de marcher plus

Titre de la page

NON je n'ai pas identifié des raisons personnelles de marcher plus

Vidéo

S2-4B-vid	

Contenu

Vidéo de l'infirmière	S2-4B-vid	

Ce n'est pas toujours facile d'identifier des raisons de marcher plus (**empathie**) et c'est à vous d'essayer de voir si cela pourrait vous aider (**choix**). Parfois, les personnes qui ont eues un problème cardiaque peuvent découvrir des raisons de marcher plus en parlant avec des proches. Je vous encourage donc à continuer à y réfléchir. Dans les deux dernières séances de TAVIE en m@rche, je vous présenterai l'importance d'utiliser vos raisons personnelles dans un plan d'action pour marcher plus. Je vous invite maintenant à passer à la séance suivante (**collaboration**).

Navigation

Continuer → Si P1 **Page S3-1, Si P2 Page S4-1**

Fichier 2 accessible par le menu :

Télécharger ou imprimer de votre ordinateur le document « Mes raisons personnelles pour marcher plus » sous l'onglet Menu des feuilles de travail et des aides mémoires.

SÉANCE 3 : CONFIANCE (Profils 1 et 3)

S3-1 : Identifier ses points forts

Titre de la page

Identifier ses points forts pour marcher plus

Vidéo

S3-1-vid	

Contenu

Vidéo de l'infirmière	S3-1-vid	

Bienvenue à cette séance qui a pour but de vous aider à être plus en confiance pour marcher selon les temps recommandés et ce, en misant sur vos forces—c'est-à-dire vos points forts (**collaboration**). Certains disent qu'ils ne marchent pas assez parce qu'ils ne se croient pas capables de marcher plus ou parce qu'ils n'ont jamais été actifs. Que votre situation soit semblable ou non à des histoires d'autres personnes que je vais vous présenter (**empathie**), votre participation à cette séance vous donnera l'occasion de prendre le temps de penser à vos points forts, ce qui a pour but d'augmenter votre confiance en vos capacités de marcher plus (**collaboration**).

Je vous invite à visionner la vidéo d'un entretien que j'ai réalisée avec M. Roy, qui a eu un problème cardiaque il y a plus d'un mois (**collaboration**).

Navigation

Continuer → Page S3-2

S3-2 : l'Entretien avec Robert Roy « …pas capable de marcher plus »

Titre de la page

L'Entretien avec M. Roy « Je ne me sens pas capable de marcher plus »

Vidéo

S3-2-narr	

S3-2-vid	

Contenu

Narration de l'infirmière et M Roy	S3-2-narr	

M. Roy : Marcher plus, c'est un choix important que je veux vraiment faire… mais je ne le fais pas parce que je ne me sens pas capable de marcher plus.

Infirmière : Monsieur Roy, vous semblez peu confiant en vos capacités de marcher plus (**empathie**), et ce, même si vous savez que la marche est une bonne chose pour votre santé (**forces**). Une manière d'augmenter la confiance en vos capacités est d'identifier vos points forts. Les points forts sont vos qualités ou caractéristiques personnelles qui décrivent qui vous êtes en tant que personne (**rational**). Selon vous, quels sont les points forts qui vous décrivent (Miller & Rollnick, 2013, p. 225)? (**collaboration**)

M. Roy : Humm … je pense qu'en général, on peut dire que je suis optimiste.

Infirmière : De quelle façon être optimiste pourrait vous aider à marcher plus (Miller & Rollnick, 2013, p. 227)? (**collaboration**)

M. Roy : Bonne question … je pense que mon optimisme me permettrait de ne pas me décourager si je reviens à mes anciennes habitudes.

Infirmière : Quels sont vos autres points forts Monsieur Roy ? (**collaboration**)

M. Roy : Je suis quelqu'un de bien informé et je suis pas mal réaliste.

Infirmière : Je reviens avec ma question : De quelle façon est-ce que ces points forts pourraient vous aider à marcher plus (Miller & Rollnick, 2013, p. 227)? (**collaboration**)

M. Roy : C'est sûr qu'avant de marcher plus, j'aurais besoin d'être mieux informé, car je crains d'en faire trop et de faire mal à mon cœur (Fleury et al., 2004; Rogerson et al., 2012).

Infirmière : Et votre point fort d'être réaliste ? (**collaboration**)

M. Roy : Je pense qu'être réaliste veut dire que je vais commencer lentement et augmenter progressivement mon temps à marcher.

Infirmière : En résumé vous êtes quelqu'un d'optimiste, de bien informé et de réaliste (**forces**). Comment vous sentez-vous quand vous pensez à vos points forts ? (**collaboration**)

M. Roy : Je me sens plus confiant parce que je sens que j'ai quand les capacités à marcher davantage.

Contenu

Vidéo de l'infirmière	S3-2-vid	

M. Roy se sent plus en confiance en ses capacités parce qu'il a identifié ses points forts. Être optimiste, bien informé et réaliste sont des points forts qui aideront M. Roy à éventuellement marcher plus parce qu'il se sent plus confiant en lui-même (**forces**). Je vous invite maintenant à visionner la vidéo d'un entretien que j'ai réalisé avec Mme Tremblay. (**collaboration**)

Navigation

Continuer → Page S3-3

S3-3 : l'Entretien avec Gisèle Tremblay «…jamais été active »

Titre de la page

L'Entretien avec Mme Tremblay «Il y a trop longtemps que je n'ai pas été active»

Vidéo

S3-3-narr	

S3-3-vid	

Contenu

Narration de l'infirmière et Mme Tremblay	S3-3-narr	

Mme Tremblay : Je ne me sens pas capable de marcher plus parce que qu'il y a trop longtemps que je n'ai pas été active.

Infirmière : Vous avez de la difficulté à vous imaginer à marcher plus (**empathie**) parce que vous ne l'avez pas encore intégré dans vos habitudes (**forces**). Parfois, penser à des réussites que vous avez eues dans le passé peut vous aider à identifier certains de vos points forts dans le but d'augmenter votre confiance en vous. Pouvez-vous me parler d'un changement difficile que vous avez réussi dans le passé (Miller & Rollnick, 2013, p. 227)? (**collaboration**)

Mme Tremblay : Il y a quelques années j'ai eu un accident de vélo m'ayant causé de multiples fractures au genou gauche. Avec les chirurgies et les séances de physiothérapie intensives, la convalescence a duré deux ans. Par la suite, je me suis mise à l'aquaforme pour retrouver la forme. Cela a été très efficace, car j'ai retrouvé un poids idéal, mon énergie, ma souplesse et mon genou ne s'en portait que mieux. J'ai continué à en faire durant quelques années. J'ai été très persévérante et très déterminée pour arriver à réorganiser ma vie durant cette période. Au début, cela me demandait beaucoup d'effort de me rendre à la piscine. J'en ai fait une priorité et l'ai l'intégré dans mon horaire. J'ai donc fait appel à mon sens de l'organisation afin de concilier travail, autres obligations et l'aquaforme. Mais depuis je ne suis plus active. La piscine où j'allais a fermé pendant 6 mois pour des rénovations majeures, et après je n'avais plus le goût de reprendre l'activité parce que je me sentais moins en forme.

Infirmière : Madame Tremblay, Je suis vraiment impressionnée d'entendre à quel point vous avez réussi à bien vous rétablir après votre accident ! Vous avez nommé trois points forts que vous avez utilisés pour réussir durant cette période difficile : vous êtes organisée, persévérante et déterminée (**forces**). De quelle façon est-ce que le fait d'avoir ces points forts pourrait vous aider à marcher plus (Miller & Rollnick, 2013, p. 227)? (**collaboration**)

Mme Tremblay : Bonne question … je suppose qu'être organisée pourra m'aider à planifier un moment dans ma journée pour marcher.

Infirmière : Et le fait d'être persévérante et déterminée ? (**collaboration**)

Mme Tremblay : C'est sûr que le fait d'être persévérante m'aiderait à faire de la marche même pendant les journées où ça me tente moins ; et d'être déterminé m'aiderait à respecter les moments dans la semaine que je choisirais pour marcher.

Infirmière : Comment vous sentez-vous quand vous pensez à vos points forts ? (**collaboration**)
Mme Tremblay : Je sens que je ne pars pas de zéro et que j'ai les moyens d'essayer quelque chose de nouveau, comme marcher plus.

Contenu

Vidéo de l'infirmière	S3-3-vid	

Mme Tremblay se sent plus en confiance parce qu'elle a réalisé que ses points forts l'avaient aidée à réussir dans le passé et elle voit comment les mêmes points forts peuvent aussi l'aider à marcher plus (**forces**). Si, comme Mme Tremblay, vous ne sentez pas capable de marcher plus, pensez à des succès ou à des choses que vous avez réussies dans le passé. Rappelez-vous de vos points forts qui vous ont aidé à atteindre le succès et transposez-les pour la marche ! Ça peut vous aider ! (**collaboration**)

Identifier vos points forts peut être un bon début d'être plus en confiance pour ensuite planifier des actions concrètes à marcher plus (**collaboration**). Sachez toutefois que les points forts peuvent varier d'une personne à l'autre et ceux que vous identifiez, c'est à dire, ceux qui vous caractérisent, sont les plus pertinents (**choix, forces**). Je vous invite maintenant à identifier vos propres points forts. (**collaboration**)

Navigation

Continuer → S3-4

S3-4 : Identifier ses points forts

Titre de la page

Identifier ses points forts

Vidéo

S3-4-narr1	

S3-4-narr2	

Contenu

Narration de l'infirmière avec image de Feuille de travail à l'écran (la première partie « des points forts qui vous décrivent »)	S3-4-narr1	

Vous pouvez augmenter la confiance en vos capacités de marcher plus en identifiant vos points forts. Pour vous aider dans cette démarche, permettez-moi de vous présenter la première partie de notre feuille de travail. Dans cette colonne, je vous présente quelques exemples des points forts ou caractéristiques des personnes qui ont obtenu des succès dans leurs changements des habitudes de vie, comme marcher plus (**collaboration**). Quels sont les points forts vous décrivent (Miller & Rollnick, 2013, p. 225)? (**choix**) Pensez-y ou écrivez-les sur un papier ou sur notre feuille de travail disponible dans le menu que vous pouvez imprimer de votre ordinateur (**collaboration**).

Contenu

Narration de l'infirmière avec image de Feuille de travail à l'écran (la deuxième partie « De quelle façon est-ce que mes points forts pourraient m'aider à marcher plus »)	S3-4-narr2	

Dans cette colonne, posez-vous la question : « De quelle façon est-ce que mes points forts pourraient m'aider à marcher plus ? » (Miller & Rollnick, 2013, p. 227) Pour vous aider dans cette démarche, je vous ai présenté quelques exemples des réponses à cette question. Par exemple :

« Mon optimisme me permettrait de ne pas me décourager si je revenais à mes anciennes habitudes »

Ou bien,

« Être organisé m'aidera à planifier un moment dans ma journée pour prendre une marche »
Pensez-y ou écrivez vos réponses sur un papier ou sur notre feuille de travail disponible dans le menu que vous pouvez imprimer de votre ordinateur (**collaboration**).

Navigation

Avez-vous identifié au moins un point fort et comment ce point fort pourrait vous aider à marcher plus ?
Si OUI → Page S3-4A
Si NON → Page S3-4B

Fichier 3 accessible par le menu :

Télécharger ou imprimer de votre ordinateur le document « Mes points forts qui pourraient m'aider à marcher plus » sous l'onglet Menu des feuilles de travail et des aides mémoires.

Feuille de travail: Mes points forts qui pourraient m'aider à marcher plus

La colonne de la gauche présente quelques exemples des points forts ou caractéristiques de personnes qui ont obtenu des succès dans leurs changements des habitudes de vie, comme le fait de marcher plus. Quels points forts vous décrivent ? La colonne de la droite présente une question avec quelques exemples. Pensez-y ou écrivez vos réponses sur cette feuille de travail que vous pouvez imprimer.

Écrivez ci-dessous certains des points forts qui vous décrivent :	« De quelle façon est-ce que mes points forts pourraient m'aider à marcher plus ? »
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
Voici quelques exemples de points forts :	*Voici quelques exemples :*
Je suis quelqu'un qui est... ☐ adaptable ☐ affirmatif ☐ aimant ☐ ambitieux ☐ assidu ☐ assuré ☐ attentif ☐ aventureux ☐ bien informé ☐ capable ☐ compréhensif ☐ concentré ☐ courageux ☐ débrouillard ☐ décidé ☐ déterminé ☐ diligent ☐ fiable ☐ fidèle ☐ fort ☐ habile ☐ heureux ☐ honnête ☐ imaginatif ☐ impliqué ☐ intelligent ☐ libre ☐ minutieux ☐ optimiste ☐ organisé ☐ ouvert ☐ patient ☐ persévérant ☐ plein d'espoir ☐ prudent ☐ raisonnable	« Mon **optimisme** me permettrait de ne pas me décourager si je reviens à mes anciennes habitudes » « Ma qualité d'**être bien informé** m'aidera à savoir si mon effort physique est suffisant, trop grand ou insuffisant » « Mon **réalisme** me permettrait de trouver des petits buts faisables pour moi » « Être **organisé** m'aidera à planifier un moment dans ma journée pour prendre une marche »

Liste adapté de Miller et Rollnick (2013). Une permission n'est pas requise pour la reproduction.

S3-4A : OUI j'ai identifié des points forts et comment ils pourraient m'aider

Titre de la page

OUI j'ai identifié des points forts et comment ils pourraient m'aider

Vidéo

S3-4A-vid	

Contenu

Vidéo de l'infirmière	S3-4A-vid	

Bravo ! L'identification des points forts est un bon départ pour augmenter la confiance en vos capacités à poser des actions qui vous amèneront à marcher plus (**forces**). Dans les deux prochaines séances de TAVIE en m@rche, je vous présenterai des suggestions pratiques pour réussir à marcher plus. Je vous invite maintenant à passer à la séance suivante (**collaboration**).

Navigation

Continuer → Page S4-1

Fichier 3 accessible par le menu :

Télécharger ou imprimer de votre ordinateur le document « Mes points forts qui pourraient m'aider à marcher plus » sous l'onglet Menu des feuilles de travail et des aides mémoires.

S3-4B : NON je n'ai pas identifié des points forts.

Titre de la page

NON je n'ai pas identifié de points forts.

Vidéo

S3-4B-vid	

Contenu

Vidéo de l'infirmière	S3-4B-vid	

Ce n'est pas facile pour certains d'identifier ses points forts (**empathie**). L'identification des points forts peut augmenter la confiance en vos capacités à poser des actions qui vous amèneront à marcher plus (**collaboration**). Cependant, c'est à vous d'essayer de trouver des points forts pour voir si cela pourrait vous aider (**choix**). Dans les deux prochaines séances de TAVIE en m@rche, je vous présenterai des suggestions pratiques pour réussir à marcher plus. Je vous invite maintenant à passer à la séance suivante (**collaboration**).

Navigation

Continuer → Page S4-1

Fichier 3 accessible par le menu :

Télécharger ou imprimer de votre ordinateur le document « Mes points forts qui pourraient m'aider à marcher plus » sous l'onglet Menu des feuilles de travail et des aides mémoires.

SÉANCE 4A : PLAN D'ACTION PARTIE A (Profils 1, 2, 3 et 4)

S4-1 : Les objectifs de la première partie du plan d'action

Titre de la page

Les objectifs de la première partie du plan d'action

Vidéo

S4-1-vid	

Contenu

Vidéo de l'infirmière	S4-1-vid	

Bienvenue dans TAVIE en m@rche ! Durant les deux prochaines séances, je vais vous présenter des suggestions pratiques pour élaborer un plan d'action. Si vous vous sentez prêt à marcher plus, les suggestions pratiques du plan d'action vous aideront à être plus motivé et en confiance dans vos efforts présents à marcher plus. Si vous marchez déjà le temps recommandé, qui est de 150 minutes par semaine, les suggestions pratiques vous aideront à maintenir votre motivation et confiance pour marcher régulièrement. Si vous ne vous sentez pas prêt à marcher plus, c'est tout à fait possible et normal. Ce qu'on souhaite, c'est que vous reteniez les suggestions pratiques du plan d'action qui pourraient vous aider dans vos efforts éventuels, une fois que vous aurez décidé de marcher plus (**collaboration**). Dans tous les cas, l'encouragement offert dans TAVIE en m@rche respecte votre rythme personnel dans vos changements d'habitude de marcher et dans vos choix des suggestions pratiques (**choix**). Donc, dans cet esprit, je vous invite à voir les deux séances sur comment élaborer un plan d'action (**collaboration**).

Durant cette séance-ci, nous allons aborder :
L'évaluation de la perception de l'effort et la planification d'une séance de marche
Ses buts SMART et ses raisons personnelles de marcher régulièrement
L'importance de suivre le progrès de votre but SMART
Des trucs communs pour faciliter ses séances de marche

Zone de gauche

Texte : Visionnez les informations générales sur pourquoi et comment faire la marche à pied
Bouton : Mieux savoir pourquoi faire de la marche à pied → S1-2
Bouton : Mieux connaître comment atteindre le temps recommandé → S1-3

Navigation

Au début de TAVIE en m@rche, nous avons présenté les informations sur les avantages de faire la marche à pied et le temps recommandé de la marche à pied. Vous pouvez revoir ces informations en 'cliquant' sur les boutons à la gauche.
Continuer → S4-2

S4-2 : Évaluer sa perception de l'effort

Titre de la page

Évaluer sa perception de l'effort

Vidéo

S4-2-narr	

Contenu

Narration de l'infirmière avec l'image BORG	S4-2-narr	

L'évaluation de votre perception de l'effort est une des suggestions pratiques qui a pour but de vous aider à être plus en confiance à marcher régulièrement. Cette évaluation vous aidera à faire de la marche à pied d'une façon adéquate et sécuritaire pour en retirer des bénéfices pour votre santé en vous assurant que vous n'en faites pas trop. Voici l'échelle de perception de l'effort, qui porte le nom de l'échelle de 'BORG' (**collaboration**).

En utilisant l'échelle de BORG, vous pouvez situer votre niveau d'effort sur une échelle de 0 à 10. Un score de 0 signifie que vous ne faites aucun effort et un score de 10 signifie le maximum d'effort possible. Pour atteindre un niveau d'intensité de marche à pied adéquat et sécuritaire, il est recommandé d'atteindre une perception de l'effort entre 3 et 5, ce qui signifie un effort perçu entre moyen et difficile (**rational**).

Le 'test de la parole' vous aidera à mieux reconnaître si vous faites un effort adéquat. Pendant votre marche, si vous êtes capable de dire une à deux phrases, votre effort se situe entre 3 et 5 et il s'agit donc d'un effort adéquat. Si vous n'êtes plus en mesure de parler, chanter ou siffler, cela veut dire que l'activité est difficile et que votre perception de l'effort a clairement dépassé 5. L'intensité de votre activité est donc probablement trop élevée (Patenaude et al., 2010, p. 32-33). Par contre, si vous êtes en mesure d'avoir une conversation pendant l'effort, cela veut dire que l'activité est plus facile et que votre perception de l'effort n'a pas encore dépassé 3. Votre intensité est donc probablement trop faible (**rational**) (Patenaude et al., 2010, p. 32-33). Je vous invite maintenant à visionner la vidéo concernant la planification de votre marche (**collaboration**).

Navigation

Continuer → S4-3

Fichier 4 accessible par le menu:

Télécharger ou imprimer de votre ordinateur le document « L'échelle de BORG et planifier une séance de la marche » sous l'onglet Menu des feuilles de travail et des aides mémoires.

Aide-mémoire: l'échelle de BORG et planification d'une séance de marche

Voici l'aide-mémoire qui pourra vous aider à rappeler l'échelle de BORG pour évaluer votre perception de l'effort et de planifier une séance de marche à pied en quatre étapes.

Il est fait en format portefeuille pour imprimer, couper et plier.

pliez

Étape 1 : Commencez votre séance par un léger **échauffement**.

Étape 2 : Par la suite, progressez avec une marche d'une **perception de l'effort BORG entre 3 et 5**.

Étape 3 : Retournez au calme en réduisant **l'intensité** progressivement jusqu'à l'état de repos de **moins de 2**.

Étape 4 : Par la suite, il est recommandé de faire **quelques étirements** pour vous détendre et pour augmenter la mobilité de vos articulations.

S4-3 : Planifier une séance de marche à pied en quatre étapes

Titre de la page

Planifier une séance de marche à pied en quatre étapes

Vidéo

S4-3-narr	

Contenu

Narration de l'infirmière avec l'image de la liste des quatre étapes	S4-3-narr	

Pour mieux planifier une séance de marche à pied qui est à la fois adéquate et sécuritaire, il est recommandé de suivre ces quatre étapes :

Étape 1 : Commencez votre séance par un échauffement. Marchez tranquillement et augmentez progressivement votre intensité pour préparer votre corps à l'effort. L'échauffement d'une durée minimum de 5 minutes est recommandé.

Étape 2 : Par la suite, progressez avec une marche d'une perception de l'effort de l'échelle de BORG entre 3 et 5.

Étape 3 : Faites un retour au calme en réduisant l'intensité progressivement jusqu'à l'état de repos de moins de 2 sur l'échelle de BORG.

Étape 4 : Par la suite, faites quelques étirements pour vous détendre et pour augmenter la mobilité de vos articulations. Pour des exemples d'étirements, je vous invite à consulter le document suivant : « Étirements généraux à faire après un programme d'activité physique ». (**rational**)

(Patenaude et al., 2010, p. 32-33)

Aussi, les informations concernant l'échelle de BORG et la planification d'une séance de marche à pied en quatre étapes se retrouvent sur un aide-mémoire disponible dans le menu que vous pouvez télécharger ou imprimer de votre ordinateur (**collaboration**).

Navigation

Continuer → Page S4-4
Page précédente

Fichier 4 accessible par le menu :

Télécharger ou imprimer de votre ordinateur le document « L'échelle de BORG et planifier une séance de la marche » sous l'onglet Menu des feuilles de travail et des aides mémoires.

Fichier 5 accessible par le menu :

Télécharger ou imprimer de votre ordinateur le document « Étirements généraux » sous l'onglet Menu des feuilles de travail et des aides mémoires (Patenaude et al., 2010).

Aide-mémoire: Étirements généraux

Voici l'aide-mémoire des étirements généraux à faire après un programme de marche à pied ou d'activité physique.

Étirements généraux à faire après un programme de musculation

Pectoraux — 1) Attention de ne pas cambrer votre dos

Quadriceps — 2)

Mollet — 3) Vos deux pieds sont parallèles

Trapèze supérieur — 4) Garder le dos droit et diriger les épaules vers le sol

Chaîne musculaire latérale — 5)

Abducteurs — 6)

Adducteurs — 7)

Ischio-jambiers — 8)

Dos (haut et bas) — 9) expire / inspire — Pousser le nombril vers la colonne

Fessiers, dos, épaules — 10) Maintenir la position au sol et respirer profondément

Bas du dos, fessiers — 11) Laisser la tête au sol, relâcher vos épaules et rétracter le menton

Abdominaux — 12) Pousser le nombril vers le plancher en vous assurant de garder le bas du dos au sol

Maintenir chaque position 15 à 20 secondes en se concentrant sur le muscle que l'on étire. Porter une attention particulière à votre posture lors de l'exécution des mouvements d'étirements en position debout. Assurez-vous que *vos abdominaux soient toujours maintenus et que votre dos et votre tête soient droits.* Prenez le temps d'inspirer profondément et d'expirer complètement lors de l'exécution de vos étirements.

Clinique de prévention cardiovasculaire
Valérie Guilbeault, B. Sc. Kinésiologue

S4-4 : Établir ses buts réalistes, aussi appelés des buts SMART

Titre de la page

Établir ses buts réalistes, aussi appelés des buts SMART

Vidéo

S4-4-vid	

S4-4-narr1	

S4-4-narr2	

S4-4-narr3	

S4-4-narr4	

Contenu

Vidéo de l'infirmière	S4-4-vid	

Jusqu'à présent, nous avons vu l'importance d'évaluer la perception de l'effort durant la marche à pied en utilisant l'échelle de BORG. Nous avons vu aussi comment planifier une séance de marche à pied en utilisant quatre étapes. Toutes ces suggestions pratiques sont essentielles dans un plan d'action et ont pour but de vous aider à être plus en confiance pour marcher plus et régulièrement. Maintenant, je vous présente le cœur du plan d'action—soit, l'établissement des buts réalistes, aussi appelés buts SMART (**collaboration**) (Stone et al., 2009).

Choisir des buts SMART pour changer ses habitudes de vie en général, comme marcher régulièrement, facilite les petites réussites. Les petites réussites sont centrales pour aider à être plus en confiance, ce qui à son tour peut faciliter des changements positifs dans les habitudes de vie. Les buts SMART sont Spécifiques (S), Mesurables (M), Atteignables (A), Réalistes (R) et limités dans le Temps (T) (**rational**). Je vous invite à visionner les vidéos des témoinages de quatre personnes qui ont eu un problème cardiaque et qui présentent leurs buts SMART. Après ces vidéos des témoinages, je vous montrerai notre feuille de travail qui vous aidera à établir vos propres buts SMART (**collaboration**).

Zone de gauche

Texte : Visionnez les vidéos des exemples des buts SMART
Bouton : Robert Roy qui marche moins de 75 minutes par semaine
Bouton : Gisèle Tremblay qui marche 75 minutes par semaine
Bouton : Roger Fortin qui approche le temps recommandé de marche à pied
Bouton : Manon Gagnon qui marche 150 minutes par semaine

Bouton-Vidéo : Robert Roy marche moins de 75 minutes par semaine

Contenu

Narration de Robert Roy	S4-4-narr1	

Bonjour, je m'appelle Robert. C'est important pour ma santé de marcher plus. Mais c'est aussi important de se fixer un but réaliste, parce que je ne pourrais jamais marcher 150 minutes par semaine du jour au lendemain. Je suis matinal—car le matin est le moment où j'ai le plus d'énergie. Donc, pour commencer, j'ai décidé de me fixer un but SMART : « dès demain pendant une semaine, je vais marcher chaque jour dehors pendant 10 minutes avant mon petit-déjeuner ».

Bouton-Vidéo : Gisèle Tremblay marche 75 minutes par semaine

Contenu

Narration de Gisèle Tremblay	S4-4-narr2	

Bonjour je m'appelle Gisèle. J'ai 50 ans. Je n'aime pas me presser le matin, mais j'aime bien sortir l'après-midi ... ce qui pourrait être pour moi un moment idéal pour marcher dehors. D'autant plus que j'ai appris dernièrement qu'il y avait un petit sentier très agréable à parcourir près de chez moi. Ce serait une belle occasion d'aller l'explorer. J'ai donc décidé pour commencer, de me fixer un but SMART pour une semaine : « Dès demain, je vais marcher dehors du lundi au vendredi pendant 15 minutes, une heure après le diner ».

Bouton-Vidéo : Roger Fortin approche le temps recommandé de marche à pied

Contenu

Narration de Roger Fortin	S4-4-narr3	

Bonjour, je m'appelle Roger. J'approche le 150 minutes de marche à pied par semaine ! Mon premier but SMART était de, marcher le soir pendant 10 minutes tous les soirs de la semaine. Ce but SMART était le premier pas dans la bonne direction et il m'a donné confiance pour ajouter un autre cinq minutes par séance de marche à pied par jour. Donc, je fais maintenant 15 minutes de marche à pied le soir et je suis ravi car j'en retire déjà des bénéfices importants pour ma santé ! Donc, mon nouveau but SMART sera : « dès demain pendant une semaine, je vais marcher chaque soir dehors vers sept heures pendant 15 minutes ».

Bouton-Vidéo : Manon Gagnon marche 150 minutes par semaine

Contenu

Narration de Manon	S4-4-narr4	

Bonjour je m'appelle Manon. Je suis très fière de dire que je marche 150 minutes par semaine, ce qui correspond aux recommandations ! J'utilise les buts SMART pour m'encourager à persévérer toutes les semaines. Au début de chaque semaine, je me fixe un horaire régulier afin d'atteindre mon but de 150 minutes qui pour moi est un objectif réaliste.
Présentement mon but SMART est de marcher dehors, du lundi au vendredi, 15 minutes avant le dîner et 15 minutes avant le souper, ce qui est devenu bien meilleur qu'un apéro ! C'est plus motivant de penser à court terme plutôt qu'à long terme et de se décourager ! Je crois sincèrement que d'avoir fixé des buts SMART réalistes était la clé de mon succès.

Navigation

Continuer → Page S4-5
Page précédente

S4-5 : Résumé des buts SMART par l'infirmière

Titre de la page

Résumé des buts SMART par l'infirmière

Vidéo

S4-5-narr	

S4-5-vid	

Contenu

Narration de l'infirmière	S4-5-narr	

Comment savoir si votre but est Spécifique, Mesurable, Atteignable, Réaliste et limité dans le Temps ? Prenons l'exemple de Mme Gisèle Tremblay qui a fixé son but SMART : dès demain, pendant une semaine, elle va marcher dehors du lundi au vendredi pendant 15 minutes une heure après le diner.

Est-il Spécifique ?
Oui. Elle a spécifié quand elle va commencer à marcher (dès demain), où marcher (dehors), quelles journées dans la semaine (du lundi au vendredi), quel moment dans la journée (une heure après le diner) et combien de temps pendant chaque séance de marche (15 minutes). »

Est-il Mesurable ?
Oui. Elle peut mesurer, c'est-à-dire qu'elle peut prendre note dans son journal ou noter son calendrier à propos des journées et du temps passé à marcher.

Est-il Atteignable ?
Oui. Faire de la marche à pied après le diner semble atteignable parce c'est un moment idéal pour elle.

Est-il Réaliste ?
Oui. Elle est capable de marcher pendant 15 minutes, car elle m'a dit qu'elle l'avait déjà fait dans le passé.

Est-il limité dans le Temps ?
Oui. Elle a fixé une courte période de temps, donc sur une semaine. (**collaboration, rational**)

Contenu

Vidéo de l'infirmière	S4-5-vid	

Un but SMART est toujours très spécifique et fixé sur une courte période de temps, comme une semaine (**rational**). Si ce but SMART est atteint, vous pouvez ajouter dans le prochain but SMART plus de minutes de marche à pied et en faire l'essai pour une autre semaine (**collaboration**). Si ce but SMART n'est pas atteint, sachez que c'est normal (**empathie**). Si cela vous arrive, je vous invite à faire appel à votre patience et à votre persévérance (**collaboration, forces**). L'important est d'établir un autre but qui est encore plus réaliste que le dernier, sans entretenir trop de pensées négatives. Les buts SMART qui fonctionnent sont ceux que vous choisissez et qui sont réalisables pour vous (**collaboration**). Même si établir des buts SMART n'est pas facile pour certains à cause des efforts que cela implique (**empathie**), j'ai confiance en votre capacité à essayer cette stratégie pour voir si elle pourrait être efficace pour vous (**forces**). Quel serait selon vous un but SMART qui pourrait bien s'intègrerait à votre vie ? (**collaboration, choix**)

Navigation

Continuer → Page S4-6
Page précédente

S4-6 : Identifier ses raisons personnelles pour marcher régulièrement

Titre de la page

Identifier ses raisons personnelles pour marcher régulièrement

Vidéo

S4-6-vid	

Contenu

Vidéo de l'infirmière	S4-6-vid	

Un but SMART est comme une voiture qui vous amène du point A au point B. Vos raisons personnelles pour marcher régulièrement sont comme l'essence qui alimente la voiture ! (**rational**) Quand vous faites des changements dans vos habitudes de vie, c'est normal de sentir une baisse de motivation, simplement parce que c'est difficile de maintenir ces changements (**empathie**). Le fait de vous rappeler vos raisons personnelles pour marcher régulièrement vous aidera à augmenter et à soutenir votre motivation, surtout durant les moments difficiles (**rational**). Vos raisons peuvent être des avantages à marcher régulièrement, comme renforcer le cœur, améliorer la santé en général et rallonger la vie, ou encore des choses importantes dans votre vie, comme profiter de votre famille parce que vous prenez soin de vous-même ou avoir une vie stimulante parce que vous bougez plus. Une autre raison pourrait être parce que marcher régulièrement est simplement agréable (**collaboration**).

Vous pouvez voir ou revoir la séance « Identifier ses raisons personnelles pour marcher plus » pour trouver de l'aide à trouver vos raisons personnelles (**collaboration**). Sachez toutefois que vos propres raisons personnelles de marcher plus sont les plus pertinentes (**forces**). Pensez-y ou écrivez vos raisons personnelles de marcher régulièrement (**collaboration**).

Zone de gauche

Texte : Visionnez comment identifier vos raisons personnelles pour marcher plus
Bouton : Identifier ses raisons personnelles → S2-1

Navigation

Continuer → Page S4-7

S4-7 : Comment rendre la marche agréable

Titre de la page

Comment rendre la marche agréable

Vidéo

S4-7-narr	

Contenu

Narration de l'infirmière	S4-7-narr	

Pour certaines personnes, marcher régulièrement est agréable parce que faire de la marche à pied peut devenir une source de satisfaction personnelle. Mais pour d'autres, marcher à une intensité moyenne demande un effort qui peut ne pas toujours être agréable (**empathie**). Tirer du plaisir de l'activité physique comme marcher, simplement parce que c'est amusant ou à cause des défis que ça pose, peut faciliter les changements positifs aux habitudes de vie (**rational**) (Teixeira et al., 2012). Je vous invite donc à penser à des moyens pour rendre votre marche agréable. Comment y parvenir maintenant ? Vous pouvez :
Marcher avec un groupe de personnes
Marcher avec des membres de la famille ou des amis et organiser des rencontres 'actives'
Marcher en plein air dans la nature
Promener le chien
Écouter de la bonne musique en marchant
Se donner parfois le défi de marcher quelques minutes de plus (Teixeira et al., 2012)
Se concentrer sur le sentiment d'accomplissement obtenu par l'atteinte de petites réussites dans votre but de marcher régulièrement (Teixeira et al., 2012)

Je vous invite maintenant à visionner la vidéo concernant l'aide-mémoire des buts SMART et les raisons personnelles pour marcher régulièrement (**collaboration**).

Navigation

Continuer → Page S4-8
Page précédente

S4-8 : Aide-mémoire : Les buts SMART et les raisons personnelles pour marcher régulièrement

Titre de la page

Aide-mémoire : Les buts SMART et les raisons personnelles pour marcher régulièrement

Vidéo

S4-8-narr	

Contenu

Narration de l'infirmière	S4-8-narr	

Garder à portée de main vos propres buts SMART et vos raisons personnelles peut être aidant dans l'atteinte de votre objectif de marcher plus et régulièrement. Rappelez-vous qu'établir vos buts SMART peut vous aider à vivre de petites réussites. Les petites réussites sont centrales à être plus en confiance, ce qui à son tour peut faciliter des changements positifs dans les habitudes de marche. Aussi, identifier vos raisons personnelles de marcher régulièrement vous aidera à être plus motivé et à maintenir votre motivation, surtout durant les moments plus difficiles. Donc, vous pouvez écrire votre but SMART et vos raisons personnelles sur des papiers collants, comme des « post-it » que vous pouvez coller à des endroits visibles, ou encore, les écrire sur l'aide-mémoire conçu à cet effet, disponible pour impression dans le menu (**collaboration, rational**).

Je vous invite maintenant à visionner la vidéo concernant la manière de suivre le progrès de votre but SMART (**collaboration**).

Navigation

Continuer → Page S4-9
Page précédente

Fichier 6 accessible par le menu :

Télécharger ou imprimer de votre ordinateur le document « Mes raisons personnelles à marcher régulièrement et mon but SMART » sous l'onglet Menu des feuilles de travail et des aides mémoires.

Aide-mémoire:
Mes raisons personnelles à marcher régulièrement et mon but SMART

Voici l'aide-mémoire qui vous aidera à vous rappeler vos raisons personnelles à marcher régulièrement ainsi que votre but SMART. Il est fait en format portefeuille pour imprimer, couper et plier.

Vos raisons personnelles à marcher régulièrement vous aideront à être plus motivé et à maintenir votre motivation, surtout durant les moments difficiles. Vos buts SMART peuvent vous aider à vivre de petites réussites.

Voyez comment évaluer si votre but *est* SMART à la page suivante.

pliez

Mes raisons personnelles de marcher régulièrement

1.

2.

3.

Mon but SMART (Spécifique, Mesurable, Atteignable, Réaliste, limité dans le Temps) est :

S4-9 : Suivre le progrès de son but SMART

Titre de la page

Suivre le progrès de son but SMART

Vidéo

S4-9-narr	

Contenu

Narration de l'infirmière	S4-9-narr	

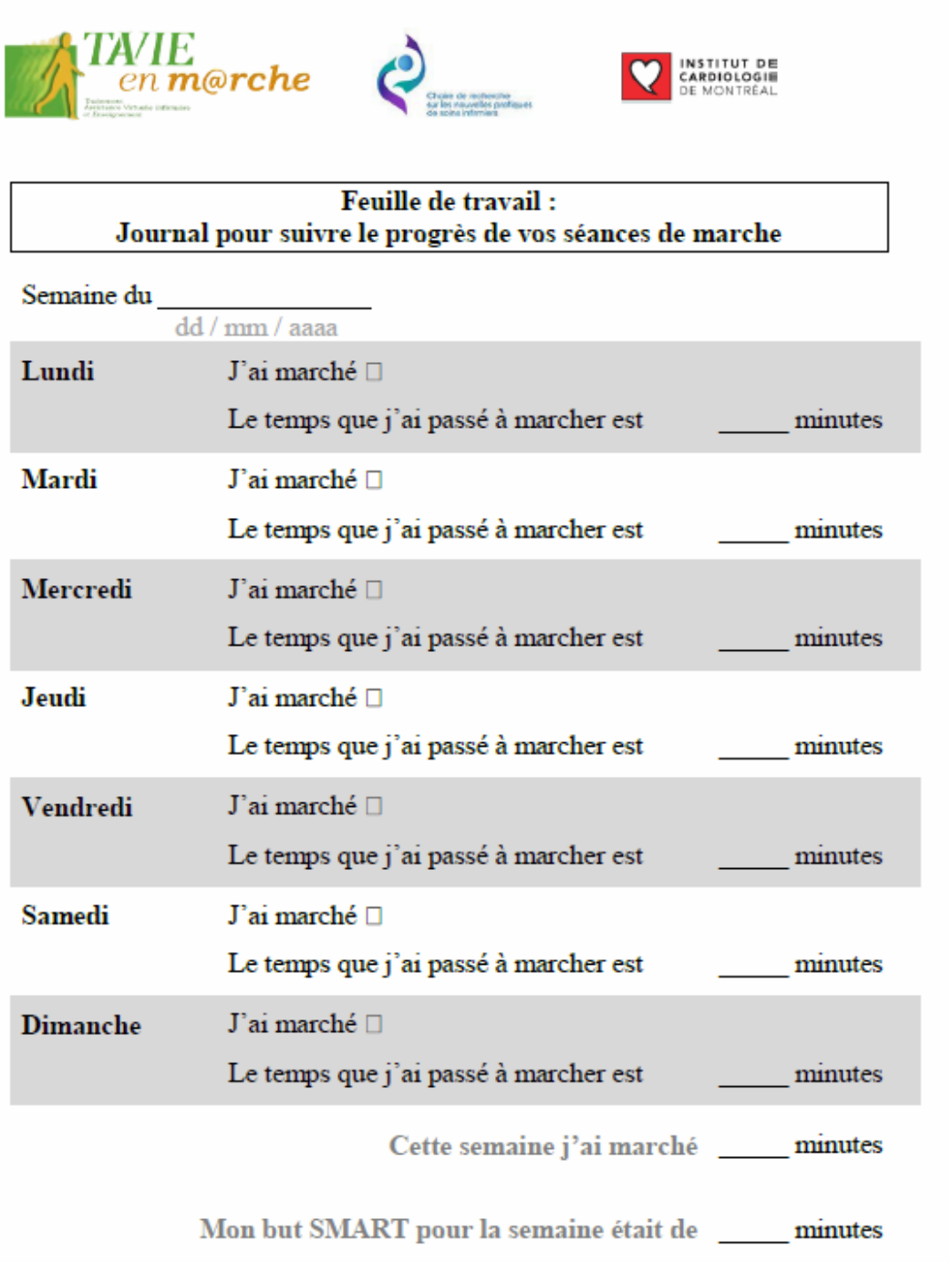
L'identification d'un but SMART est une première étape pour apporter des changements positifs à votre habitude de marcher. Rappelez-vous que le « M » représente le mot « mesurable » dans le mot SMART. Autrement dit, vous pouvez noter ou écrire votre but et suivre son progrès dans un agenda, un journal, un fichier d'ordinateur, une tablette ou même un téléphone intelligent ! Ceci facilite le succès, car cela vous aide à vous concentrer sur le sentiment d'accomplissement obtenu par l'atteinte de vos buts (**collaboration, rational**). C'est vous qui choisissez comment noter vos progrès et n'oubliez pas que votre choix est toujours le meilleur (**choix**). C'est possible que de prendre en note vos séances de marche représente un effort supplémentaire, mais je vous encourage à le faire, pour voir si cette suggestion pratique est aidante pour vous (**empathie, choix**). J'aimerais suggérer d'essayer l'exemple de journal que nous avons conçu à cet effet disponible dans le menu que vous pouvez imprimer de votre ordinateur (**collaboration**).

Navigation

Continuer → Page S4-10

Fichier 7 accessible par le menu :

Télécharger ou imprimer de votre ordinateur le document « Journal pour suivre le progrès de vos séances de marche » sous l'onglet Menu des feuilles de travail et des aides mémoires.



Feuille de travail :
Journal pour suivre le progrès de vos séances de marche

Semaine du _____
dd / mm / aaaa

Lundi	J'ai marché ☐	
	Le temps que j'ai passé à marcher est	_____ minutes
Mardi	J'ai marché ☐	
	Le temps que j'ai passé à marcher est	_____ minutes
Mercredi	J'ai marché ☐	
	Le temps que j'ai passé à marcher est	_____ minutes
Jeudi	J'ai marché ☐	
	Le temps que j'ai passé à marcher est	_____ minutes
Vendredi	J'ai marché ☐	
	Le temps que j'ai passé à marcher est	_____ minutes
Samedi	J'ai marché ☐	
	Le temps que j'ai passé à marcher est	_____ minutes
Dimanche	J'ai marché ☐	
	Le temps que j'ai passé à marcher est	_____ minutes

Cette semaine j'ai marché _____ minutes

Mon but SMART pour la semaine était de _____ minutes

S4-10 : Utiliser des trucs pour facilité ses séances de marche

Titre de la page

Utiliser des trucs pour faciliter ses séances de marche

Vidéo

S4-10-vid	00:01:02

Contenu

Vidéo de l'infirmière	S4-10-vid	

Je vous présente un fichier dans le menu qui décrit des trucs pour faciliter vos séances de marche. Les trucs répondent à des questions communes concernant entre autres où et quand marcher et comment s'habiller. En général, nous vous recommandons de marcher dehors une heure après le repas en portant des vêtements confortables et des chaussures de marche. Au bas de la page, nous avons mis le lien de l'Association canadienne de réadaptation cardiaque qui vous dirigera vers les coordonnées des programmes de réadaptation cardiaque de votre quartier, ainsi que d'autres ressources en ligne qui pourront vous aider à marcher régulièrement. Les explications de ces recommandations sont disponibles dans un fichier qui vous êtes possible de télécharger ou d'imprimer (**collaboration, rational**).

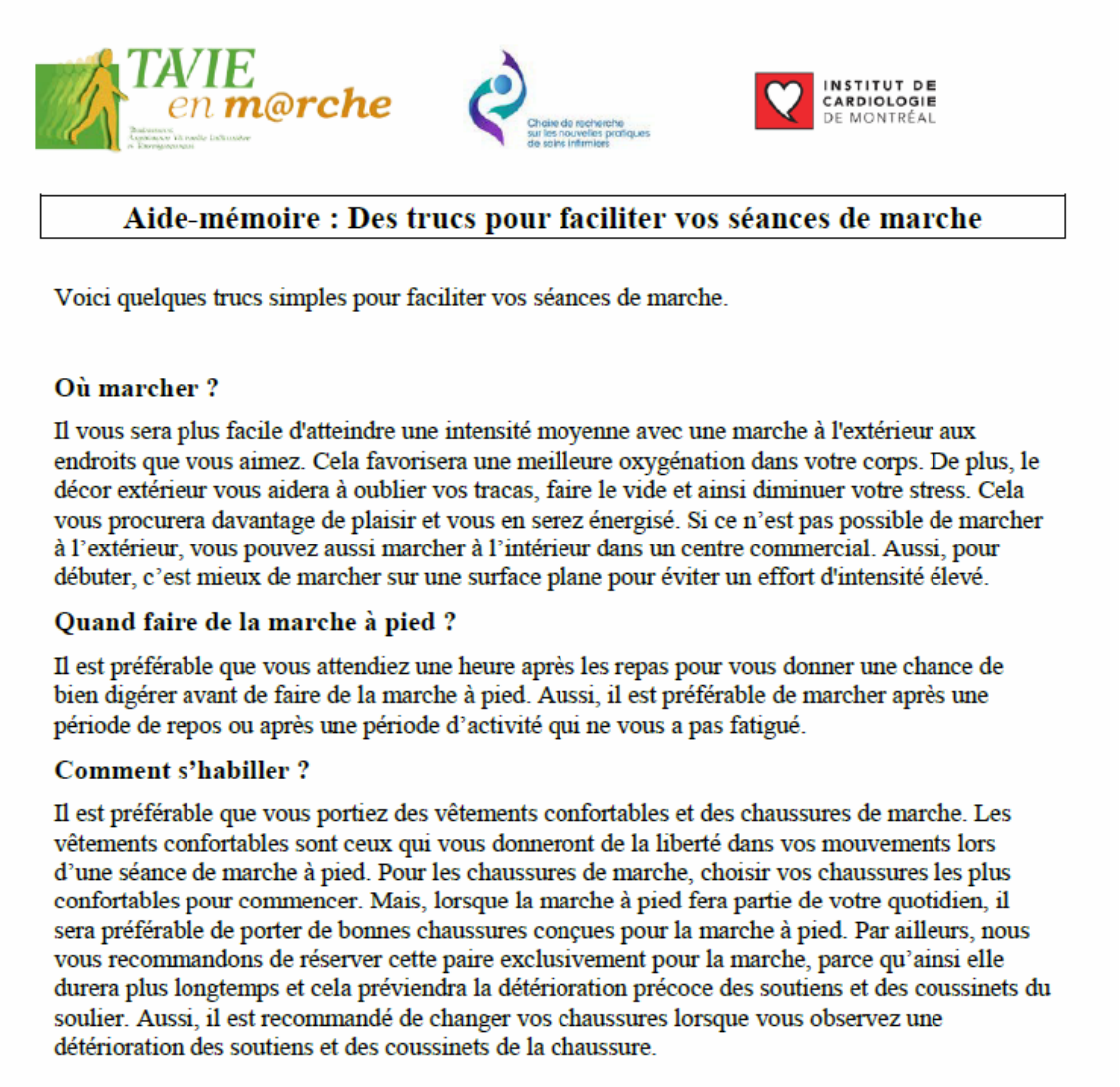
Je vous invite maintenant à consulter ce fichier concernant des trucs et vous invite ensuite à passer à la dernière séance du plan d'action (**collaboration**).

Navigation

Continuer → Page S5-1

Fichier 8 accessible par le menu :

Télécharger ou imprimer de votre ordinateur le document « Des trucs pour faciliter vos séances de marche » sous l'onglet Menu des feuilles de travail et des aides mémoires.



TAVIE en m@rche

Chaire de recherche sur les nouvelles pratiques de soins infirmiers

INSTITUT DE CARDIOLOGIE DE MONTRÉAL

Aide-mémoire : Des trucs pour faciliter vos séances de marche

Voici quelques trucs simples pour faciliter vos séances de marche.

Où marcher ?

Il vous sera plus facile d'atteindre une intensité moyenne avec une marche à l'extérieur aux endroits que vous aimez. Cela favorisera une meilleure oxygénation dans votre corps. De plus, le décor extérieur vous aidera à oublier vos tracas, faire le vide et ainsi diminuer votre stress. Cela vous procurera davantage de plaisir et vous en serez énergisé. Si ce n'est pas possible de marcher à l'extérieur, vous pouvez aussi marcher à l'intérieur dans un centre commercial. Aussi, pour débuter, c'est mieux de marcher sur une surface plane pour éviter un effort d'intensité élevé.

Quand faire de la marche à pied ?

Il est préférable que vous attendiez une heure après les repas pour vous donner une chance de bien digérer avant de faire de la marche à pied. Aussi, il est préférable de marcher après une période de repos ou après une période d'activité qui ne vous a pas fatigué.

Comment s'habiller ?

Il est préférable que vous portiez des vêtements confortables et des chaussures de marche. Les vêtements confortables sont ceux qui vous donneront de la liberté dans vos mouvements lors d'une séance de marche à pied. Pour les chaussures de marche, choisir vos chaussures les plus confortables pour commencer. Mais, lorsque la marche à pied fera partie de votre quotidien, il sera préférable de porter de bonnes chaussures conçues pour la marche à pied. Par ailleurs, nous vous recommandons de réserver cette paire exclusivement pour la marche, parce qu'ainsi elle durera plus longtemps et cela préviendra la détérioration précoce des soutiens et des coussinets du soulier. Aussi, il est recommandé de changer vos chaussures lorsque vous observez une détérioration des soutiens et des coussinets de la chaussure.

Aide-mémoire : Des trucs pour faciliter vos séances de marche

Est-il bon de boire de l'eau lors d'une marche ?

Oui. Une certaine quantité d'eau est perdue sous forme de sueur. Pour chaque tranche de 15 minutes de marche, il est conseillé de boire 150 ml ou deux tiers de tasse d'eau. C'est en effet bon de boire régulièrement sans attendre d'avoir soif, car une hydratation adéquate vous aidera à récupérer plus rapidement. Donc, nous vous suggérons de porter une bouteille d'eau lors de votre séance de marche à pied.

Est-ce que je peux faire mes 150 minutes par semaine de marche à pied en une ou deux journées ?

Non. Il est fortement recommandé d'accumuler les 150 minutes sur une période qui s'étend de 4 à 7 jours pour éviter des blessures au niveau des muscles et des articulations. Il y a plusieurs options pour atteindre la recommandation et c'est à vous de déterminer ce qui fonctionne le mieux pour vous.

Est-ce que je peux dépasser 150 minutes par semaine de la marche à pied ?

Oui – mais avec de l'aide. Nous vous félicitons si vous considérez l'option de devenir encore plus actif physiquement ! Pour cela, il est fortement recommandé de demander l'avis des experts dans un centre spécialisé de prévention secondaire (ou de réadaptation cardiaque) pour vous assurer que vous serez bien préparé pour ce défi. Les programmes de réadaptation cardiaque offrent un suivi avec des experts spécialisés pour l'activité physique et d'autres habitudes de vie. Pour en connaître davantage au sujet des programmes de réadaptation cardiaque dans votre communauté, vous pouvez consulter le site web de l'Association canadienne de réadaptation cardiaque. Vous pouvez voir son hyperlien à la page suivante.

Quelles sont les autres ressources en ligne au sujet de la marche à pied ou de l'activité physique que je peux consulter ?

D'autres ressources en ligne pourront vous aider à marcher régulièrement sont ci-dessous :

Association canadienne de réadaptation cardiaque : http://www.cacpr.ca/information_for_public/program_directory.cfm

Fédération Québécoise de la Marche : http://www.fqmarche.qc.ca/

Le Programme de marche p. 32-33 (Institut de Cardiologie de Montréal) : → https://www.icm-mhi.org/sites/www.icm-mhi.com/files/docs/Doc_aux_patients/Francais/guide_sca_francais.pdf

L'activité physique (Institut de Cardiologie de Montréal) : → https://www.icm-mhi.org/fr/prevention/adopter-de-saines-habitudes-de-vie/activite-physique

L'activité physique (Fondation des maladies du cœur et de l'AVC) : → http://www.fmcoeur.com/site/c.ntJXJ8MMIqE/b.8965787/k.61AF/Des_conseils_pour_bouger.htm#aînés-tab

Directives canadiennes en matière d'activité physique à l'intention des adultes âgés de 65 ans et plus (Société Canadienne de Physiologie de l'exercice) : → http://www.csep.ca/CMFiles/Guidelines/CSEP_PAGuidelines_older-adults_fr.pdf

Directives canadiennes en matière d'activité physique à l'intention des personnes âgées de 65 et plus (ParticipACTION) : → http://www.participaction.com/fr/get-informed/physical-activity-guidelines/guidelines-for-adults/guidelines-for-adults-65-years-and-older/

SÉANCE 4B : PLAN D'ACTION PARTIE B (Profils 1, 2, 3 et 4)

S5-1 : Les objectifs de la dernière partie du plan d'action

Titre de la page

Les objectifs de la dernière partie du plan d'action

Vidéo

S5-1-vid	

Contenu

Vidéo de l'infirmière	S5-1-vid	

Bienvenue à la dernière des deux séances concernant l'élaboration d'un plan d'action pour marcher plus et régulièrement. Ces dernières suggestions vous aideront à continuer vos démarches avec les buts SMART. Nous vous donnerons ensuite un exemple complet d'un plan d'action. Durant cette séance-ci, nous allons aborder :
Des suggestions pratiques pour surmonter les obstacles à marcher régulièrement
L'importance de l'encouragement d'un proche
Un exemple d'un plan d'action

Pour faire suite au contenu de la dernière séance, j'aimerais vous demander : avez-vous identifié un but SMART ou des raisons personnelles de marcher régulièrement ? (**collaboration**)

Navigation

Depuis la dernière séance, avez-vous identifié un but SMART ou des raisons personnelles de marcher régulièrement ?
Si OUI → S5-1A
Si NON → S5-1B

Fichier 6 accessible par le menu :

Télécharger ou imprimer de votre ordinateur le document « Mes raisons personnelles à marcher régulièrement et mon but SMART » sous l'onglet Menu des feuilles de travail et des aides mémoires.

S5-1A : OUI j'ai identifié un but SMART ou des raisons personnelles

Titre de la page

OUI j'ai identifié un but SMART ou des raisons personnelles

Vidéo

S5-1A-vid	

Contenu

Vidéo de l'infirmière	S5-1A-vid	

Bravo ! L'identification d'un but SMART ou des raisons personnelles de marcher régulièrement sont deux aspects d'un plan d'action qui peuvent faciliter vos progrès (**forces**). N'oubliez pas que notre aide-mémoire des buts SMART et des raisons personnelles à marcher régulièrement est une bonne manière de les garder à portée de main. Je vous invite maintenant à voir d'autres aspects d'un plan d'action qui peuvent vous aidez à atteindre vos buts (**collaboration**).

Navigation

Continuer → Page S5-2

Fichier 6 accessible par le menu :

Télécharger ou imprimer de votre ordinateur le document « Mes raisons personnelles à marcher régulièrement et mon but SMART » sous l'onglet Menu des feuilles de travail et des aides mémoires.

S5-1B : NON je n'ai pas identifié un but SMART ou des raisons personnelles

Titre de la page

NON je n'ai pas identifié un but SMART ou des raisons personnelles

Vidéo

S5-1B-vid	

Contenu

Vidéo de l'infirmière	S5-1B-vid	

Ce n'est pas toujours facile d'identifier un but SMART ou même des raisons personnelles de marcher régulièrement (**empathie**). Bien que l'identification d'un but SMART et des raisons personnelles puissent faciliter vos progrès, c'est à vous d'essayer cette idée pour voir si cela pourrait vous aider (**rational, choix**). N'oubliez pas que notre aide-mémoire des buts SMART et des raisons personnelles à marcher régulièrement est une bonne manière de les garder à portée de main. Je vous invite maintenant à voir d'autres aspects d'un plan d'action qui pourraient vous aider à atteindre vos buts (**collaboration**).

Navigation

Continuer → S5-2

Fichier 6 accessible par le menu :

Télécharger ou imprimer de votre ordinateur le document « Mes raisons personnelles à marcher régulièrement et mon but SMART » sous l'onglet Menu des feuilles de travail et des aides mémoires.

S5-2 : Des suggestions sur comment surmonter ses obstacles à marcher régulièrement

Titre de la page

Des suggestions sur comment surmonter ses obstacles à marcher régulièrement

Vidéo

S5-2-vid1	

S5-2-vid2	

Contenu

Vidéo de l'infirmière	S5-2-vid1	

Lors de la réalisation des buts SMART, on rencontre parfois des obstacles qui nous empêchent de les atteindre. Voir les obstacles comme des opportunités de découvrir quelque chose de nouveau de vous-même et de trouver des solutions peut faciliter votre démarche (**rational**). Ce qui compte le plus, ce sont les obstacles et les solutions que vous identifiez (**choix**). Pour vous aider, posez-vous la question : « Quelles situations ou obstacles m'empêcheraient d'atteindre mon but SMART pour marcher ? » Ensuite, posez-vous la question : « Comment est-ce que je pourrais surmonter cet obstacle ? » Parfois, essayer et réessayer des solutions différentes est nécessaire pour trouver celles qui vous conviennent (**collaboration**) (Gottlieb, 2013). J'ai confiance en votre capacité d'en faire l'essai et de réussir (**forces**). Je vous invite maintenant à passer à la vidéo suivante pour voir un exemple d'un obstacle et les solutions suggérées (**collaboration**).

Contenu

Vidéo de l'infirmière	S5-2-vid2	

Voici un exemple d'un obstacle et les solutions que M. Roger Fortin m'avait mentionné. M. Fortin avait fixé son but SMART de cette manière, soit marcher dehors chaque soir vers sept heures pendant 15 minutes. Mais, rendu à l'hiver, son but SMART n'était plus atteignable, car les vents froids ont rendu sa respiration difficile, ce qui lui a empêché de marcher à l'extérieur le soir. Comment a-t-il surmonté cet obstacle ? M. Fortin a décidé de marcher à l'intérieur, au centre d'achat, lorsqu'il fait trop froid. Lors de ses séances de marche à l'extérieur, il a décidé de couvrir sa bouche et son nez avec un foulard pour réchauffer l'air inspiré et de marcher à la fin de l'avant-midi quand c'est plus chaud dans la journée. Donc, son but SMART pendant l'hiver est de marcher à l'extérieur à la fin de chaque avant-midi pour 15 minutes. Lorsqu'il fait trop froid, il marche à l'intérieur, au centre d'achat, vers sept heures du soir pendant au moins 15 minutes.

Je vous présente maintenant une liste d'obstacles avec leurs suggestions pratiques dans le menu déroulant que vous pouvez consulter au choix. Cette liste est aussi disponible comme aide-mémoire dans un fichier que vous pouvez télécharger ou imprimer à partir de votre ordinateur (**collaboration**).

Menu déroulant

Titre : Choisir un obstacle ou une situation difficile
Text : Cliquez sur l'obstacle qui reflète le mieux ce que qui vous empêcheraient d'atteindre votre but SMART pour marcher :
Liste déroulant :
Il fait trop froid ou trop chaud pour marcher régulièrement → S5-3
Je crains de causer plus de dommage à mon cœur ou mon corps → S5-4
Je n'ai jamais été actif → S5-5
Je me sens trop fatigué pour marcher régulièrement → S5-6
Mon humeur dépressive m'empêche de marcher régulièrement → S5-7
Je n'ai pas le temps de marcher régulièrement → S5-8
Je n'ai aucune raison de marcher régulièrement → S5-9
Je ne connais pas le type ou la quantité d'activité physique à faire → S5-10
Je fais déjà assez de marche à pied donc je n'ai pas besoin d'en faire plus → S5-11
Je n'ai personne pour marcher avec moi → S5-12
Mes problèmes de santé m'empêchent de marcher régulièrement → S5-13

Fichier 9 accessible par le menu:

Télécharger ou imprimer de votre ordinateur le document « Comment puis-je surmonter les obstacles » sous l'onglet Menu des feuilles de travail et des aides mémoires.

Aide-mémoire: Comment puis-je surmonter les obstacles

Voici l'aide-mémoire qui pourra vous aider à rappeler comment surmonter des obstacles communs qui peuvent vous empêcher à atteindre vos buts realistes concernant la marche à pied. Parfois, essayer et réessayer des solutions différentes est nécessaire pour trouver celles qui vous conviennent.

Il fait trop froid ou trop chaud pour marcher régulièrement

Vivant au Canada, un obstacle commun est qu'il fasse trop froid ou trop chaud pour marcher régulièrement. Le froid et les conditions hivernales peuvent être pénibles, car les vents froids peuvent rendre votre respiration difficile. Certaines personnes marchent dans un centre commercial lorsqu'il fait froid. D'autres idées seraient de marcher à la fin de l'avant-midi car c'est le moment le plus chaud de la journée et de couvrir la bouche et le nez avec un foulard pour réchauffer l'air inspiré.

La chaleur peut aussi être pénible pour marcher régulièrement, car la chaleur et l'humidité peuvent augmenter la difficulté de l'effort. Durant l'été, il est préférable de marcher le matin ou le soir, lorsqu'il fait plus frais. Aussi, sachez que c'est préférable de réduire votre vitesse de la marche à pied durant les journées chaudes.

Je crains de causer plus de dommage à mon cœur ou mon corps

La crainte de causer plus de dommage à votre cœur ou à votre corps si vous marchez trop est un sentiment tout à fait normal. Marcher régulièrement, combiner avec votre prise de médicaments, une alimentation saine et la cessation tabagique, aide les personnes qui ont eu un problème cardiaque à vivre plus longtemps et à avoir une meilleure qualité de vie. Pour surmonter la peur de marcher trop, il est utile de savoir comment évaluer si votre habitude de marcher est à la fois adéquate et sécuritaire. Pour vous aider dans cette démarche, je vous invite à revoir les sections de l'intervention concernant « Évaluer sa perception de l'effort » et « Planifier une séance de marche à pied en quatre étapes » dans TAVIE en m@rche.

Si vous ressentez un manque de confiance dû à une crainte, une manière de l'augmenter est d'identifier vos points forts. Vos points forts sont vos qualités ou caractéristiques qui peuvent vous aider à accomplir vos buts. Par exemple, le point fort d'être prudent peut aider quelqu'un à être attentif à son corps pour marcher suffisamment sans trop en faire. Pour vous aider dans cette démarche, je vous invite à voir ou revoir la séance « Identifier ses points forts » dans TAVIE en m@rche.

Aide-mémoire: Comment puis-je surmonter les obstacles

Je crains de causer plus de dommage à mon cœur ou mon corps (suite…)

Bien que notre intervention encourage l'activité physique par la marche à pied, nous recommandons que vous portiez une attention particulière aux activités physiques faites à la maison qui sont plus exigeantes que d'autres. Par exemple :

- Pelleter de la neige ou de la terre
- Racler les feuilles ou le gazon
- Passer la tondeuse ou la souffleuse
- Laver les vitres
- Cirer la voiture
- Fendre du bois
- Soulever des charges très lourdes

Toutes ces activités physiques sollicitent de grandes masses musculaires et après plusieurs répétitions du même mouvement, peuvent résulter en un essoufflement excessif. Il est fortement suggéré de prendre des pauses régulières et d'être attentif à comment vous vous sentez.

Je n'ai jamais été actif

Il est normal de ne pas avoir confiance en votre capacité de marcher plus parce que vous n'avez jamais été actif. La recommandation, qui est d'accumuler 150 minutes de temps de marche par semaine, peut sembler un véritable défi si marcher ne faisait pas déjà partie de vos habitudes de vie ! Une manière d'augmenter votre confiance en vous est de choisir des buts réalistes pour atteindre de petites réussites. La confiance ressentie grâce aux petites réussites peut faciliter l'atteinte de plus grandes réussites. Pour vous aider dans cette démarche, je vous invite à revoir la séance « Établir ses buts réalistes » dans TAVIE en m@rche.

Une autre manière d'augmenter votre confiance est d'identifier vos points forts. Vos points forts sont vos qualités ou caractéristiques qui peuvent vous aider à accomplir vos buts. Par exemple, le point fort d'être réaliste peut aider quelqu'un à trouver des buts plus faisables. Pour vous aider dans cette démarche, je vous invite à voir ou revoir la séance « Identifier mes points forts » dans TAVIE en m@rche.

Je me sens trop fatigué pour marcher régulièrement

La fatigue, ressentie par plusieurs personnes après un problème cardiaque, peut nuire à votre motivation à marcher régulièrement. Si la fatigue est légère, nous recommandons que vous marchiez au moment où vous vous sentez confortable même si vous en avez moins envie. C'est toujours mieux de marcher après une période de repos ou après une période d'activité qui ne vous a pas fatigué. Passer un peu de temps à marcher, c'est mieux que rien de tout.

Par contre, si la fatigue est intense ou prolongée, cela peut être un des « signes d'alarme » ou de symptômes d'intolérance à l'effort pour lesquels il est recommandé que vous ralentissiez ou arrêtiez les efforts qui provoquent ce symptôme. La fatigue peut être aussi un de signe de dépression, un trouble de l'humeur qui peut être présent chez les personnes qui ont eues un problème cardiaque. Il est donc important que vous en informiez votre médecin ou le professionnel de la santé responsable de vos soins pour recevoir une évaluation de la fatigue ressentie.

Aide-mémoire: Comment puis-je surmonter les obstacles

Mon humeur dépressive m'empêche à marcher régulièrement

Plus de 20% des personnes qui ont eues un problème cardiaque vont sentir des symptômes de la dépression durant leur hospitalisation. Les symptômes associés à la dépression comprennent un sentiment de tristesse ou de vide, une irritabilité, une perte d'intérêt pour les activités habituelles, une perte de plaisir, et de la fatigue ou un manque d'énergie. Si vous ressentez des symptômes de la dépression, il est important que vous en informiez votre médecin ou le professionnel de la santé responsable de vos soins pour recevoir une évaluation de ces symptômes.

Malgré l'humeur dépressive, nous recommandons que vous marchiez au moment où vous vous sentez confortable même si ça vous tente moins. C'est toujours mieux de marcher après une période de repos ou après une période d'activité qui ne vous a pas fatigué. Passer un peu de temps à marcher, c'est mieux que rien de tout.

Je n'ai pas le temps de marcher régulièrement

Plusieurs personnes qui ont eu un problème cardiaque n'ont pas le temps de marcher régulièrement dû à des priorités multiples. Par exemple, des obligations familiales peuvent occuper le temps que vous voudriez consacrer à marcher. Personne ne peut choisir vos priorités à votre place, vous seul pouvez donc trouver des solutions à cet obstacle. Parfois, discuter avec des proches des raisons personnelles de marcher régulièrement pourrait vous aider à constater son importance. Pour vous aider dans cette démarche, je vous invite à voir ou revoir la séance « Identifier ses raisons personnelles pour marcher plus » dans TAVIE en m@rche.

Je n'ai aucune raison de marcher régulièrement

Ce n'est pas facile pour certaines personnes de trouver des raisons personnelles pour marcher régulièrement. Certaines personnes ne trouvent pas l'utilité de marcher régulièrement parce qu'ils se sentent mieux après l'hospitalisation ou même guéri. D'autres pensent que ça ne donne rien de marcher régulièrement ou qu'ils ont fait déjà assez de changements positifs dans leurs habitudes de vie comme d'arrêter de fumer. C'est vous qui déciderez quand et comment les changements dans votre habitude de marcher vont se produire.

L'identification de vos raisons pour marcher régulièrement sera un premier pas vers une vie plus active. Pour vous aider dans cette démarche, je vous invite à voir ou revoir la séance « Identifier ses raisons personnelles pour marcher plus » dans TAVIE en m@rche. Aussi, si vous connaissez quelqu'un qui marche régulièrement, vous pouvez lui demander quelles sont ses raisons personnelles de le faire. Les expériences des autres peuvent vous donner d'autres idées.

Aide-mémoire: Comment puis-je surmonter les obstacles

Je ne connais pas le type ou la quantité d'activité physique à faire

Vous avez raison de vous questionner sur le type et la quantité d'activité physique à faire. Le type d'activité physique que nous recommandons est de la marche à pied, parce que c'est une activité accessible, abordable et très populaire chez ceux qui sont actifs. Connaître la quantité de marche pied à faire est essentiel pour en retirer des bénéfices pour la santé. Pour vous aider dans cette démarche, je vous invite à voir ou revoir la séance « Mieux savoir comment atteindre le temps recommandé de marche à pied » dans TAVIE en m@rche.

Je fais déjà assez de la marche à pied donc je n'ai pas besoin d'en faire plus

Si vous marchez déjà 150 minutes par semaine à une intensité moyenne, je vous félicite et je vous encourage à continuer ! Si vous vouliez dépasser ce niveau, je vous recommanderais de chercher de l'aide d'un expert qui saura comment vous proposer un programme avec de l'exercice supervisé. À cette fin, au bas de la page de TAVIE en m@rche, nous avons mis le lien de l'Association canadienne de réadaptation cardiaque qui vous dirigera vers les coordonnées des programmes de réadaptation cardiaque de votre quartier. Si vous marchez moins de 150 minutes dans la semaine, je vous encourage aussi à continuer. Marcher un peu, c'est mieux que rien du tout et lorsque vous marchez au moins 75 minutes par semaine, vous en retirez déjà des bénéfices importants pour votre santé – donc bravo !

Je n'ai personne pour marcher avec moi

Pour certains, c'est plus intéressant de marcher avec quelqu'un ou en groupe. Prendre part à un club de marche, comme la Fédération Québécoise de la Marche, pourrait être une idée. L'hyperlien de leur site est au bas de la page de TAVIE en m@rche. Mais, c'est à vous à choisir ce qu'il est mieux de faire dans votre situation. Aussi, pour vous aider dans cette démarche, je vous invite à voir ou revoir la séance « L'importance d'être encouragé par ses proches » dans TAVIE en m@rche.

Mes problèmes de santé m'empêchent de marcher régulièrement

Un obstacle identifié, qui empêche de marcher régulièrement chez certaines personnes, est la présence de problèmes de santé. Si vous souffrez de maux de dos ou de vos jambes, d'effets secondaires liés aux médicaments (prescriptions), d'angine ou douleurs à la poitrine, ces problèmes nécessitent des conseils spécifiques. Il est donc recommandé de consulter votre médecin ou le professionnel de la santé en charge de vos soins avant de procéder à des changements dans vos habitudes de marche à pied ou d'activités physiques.

S5-3 : Il fait trop froid ou trop chaud pour marcher régulièrement

Titre de la page

Il fait trop froid ou trop chaud pour marcher régulièrement

Vidéo

S5-3-vid	

Contenu

Vidéo de l'infirmière	S5-3-vid	

Vivant au Canada, un obstacle commun est qu'il fasse trop froid ou trop chaud pour marcher régulièrement (**rational**). Le froid et les conditions hivernales peuvent être pénibles, car les vents froids peuvent rendre votre respiration difficile (**empathie, rational**). Certains marchent dans un centre d'achat lorsqu'il fait trop froid. D'autres idées seraient de marcher à la fin de l'avant-midi car c'est le moment le plus chaud de la journée et de couvrir la bouche et le nez avec un foulard pour réchauffer l'air inspiré (Deschênes et al., 2009, p. 32). La chaleur peut aussi être pénible pour marcher régulièrement, car la chaleur et l'humidité peuvent augmenter la difficulté de l'effort. Durant l'été, il est préférable de marcher le matin ou le soir, lorsqu'il fait plus frais. Sachez qu'il est préférable de marcher plus lentement durant les journées chaudes (**collaboration**) (Deschênes et al., 2009, p. 32).

Navigation

Consulter d'autres obstacles ou situation difficiles → S5-2
Continuer → S5-14

Fichier accessible par le menu 9 :

Télécharger ou imprimer de votre ordinateur le document « Comment puis-je surmonter les obstacles » sous l'onglet Menu des feuilles de travail et des aides mémoires.

S5-4 : Je crains de causer plus de dommage à mon cœur ou mon corps

Titre de la page

Je crains de causer plus de dommage à mon cœur ou mon corps

Vidéo

S5-4-vid1	

S5-4-narr	

Contenu

Vidéo de l'infirmière	S5-4-vid1	

La crainte de causer plus de dommage à votre cœur ou à votre corps si vous marchez trop est un sentiment tout à fait normal (**empathie**). Marcher régulièrement, combiné avec votre prise de médicaments, une alimentation saine et l'arrêt tabagique, aide les personnes qui ont eu un problème cardiaque à vivre plus longtemps et à avoir une meilleure qualité de vie (**rational**). Pour surmonter la peur de marcher trop, il est utile de savoir comment évaluer si votre habitude de marcher est à la fois adéquate et sécuritaire. Je vous invite à revoir les sections de l'intervention concernant « Évaluer sa perception de l'effort » et « Planifier une séance de marche à pied en quatre étapes » disponibles par la navigation (**collaboration**).

Si vous ressentez un manque de confiance dû à une crainte, une manière d'augmenter votre confiance est d'identifier vos points forts. Vos points forts sont vos qualités ou caractéristiques qui peuvent vous aider à accomplir vos buts. Par exemple, le point fort d'être prudent peut aider quelqu'un à être attentif à son corps pour marcher suffisamment sans trop en faire. Pour vous aider dans cette démarche, je vous invite à voir ou revoir la séance « Identifier ses points forts » (**collaboration**).

Contenu

Narration de l'infirmière	S5-4-narr	

Bien que notre intervention encourage la marche à pied, nous recommandons que vous portiez une attention particulière aux activités physiques faites à la maison qui sont plus exigeantes que d'autres. Par exemple :
Pelleter de la neige ou de la terre
Racler les feuilles ou le gazon
Passer la tondeuse ou la souffleuse
Laver les vitres
Cirer la voiture
Fendre du bois
Soulever des charges très lourdes

(Patenaude, 2010, p. 34-35)

Toutes ces activités physiques sollicitent de grandes masses musculaires et, après plusieurs répétitions du même mouvement, peuvent résulter en un essoufflement excessif. Il est donc fortement suggéré de prendre des pauses régulières et d'être attentif à comment vous vous sentez (**rational**).

Zone de gauche

Texte : Visionnez les informations liées à cette vidéo
Bouton : Évaluer sa perception de l'effort → S4-2
Bouton : Planifier une séance de marche à pied en quatre étapes → S4-3
Bouton : Identifier ses points forts → S3-1

Navigation

Consulter d'autres obstacles ou situation difficiles → S5-2
Continuer → S5-14

Fichier accessible par le menu 9 :

Télécharger ou imprimer de votre ordinateur le document « Comment puis-je surmonter les obstacles » sous l'onglet Menu des feuilles de travail et des aides mémoires.

S5-5 : Je n'ai jamais été actif

Titre de la page

Je n'ai jamais été actif

Vidéo

S5-5-vid	

Contenu

Vidéo de l'infirmière	S5-5-vid	

Il est normal de ne pas avoir confiance en votre capacité de marcher plus parce que vous n'avez jamais été actif. La recommandation, qui est d'accumuler 150 minutes de temps de marche par semaine, peut sembler un véritable défi si marcher ne faisait pas déjà partie de vos habitudes de vie ! (**empathie**) Une manière d'augmenter votre confiance en vous est de choisir des buts réalistes pour atteindre de petites réussites. La confiance ressentie grâce aux petites réussites peut faciliter l'atteinte de plus grandes réussites. Pour vous aider dans cette démarche, je vous invite à voir ou à revoir la séance «Établir ses buts réalistes » (**collaboration**).

Une autre manière d'augmenter votre confiance est d'identifier vos points forts. Vos points forts sont vos qualités ou caractéristiques qui peuvent vous aider à accomplir vos buts. Par exemple, le point fort d'être réaliste peut aider quelqu'un à trouver des buts plus faisables. Je vous invite à voir ou à revoir la séance « Identifier ses points forts » (**collaboration**).

Zone de gauche

Texte : Visionnez les informations liées à cette vidéo
Bouton : Établir ses buts réalistes → S4-4
Bouton : Identifier ses points forts → S3-1

Navigation

Consulter d'autres obstacles ou situation difficiles → S5-2
Continuer → S5-14

Fichier accessible par le menu 9 :

Télécharger ou imprimer de votre ordinateur le document « Comment puis-je surmonter les obstacles » sous l'onglet Menu des feuilles de travail et des aides mémoires.

S5-6 : Je me sens trop fatigué pour marcher régulièrement

Titre de la page

Je me sens trop fatigué pour marcher régulièrement

Vidéo

S5-6-vid	

Contenu

Vidéo de l'infirmière	S5-6-vid	

La fatigue, ressentie par plusieurs personnes après un problème cardiaque, peut nuire à votre motivation à marcher régulièrement (**rational**) (Alsén & Brink, 2013; Crane et al., 2015). Si la fatigue est légère, nous vous recommandons de marcher au moment où vous vous sentez confortable, même si vous en avez moins envie (**rational, empathie**). C'est toujours mieux de marcher après une période de repos ou après une période d'activité qui ne vous a pas fatigué. Passer un peu de temps à marcher, c'est mieux que rien du tout (**collaboration**).

Par contre, si la fatigue est intense ou prolongée, cela peut être l'un des « signes d'alarme » ou l'un des symptômes d'intolérance à l'effort pour lesquels il est recommandé que vous ralentissiez ou arrêtiez les efforts qui provoquent ce symptôme. La fatigue peut être aussi l'un des signes de dépression, un trouble de l'humeur qui peut être présent chez les personnes qui ont eues un problème cardiaque (Alsén & Brink, 2013). Il est donc important que vous en informiez votre médecin ou le professionnel de la santé qui est responsable de vos soins pour recevoir une évaluation de la fatigue ressentie (**rational**).

Navigation

Consulter d'autres obstacles ou situation difficiles → S5-2
Continuer → S5-14

Fichier accessible par le menu 9 :

Télécharger ou imprimer de votre ordinateur le document « Comment puis-je surmonter les obstacles » sous l'onglet Menu des feuilles de travail et des aides mémoires.

S5-7 : Mon humeur dépressive m'empêche de marcher régulièrement

Titre de la page

Mon humeur dépressive m'empêche de marcher régulièrement

Vidéo

S5-7-vid	

Contenu

Vidéo de l'infirmière	S5-7-vid	

Plus de 20% des personnes qui ont eues un problème cardiaque vont ressentir des symptômes de dépression durant leur hospitalisation (Lichtman et al., 2014), comme la perte d'intérêt ou de plaisir à faire des choses, le fait de se sentir triste ou déprimé et de se sentir fatigué ou d'avoir peu d'énergie (Acti-menu Programme Santé, 2010, p. 1). Si vous ressentez des symptômes de la dépression, il est important que vous en informiez votre médecin ou le professionnel de la santé qui est responsable de vos soins pour recevoir une évaluation de ces symptômes (**rational**) (Acti-menu Programme Santé, 2010, p. 1).

Malgré l'humeur dépressive, nous vous recommandons de marcher au moment où vous vous sentez confortable même si ça vous tente moins (**rational, empathie**). C'est toujours mieux de marcher après une période de repos ou après une période d'activité qui ne vous a pas fatigué. Passer un peu de temps à marcher, c'est mieux que rien de tout (**collaboration**).

Navigation

Consulter d'autres obstacles ou situation difficiles → S5-2
Continuer → S5-14

Fichier accessible par le menu 9 :

Télécharger ou imprimer de votre ordinateur le document « Comment puis-je surmonter les obstacles » sous l'onglet Menu des feuilles de travail et des aides mémoires.

S5-8 : Je n'ai pas le temps de marcher régulièrement

Titre de la page

Je n'ai pas le temps de marcher régulièrement

Vidéo

S5-8-vid	

Contenu

Vidéo de l'infirmière	S5-8-vid	

Plusieurs personnes qui ont eues un problème cardiaque n'ont pas le temps de marcher régulièrement en raison de leurs autres priorités. Par exemple, des obligations familiales peuvent occuper le temps que vous voudriez consacrer à marcher (**rational, empathie**). Personne ne peut choisir vos priorités à votre place, vous seul pouvez donc trouver des solutions à cet obstacle (**choix**). Parfois, discuter avec des proches des raisons personnelles de marcher régulièrement pourrait vous aider à constater son importance. Pour vous aider dans cette démarche, je vous invite à voir ou revoir la séance « Identifier ses raisons personnelles pour marcher plus » (**collaboration**).

Zone de gauche

Texte : Visionnez l'information liée à cette vidéo
Bouton : Identifier ses raisons personnelles pour marcher plus → S2-1

Navigation

Consulter d'autres obstacles ou situation difficiles → S5-2
Continuer → S5-14

Fichier accessible par le menu 9 :

Télécharger ou imprimer de votre ordinateur le document « Comment puis-je surmonter les obstacles » sous l'onglet Menu des feuilles de travail et des aides mémoires.

S5-9 : Je n'ai aucune raison de marcher régulièrement

Titre de la page

Je n'ai aucune raison de marcher régulièrement

Vidéo

S5-9-vid	

Contenu

Vidéo de l'infirmière	S5-9-vid	

Ce n'est pas facile pour certains de trouver des raisons personnelles pour marcher régulièrement. Certains personnes ne trouve pas l'utilité de marcher régulièrement parce qu'ils se sentent mieux après l'hospitalisation ou même guéri. D'autres pensent que ça ne donne rien de marcher régulièrement ou qu'ils ont fait déjà assez de changements positifs dans leurs habitudes de vie, comme d'arrêter de fumer (**empathie**). C'est vous qui décidez quand et comment les changements dans votre habitude de marcher vont se produire (**choix**).

L'identification de vos raisons pour marcher régulièrement sera un premier pas vers une vie plus active. Pour vous aider dans cette démarche, je vous invite à voir ou revoir la section de l'intervention « Identifier ses raisons personnelles pour marcher plus ». Si vous connaissez déjà quelqu'un qui marche régulièrement, vous pouvez lui demander quelles sont ses raisons personnelles de le faire. Les expériences des autres peuvent vous donner d'autres idées (**collaboration**).

Zone de gauche

Texte : Visionnez l'information liée à cette vidéo
Bouton : Identifier ses raisons personnelles pour marcher plus → S2-1

Navigation

Consulter d'autres obstacles ou situation difficiles → S5-2
Continuer → S5-14

Fichier accessible par le menu 9 :

Télécharger ou imprimer de votre ordinateur le document « Comment puis-je surmonter les obstacles » sous l'onglet Menu des feuilles de travail et des aides mémoires.

S5-10 : Je ne connais pas le type ou la quantité d'activité physique à faire

Titre de la page

Je ne connais pas le type ou la quantité d'activité physique à faire

Vidéo

S5-10-vid	

Contenu

Vidéo de l'infirmière	S5-10-vid	

Vous avez raison de vous questionner sur le type et la quantité d'activité physique à faire (**empathie**). Le type d'activité physique que nous recommandons est la marche à pied, parce que c'est une activité accessible, abordable et populaire chez ceux qui sont actifs (**rational**) (Statistics Canada, 2013). Connaître la quantité de marche à pied à faire est essentielle pour en retirer des bénéfices pour la santé. Pour vous aider dans cette démarche, je vous invite à voir ou à revoir la séance sur « Mieux savoir comment atteindre le temps recommandé de marche à pied » (**collaboration**).

Zone de gauche

Texte : Visionnez l'information liée à cette vidéo
Bouton : Mieux savoir comment atteindre le temps recommandé → S1-3

Navigation

Consulter d'autres obstacles ou situation difficiles → S5-2
Continuer → S5-14

Fichier accessible par le menu 9 :

Télécharger ou imprimer de votre ordinateur le document « Comment puis-je surmonter les obstacles » sous l'onglet Menu des feuilles de travail et des aides mémoires.

S5-11 : Je fais déjà assez de marche à pied donc je n'ai pas besoin d'en faire plus

Titre de la page

Je fais déjà assez de marche à pied donc je n'ai pas besoin d'en faire plus

Vidéo

S5-11-vid	

Contenu

Vidéo de l'infirmière	S5-11-vid	

Si vous marchez déjà 150 minutes par semaine à une intensité moyenne, je vous félicite et je vous encourage à continuer ! (**forces**) Si vous vouliez dépasser ce niveau, je vous recommanderais de chercher de l'aide d'un expert qui saura comment vous proposer un programme avec de l'exercice supervisé. À cette fin, au bas de la page, nous avons mis le lien de l'Association canadienne de réadaptation cardiaque qui vous dirigera vers les coordonnées des programmes de réadaptation cardiaque de votre quartier (**collaboration**). Si vous marchez moins de 150 minutes dans la semaine, je vous encourage aussi à continuer. Marcher un peu, c'est mieux que rien du tout et lorsque vous marchez au moins 75 minutes par semaine, vous en retirez déjà des bénéfices importants pour votre santé (Moore et al., 2012) – donc bravo ! (**collaboration, forces**)

Navigation

Consulter d'autres obstacles ou situation difficiles → S5-2
Continuer → S5-14

Fichier accessible par le menu 9 :

Télécharger ou imprimer de votre ordinateur le document « Comment puis-je surmonter les obstacles » sous l'onglet Menu des feuilles de travail et des aides mémoires.

S5-12 : Je n'ai personne pour marcher avec moi

Titre de la page

Je n'ai personne pour marcher avec moi

Vidéo

S5-12-vid	

Contenu

Vidéo de l'infirmière	S5-12-vid	

Pour certaines personnes, c'est plus intéressant de marcher avec quelqu'un ou en groupe (**forces**). Prendre part à un club de marche, comme la Fédération Québécoise de la Marche, pourrait être une idée. L'hyperlien de leur site est au bas de cette page. Mais, c'est à vous à choisir ce qu'il est mieux de faire dans votre situation. D'ailleurs, la prochaine section de l'intervention aborde le sujet de l'importance d'être encouragé par les proches. Ceci pourrait vous aider dans votre réflexion (**collaboration**).

Navigation

Consulter d'autres obstacles ou situation difficiles → S5-2
Continuer → S5-14

Fichier accessible par le menu 9 :

Télécharger ou imprimer de votre ordinateur le document « Comment puis-je surmonter les obstacles » sous l'onglet Menu des feuilles de travail et des aides mémoires.

S5-13 : Mes problèmes de santé m'empêchent de marcher régulièrement

Titre de la page

Mes problèmes de santé m'empêchent de marcher régulièrement

Vidéo

S5-13-vid	

Contenu

Vidéo de l'infirmière	S5-13-vid	

Un obstacle identifié, qui empêche de marcher régulièrement chez certaines personnes, sont les problèmes de santé (**rational, empathie**). Si vous souffrez de douleurs au dos ou aux jambes, d'effets secondaires liés aux médicaments, d'angine ou douleurs à la poitrine, ces problèmes nécessitent des conseils spécifiques (**rational**). Il est donc recommandé de consulter votre médecin ou le professionnel de la santé qui est en charge de vos soins avant de procéder à des changements dans vos habitudes de marche à pied ou dans vos activités physiques (**collaboration**).

Navigation

Consulter d'autres obstacles ou situation difficiles → S5-2
Continuer → S5-14

Fichier accessible par le menu 9 :

Télécharger ou imprimer de votre ordinateur le document « Comment puis-je surmonter les obstacles » sous l'onglet Menu des feuilles de travail et des aides mémoires.

S5-14 : Identification des obstacles

Titre de la page

Question sur l'identification des obstacles

Vidéo

S5-14-vid	

Contenu

Vidéo de l'infirmière	S5-14-vid	

Maintenant que vous avez vu une ou plusieurs vidéos décrivant des obstacles et des solutions possibles, j'aimerais vous demander : avez-vous identifié des obstacles à l'atteinte de votre but SMART pour marcher plus et vos solutions personnelles pour surmonter ces obstacles ? (**collaboration**)

Navigation

Avez-vous identifié des obstacles à l'atteinte de votre but SMART pour marcher et leurs solutions ?
OUI → S5-14A
NON → S5-14B

Fichier accessible par le menu 9 :

Télécharger ou imprimer de votre ordinateur le document « Comment puis-je surmonter les obstacles » sous l'onglet Menu des feuilles de travail et des aides mémoires.

S5-14A : OUI j'ai identifié les obstacles à l'atteinte de mon but SMART

Titre de la page

OUI j'ai identifié les obstacles à l'atteinte de mon but SMART

Vidéo

S5-14A-vid	

Contenu

Vidéo de l'infirmière	S5-14A-vid	

Bravo ! L'identification des obstacles et de leurs solutions vous aidera à faire des changements positifs à votre habitude de marche. Atteindre votre but SMART pour marcher, même s'il y des obstacles comme un temps trop froid ou trop chaud, est un excellent départ ! Bien que ce ne soit pas possible de connaître tous les obstacles que vous allez rencontrer, vous découvrirez des obstacles et leurs solutions lorsque vous en ferez l'essai. J'ai confiance en votre capacité d'atteindre vos buts SMART (**forces**). Je vous invite maintenant à passer à la prochaine vidéo (**collaboration**).

Navigation

Continuer → S5-15

Fichier accessible par le menu 9 :

Télécharger ou imprimer de votre ordinateur le document « Comment puis-je surmonter les obstacles » sous l'onglet Menu des feuilles de travail et des aides mémoires.

S5-14B : NON je n'ai pas identifié les obstacles à l'atteinte de mon but SMART

Titre de la page

NON je n'ai pas identifié les obstacles à l'atteinte de mon but SMART

Vidéo

S5-14B-vid	

Contenu

Vidéo de l'infirmière	S5-14B-vid	

Ce n'est pas facile de trouver des solutions à tous les obstacles (**empathie**). L'identification des obstacles et des solutions vous aidera à atteindre vos buts SMART pour marcher, mais c'est à vous d'essayer de voir si cela pourrait vous aider (**collaboration, choix**). Parfois, prendre un peu de temps pour réfléchir ou en parler avec un proche peut aider. J'ai confiance qu'avec vos efforts, vous atteindrez vos buts SMART. Je vous invite maintenant à passer à la prochaine vidéo (**collaboration, forces**).

Navigation

Continuer → S5-15

Fichier accessible par le menu 9 :

Télécharger ou imprimer de votre ordinateur le document « Comment puis-je surmonter les obstacles » sous l'onglet Menu des feuilles de travail et des aides mémoires.

S5-15 : l'Importance d'être encouragé par ses proches

Titre de la page

L'Importance d'être encouragé par ses proches

Vidéo

S5-15-vid1	

S5-15-narr	

S5-15- vid2	

Contenu

Vidéo de l'infirmière	S5-15-vid1	

Une autre manière d'atteindre vos buts SMART est de recevoir l'encouragement de ses proches (**collaboration**). Il est parfois difficile d'identifier quelqu'un qui peut vous encourager dans votre but de marcher régulièrement (**empathie**). C'est à vous d'évaluer s'il est possible de recevoir de l'encouragement dans votre situation actuelle (**choix**). Écoutons Mme Gagnon expliquer l'importance de l'encouragement d'un proche et sa manière de demander ce soutien (**collaboration**).

Contenu

Narration de Mme Gagnon	S5-15-narr	

Maintenant, je marche 150 minutes par semaine. Mais, au début marcher n'était pas dans mes habitudes. Je vis seule et me motiver à sortir de la maison et de prendre des marches n'était pas vraiment été évident pour moi. Mon infirmière m'avait dit qu'un bon moyen pouvant m'aider à marcher régulièrement serait d'obtenir le soutien d'une personne importante pour moi. J'ai donc pensé que mon ami Jean pourrait être un genre de « coach ». Je lui ai demandé qu'il soit à l'écoute de mes idées et qu'il m'encourage davantage à me fixer des buts réalistes. Mon tout premier but SMART a été de marcher tous les matins sur la rue pour seulement 10 minutes ! J'ai pris l'habitude de marcher et j'étais très encouragée d'être en contact avec mon ami Jean. J'ai graduellement augmenté mon temps de marche. Au fur et à mesure que je progressais, je me suis rendu compte que j'aimais marcher et, graduellement, j'ai augmenté mes buts. Je suis devenue de plus en plus motivée et en confiance pour marcher davantage ! Jean est un gars très à l'écoute. Dès le début, sans me forcer, il m'a encouragé à persévérer dans mon « petit » but SMART. En somme, c'était un plan de match quotidien mais réaliste qui m'a amené à atteindre la recommandation de 150 minutes par semaine. Et c'est ce que j'ai fait !

Contenu

Vidéo de l'infirmière	S5-15-vid2	

Que votre situation soit similaire ou non à celle de Mme Gagnon, l'important est d'identifier une personne en particulier et lui demander de vous encourager (**choix, collaboration**). Y penser ou même écrire les noms des personnes qui pourraient vous soutenir serait une bonne première étape. Ensuite, pensez-y ou écrivez comment vous pouvez leur demander un encouragement. Voici un exemple : « J'aimerais te parler de mes buts pour marcher plus et de te parler de mes progrès. J'ai besoin que tu m'écoutes et que tu m'encourages dans ma démarche de me fixer des buts réalistes » (**collaboration**). C'est à vous de formuler la manière de le dire avec laquelle vous êtes confortable (**choix**).

Navigation

Est-ce que vous avez identifié au moins une personne qui pourrait vous donner du soutien dans vos buts présents ou éventuels de marcher plus et régulièrement ?

OUI → S5-15A

NON → S5-15B

S5-15A : OUI j'ai identifié une personne qui m'encouragerait

Titre de la page

OUI j'ai identifié une personne qui m'encouragerait

Vidéo

S5-15A-vid	

Contenu

Vidéo de l'infirmière	S5-15A-vid	

Bravo ! Le fait d'identifier une personne qui pourrait vous encourager dans votre démarche est un pas dans la bonne direction pour faciliter vos progrès vers vos buts (**empathie**). Le défi est maintenant de lui demander de vous écouter et de vous encourager à établir des buts qui sont réalistes pour vous (**collaboration**). Si vous trouvez que demander ce type d'encouragement n'est pas facile, vous n'êtes pas seul (**empathie**). Pour surmonter cette difficulté, je vous invite à essayer de dire à haute voix votre manière de demander de l'encouragement (**collaboration**). J'ai confiance en vos capacités d'en faire l'essai. Bonne chance ! (**forces**)

Navigation

Continuer → S5-16

S5-15B : NON je n'ai pas identifié une personne qui m'encouragerait

Titre de la page

NON je n'ai pas identifié une personne qui m'encouragerait

Vidéo

S5-15B-vid	

Contenu

Vidéo de l'infirmière	S5-15B-vid	

Vous n'avez pas encore identifié une personne qui pourrait vous encourager dans votre démarche, et, ce n'est pas toujours facile. D'un côté, vous n'avez peut-être pas besoin de ce soutien pour atteindre vos buts. De l'autre côté, ceci représente une opportunité de réfléchir à des façons d'établir de nouveaux contacts (**empathie**). Une manière possible est de prendre part à un club de marche comme celui de la Fédération Québécoise de la Marche (**collaboration**). C'est à vous d'essayer cette idée ou d'autres trucs pour voir ce qui vous aide le plus (**choix**). Déjà, le fait de participer à TAVIE en m@rche démontre votre ouverture d'esprit d'essayer quelque chose de nouveau (**forces**). Je vous encourage donc à réfléchir aux façons d'obtenir du soutien et je vous souhaite bonne chance dans votre réflexion ! (**collaboration**)

Navigation

Continuer → S5-16

S5-16 : Un exemple d'un plan d'action

Titre de la page

Exemple d'un plan d'action

Vidéo

S5-16-vid	

S5-16-narr	

Contenu

Vidéo de l'infirmière	S5-16-vid	

Nous avons vu jusqu'à présent les différents éléments d'un plan d'action. Comment peut-on les mettre ensemble ? Je vous invite maintenant à visionner la vidéo d'un entretien que j'ai réalisé avec M. Fortin pour voir l'exemple de son plan d'action. M. Fortin a suivi son plan d'action comprenant son but SMART, ses raisons pour marcher régulièrement, son journal pour noter ses progrès et ses solutions aux obstacles identifiés (**collaboration**).

Contenu

Narration de l'infirmière et de M Fortin	S5-16-narr	

Infirmière : Bonjour M. Fortin. Vous avez fait beaucoup d'effort pour élaborer un plan d'action que vous avez suivi avec succès pour quelques semaines (**forces**). Parlez-moi un peu de ce plan d'action (**collaboration**).
M. Fortin : Je pense que la chose qui m'a aidé le plus dans mon plan d'action est mon but SMART. J'ai réalisé après quelques essais que j'avais besoin d'être très réaliste avec mon but.
Infirmière : Justement, j'aimerais vous entendre sur ce but (**collaboration**).
M. Fortin : Mon but SMART était de marcher du lundi au vendredi vers sept heures du soir pour dix minutes. Maintenant, j'en fais 15 minutes chaque soir. Je sais que la recommandation est d'éventuellement accumuler 150 minutes par semaine, mais choisir le nombre de minutes de marche à pied qui me convient augmente ma confiance parce que c'est réaliste et c'est un pas dans la bonne direction.
Infirmière : Je vous félicite pour vos efforts Monsieur Fortin ! (**forces**) Pourquoi est-il important pour vous d'atteindre votre but SMART ? (**collaboration**)
M. Fortin : J'ai plusieurs raisons de santé comme améliorer mon taux de cholestérol dans le sang (Kärner et al., 2005). Mais, je deviens aussi plus positif par la marche parce ce que je prends le temps d'apprécier la vie en marchant (W. R. Miller & Rollnick, 2013)! Donc, c'est bon pour mon esprit et mon corps.
Infirmière : C'est très bien ! Pour vous, c'est clair que de marcher plus rejoint votre but personnel d'apprécier la vie. Vous m'aviez mentionné aussi que vous prenez note de votre but SMART dans un journal (**forces**).

M. Fortin : Oui, effectivement ! Je vois mes progrès dans mon journal et ça m'aide à maintenir mon engagement.
Infirmière : Quelles solutions avez-vous trouvées pour faire face à des situations ou obstacles qui vous ont empêché d'accomplir votre but SMART ? (**collaboration**)
M. Fortin : J'ai réalisé que durant l'été c'est mieux de marcher le soir parce qu'il fait trop chaud durant la journée et c'est à ce moment que j'ai le plus d'énergie. L'hiver, c'est plus difficile et il fait trop froid, donc je marche souvent dans le centre d'achat près de chez moi.
Infirmière : Vous avez d'excellentes idées (**forces**). Parfois, manquez-vous de temps pour marcher ? (**collaboration**)
M. Fortin : Certainement ! Ma solution pour le manque de temps c'est de passer si possible plus de temps à marcher le lendemain. Si ce n'est pas possible, je ne me décourage pas et je continue quand même à suivre mon but SMART les journées suivantes.
Infirmière : C'est excellent ! Vous êtes habile à vous débrouiller face à des imprévues (**forces**). Comment avez-vous surmonté votre crainte de causer plus de dommage à votre cœur en faisant trop d'efforts ? (**collaboration**)
M. Fortin : Bonne question. Je fais le 'test de la parole' en marchant pour m'assurer que je n'en fasse pas trop et aussi que mon effort est adéquat pour en retirer des bénéfices ! Si je suis capable de dire une à deux phrases en marchant, mon effort est adéquat.
Infirmière : Donc, dans cette situation vous vous situeriez entre 3 et 5 sur l'échelle de BORG (**rational**).
M. Fortin : Oui. C'est exact !
Infirmière : Quels sont les autres aspects de votre plan d'action qui vous ont aidé à atteindre vos buts ? (**collaboration**)
M. Fortin : J'ai identifié un de mes points forts. Je suis sociable (W. R. Miller & Rollnick, 2013). J'ai de la facilité à me faire des amis. Donc, je me suis fait des amis durant mes marches et c'est beaucoup plus agréable de marcher avec quelqu'un. Parfois nous marchons plus longtemps que 15 minutes parce qu'on s'amuse on à du fun !

Navigation
Continuer → S5-17
Page précédente

S5-17 : La conclusion

Titre de la page

Conclusion

Vidéo

S5-17-vid	

Contenu

Vidéo de l'infirmière	S5-17-vid	

Je vous ai maintenant présenté toutes les suggestions pratiques d'un plan action que vous pouvez utiliser dès maintenant pour vous aider dans vos efforts présents ou éventuels pour faire des changements à votre habitude de marcher. N'oubliez pas que vous pouvez revoir certaines vidéos et télécharger les documents qui vous intéressent (**collaboration**). J'ai confiance en votre capacité d'atteindre le temps de marche recommandé, un pas à la fois, et de trouver des solutions lorsque vous ferez face à des défis ou des obstacles (**forces**). Ça m'a fait plaisir de collaborer avec vous et de vous accompagner durant TAVIE en m@rche. À la 8e semaine après le début de cette intervention, un courriel ou message texte vous sera envoyé pour vous réinviter dans l'intervention TAVIE en m@rche afin d'obtenir un encouragement supplémentaire et de revoir des séances selon vos besoins. Je vous souhaite bonne chance ! (**collaboration**)

Navigation

Dans 11 semaines après votre sortie de l'hôpital, nous vous enverrons un rappel par courriel d'accéder à TAVIE en m@rche afin d'accéder à de l'information et des conseils concernant faire la marche à pied.

Consultez l'ensemble des séances de TAVIE en m@rche à partir du Plan du site.

Continuer → R1 (Disponible à la 8e semaine)

SUIVI BREF SUIT DU PLAN D'ACTION (Profils 1, 2, 3 et 4)

R1 : Un suivi bref de ses progrès

Titre de la page

Un suivi bref de ses progrès

Vidéo

R1-1-vid	

Contenu

Vidéo de l'infirmière	R1-1-vid	

Bonjour et bienvenue à nouveau dans TAVIE en m@rche. Je souhaite vous offrir un encouragement supplémentaire dans vos efforts présents ou éventuels pour marcher régulièrement.

D'abord j'aimerais savoir si vous marchez plus comparativement au temps que vous passiez à marcher avant votre hospitalisation ? (**collaboration**)

Navigation

Est-ce que vous marchez plus comparativement au temps que vous passiez à marcher avant votre hospitalisation ?
OUI → R1-1A
NON → R1-1B

R1-1A : OUI je marche plus qu'avant mon hospitalisation

Titre de la page

OUI je marche plus qu'avant mon hospitalisation

Vidéo

R1-1A-vid	

Contenu

Vidéo de l'infirmière	R1-1A-vid	

Bravo ! Vous êtes sur la bonne voie et je vous félicite d'avoir participé à TAVIE en m@rche ! C'est tout un défi de marcher régulièrement et j'ai confiance qu'avec l'utilisation de votre plan d'action personnel vous serez capable de maintenir ce changement dans votre habitude de marcher (**forces**). D'atteindre et de maintenir le temps recommander à marcher pose un défi pour plusieurs (**empathie**). Pour vous aider dans ce but, je vous invite à revoir les suggestions pratiques dans cette intervention, si c'est nécessaire pour vous. Je vous souhaite bonne chance dans vos efforts et je vous invite à passer à la prochaine vidéo (**collaboration**).

Navigation

Continuer → R1-2

R1-1B : NON je ne marche pas plus qu'avant mon hospitalisation

Titre de la page

NON je ne marche pas plus qu'avant mon hospitalisation

Vidéo

R1-1B-vid	

Contenu

Vidéo de l'infirmière	R1-1B-vid	

Marcher plus est tout un défi et je vous félicite d'avoir participé à TAVIE en m@rche ! (**empathie, forces**) J'ai confiance que vous serez capable de trouver votre façon de marcher plus et d'éventuellement atteindre le temps recommandé de marcher (**forces**). Pour vous aider dans vos efforts présents ou éventuels à marcher plus, je vous invite à voir ou à revoir les suggestions pratiques dans cette intervention. Je vous souhaite bonne chance dans vos efforts et je vous invite à passer à la prochaine vidéo (**collaboration**).

Navigation

Continuer → R1-2

R1-2 : Avez-vous essayé des suggestions pratiques ?

Titre de la page

Avez-vous essayé des suggestions pratiques ?

Vidéo

R1-2-narr	

Contenu

Narration de l'infirmière	R1-2-narr	

Maintenant, j'aimerais savoir si vous avez essayé une ou plusieurs des suggestions pratiques d'un plan action présentées dans l'intervention comme :

Établir un but réaliste ou SMART pour marcher c'est-à-dire un but qui est spécifique (S), mesurable (M), atteignable (A), réaliste (R) et limité dans le temps (T) ?
Identifier des raisons personnelles pour marcher régulièrement ?
Trouver une manière de suivre ou noté le progrès dans un agenda ou un journal de votre but SMART pour marcher ?
Identifier des solutions aux obstacles à marcher régulièrement comme utiliser l'échelle de perception de l'effort 'BORG' pour surmonter la crainte de faire trop d'effort ou bien de marcher malgré une météo désagréable ?
Trouver du soutien et l'encouragement des proches pour marcher régulièrement ?
(**collaboration**)

Navigation

Avez-vous essayé un ou plusieurs des suggestions pratiques d'un plan action présentées ci-dessus ?
OUI→ **R1-2A**
NON → **R1-2B**

R1-2A : OUI j'ai essayé des suggestions pratiques d'un plan action

Titre de la page

OUI j'ai essayé des suggestions pratiques d'un plan action

Vidéo

R1-2A-vid	

Contenu

Vidéo de l'infirmière	R1-2A-vid	

Bravo ! Les suggestions pratiques d'un plan d'action peuvent faciliter vos progrès d'atteindre la recommandation de marcher 150 minutes par semaine (**forces**). Ce qui compte le plus ce sont les suggestions pratiques que vous jugez efficaces dans votre situation (**choix**). C'est évident que vous faites des efforts et je vous encourage à continuer ! (**forces**) Ceci termine votre participation à TAVIE en m@rche. Ce fut un réel plaisir pour moi de vous accompagner. (**collaboration**)

Navigation

Continuer → R1-3

R1-2B : NON je n'ai pas essayé des suggestions pratiques d'un plan action

Titre de la page

NON je n'ai pas essayé des suggestions pratiques d'un plan action

Vidéo

R1-2B-vid	

Contenu

Vidéo de l'infirmière	R1-2B-vid	

Les suggestions pratiques ou les manières d'atteindre la recommandation de marcher 150 minutes par semaine peuvent être très différentes d'une personne à l'autre (**empathie**). Ce qui compte le plus ce sont les trucs et les manières que vous jugez efficaces dans votre situation (**choix**). Je vous encourage à revoir les différentes séances de TAVIE en m@rche pour selon vos besoins pour vous aider à continuer vos efforts ! Ceci termine votre participation à TAVIE en m@rche. Ce fut un réel plaisir pour moi de vous accompagner (**collaboration**).

Navigation

Continuer → R1-3

FIN

R1-3 : La fin de TAVIE en m@rche

Titre de la page

La fin de TAVIE en m@rche – Merci de votre participation !

Vidéo

R1-3-vid	

Contenu

Vidéo de l'infirmière	R1-3-vid	

C'est maintenant la fin de l'intervention. N'oubliez pas que vous pouvez revoir certaines vidéos et vous pouvez télécharger et imprimer les documents qui vous intéressent (**collaboration**). J'ai confiance en votre capacité de marcher plus et régulièrement, un pas à la fois, et de trouver des solutions lorsque vous ferez face à des défis ou des obstacles (**forces, collaboration**). Ça m'a fait plaisir de collaborer avec vous et de vous accompagner durant TAVIE en m@rche. Bonne chance ! (**collaboration**)

Appendix B: International Physical Activity Questionnaire (IPAQ)

SECTION A. Vos habitudes de vie

Pour ce premier questionnaire, vous aurez 72 questions à répondre. Ceci devrait vous prendre environ 45 minutes.
Ce questionnaire en ligne doit être rempli au cours d'une seule session. Vous ne pourrez pas y revenir plus tard pour le terminer ou modifier vos réponses.

Utilisez votre souris pour répondre aux questions et passer aux suivantes !

S'il vous plaît, veuillez noter que dans cette section, une réponse à toutes les questions est nécessaire pour pouvoir passer à la section suivante

1. Au sujet du podomètre (le Pebble), veuillez cocher la case qui décrit le mieux votre situation. Au cours des 7 derniers jours…
0 - □ J'ai porté plus souvent le podomètre (Pebble) au soulier
1 - □ J'ai porté plus souvent le podomètre (Pebble) accroché à la ceinture du pantalon ou à une poche
2 - □ J'ai porté le podomètre (Pebble) autant au soulier qu'accroché à la ceinture du pantalon ou à une poche
3 - □ Je ne sais pas où j'ai porté le podomètre (Pebble) le plus souvent.

Maintenant, nous nous intéressons aux différents types d'activités physiques que vous faites dans votre vie quotidienne. Les 6 prochaines questions portent sur le temps que vous avez passé à être actif physiquement au cours des **7 derniers jours**. Répondez à chacune de ces questions même si vous ne vous considérez pas comme une personne active. Les questions concernent les activités physiques que vous faites au travail, dans votre maison ou votre jardin, pour vos déplacements et pendant votre temps libre.

Pensez à toutes les activités **vigoureuses** que vous avez faites au cours des **7 derniers jours**. Les activités physiques **vigoureuses** sont les activités demandant un effort physique et qui entraînent une respiration plus difficile que la normale. Pensez *seulement* aux activités physiques que vous avez faites d'une durée d'au moins 10 minutes.
2. Au cours des 7 derniers jours, combien de jours avez-vous fait des activités physiques vigoureuses, tel que lever des poids lourds, creuser, pelleter, faire de l'exercice aérobique ou du vélo rapide?
- ☐ 1 jour
- ☐ 2 jours
- ☐ 3 jours
- ☐ 4 jours
- ☐ 5 jours
- ☐ 6 jours

☐ 7 jours

☐ Aucune journée. Si vous avez coché cette case, **allez à la question 4**.

3. Combien de temps passez-vous habituellement à faire des activités physiques vigoureuses lors d'une de ces journées. (Entrez 9999 si vous ne savez pas ou que vous n'êtes pas certain du temps).

Heures par jour (indiquer le nombre seulement) : Minutes par jour (indiquer le nombre seulement) :

Pensez aux activités physiques **modérées** que vous avez faites au cours des **7 derniers jours**. Les activités **modérées** sont les activités qui exigent un effort physique modéré et la respiration est légèrement plus difficile que normale. Pensez *seulement* aux activités physiques que vous avez faites d'une durée d'au moins 10 minutes.

4. Au cours des 7 derniers jours, combien de jours avez-vous fait des activités physiques modérées, telles que le transport des articles légers, le vélo à un rythme régulier ou le tennis en double? Veuillez s.v.p. ne pas inclure la marche.

☐ 1 jour

☐ 2 jours

☐ 3 jours

☐ 4 jours

☐ 5 jours

☐ 6 jours

☐ 7 jours

☐ Aucune journée. Si vous avez coché cette case, **allez à la question 6**.

5. Combien de temps passez-vous habituellement à faire des activités physiques modérées lors d'une de ces journées. (Entrez 9999 si vous ne savez pas ou que vous n'êtes pas certain du temps).

Heures par jour (indiquer le nombre seulement) : Minutes par jour (indiquer le nombre seulement) :

Pensez au temps que vous avez passé à **marcher** au cours des **7 derniers jours**. Ceci inclut la **marche** au travail et à la maison, marcher pour vous déplacer d'un endroit à l'autre et toute autre marche que vous avez faite pour vous divertir, faire de l'exercice ou dans le cadre de vos loisirs.

6. Au cours des 7 derniers jours, combien de jours avez-vous marché durant au moins 10 minutes consécutives?

☐ 1 jour

☐ 2 jours

☐ 3 jours

☐ 4 jours

☐ 5 jours

☐ 6 jours

☐ 7 jours

☐ Aucune journée. Si vous avez coché cette case, **allez à la question 8**.

7. Combien de temps passez-vous habituellement à marcher lors d'une de ces journées. (Entrez 9999 si vous ne savez pas ou que vous n'êtes pas certain du temps).

Heures par jour (indiquer le nombre seulement) : Minutes par jour (indiquer le nombre seulement) :

Appendix C: Perceived Autonomy Support From a Significant Other

SECTION C. Vos interactions au sujet de la marche à pied

Les 6 prochains énoncés concernent vos interactions avec l'une de vos personnes proches au sujet de la **marche à pied**. Une *personne proche* peut être: un membre de la famille (époux(se), parent(s), frère/sœur), un(e) bon(nne) ami(e),ou un collègue. Nous aimerions savoir **comment vous vous sentiez** lors de vos **interactions** avec **cette personne**.

Utilisez votre souris pour répondre aux questions et passer aux suivantes !

32. Je sentais que cette personne me présentait des choix et des alternatives par rapport à quand et comment faire de la marche à pied (incluant la possibilité d'être plus ou moins actif).

- ☐ Fortement en désaccord
- ☐ Assez en désaccord
- ☐ Légèrement en désaccord
- ☐ Ni en désaccord, ni en accord
- ☐ Légèrement en accord
- ☐ Assez en accord
- ☐ Fortement en accord

33. Je sentais que cette personne comprenait comment je voyais les choses concernant la marche à pied.

- ☐ Fortement en désaccord
- ☐ Assez en désaccord
- ☐ Légèrement en désaccord
- ☐ Ni en désaccord, ni en accord
- ☐ Légèrement en accord
- ☐ Assez en accord
- ☐ Fortement en accord

34. J'avais l'impression que cette personne avait confiance en moi pour faire des changements positifs par rapport à la marche à pied.

- ☐ Fortement en désaccord
- ☐ Assez en désaccord
- ☐ Légèrement en désaccord
- ☐ Ni en désaccord, ni en accord

- ☐ Légèrement en accord
- ☐ Assez en accord
- ☐ Fortement en accord

35. Cette personne prenait en considération la façon que j'aimerais faire les choses par rapport à la marche à pied.

- ☐ Fortement en désaccord
- ☐ Assez en désaccord
- ☐ Légèrement en désaccord
- ☐ Ni en désaccord, ni en accord
- ☐ Légèrement en accord
- ☐ (Assez en accord
- ☐ Fortement en accord

36. Cette personne m'encourageait à poser des questions par rapport à la marche à pied.

- ☐ Fortement en désaccord
- ☐ Assez en désaccord
- ☐ Légèrement en désaccord
- ☐ Ni en désaccord, ni en accord
- ☐ Légèrement en accord
- ☐ Assez en accord
- ☐ Fortement en accord

37. Cette personne essayait de comprendre ma façon de faire la marche à pied avant de proposer une nouvelle façon de faire les choses.

- ☐ Fortement en désaccord
- ☐ Assez en désaccord
- ☐ Légèrement en désaccord
- ☐ Ni en désaccord, ni en accord
- ☐ Légèrement en accord
- ☐ Assez en accord
- ☐ Fortement en accord

Appendix D: Perceived Autonomy Support From a Web-based intervention

Pour les 6 prochains énoncés, nous aimerions savoir comment vous avez apprécié le ou les sites Web auxquels vous avez eu accès à travers le site Web du projet de recherche.

À chaque énoncé, veuillez cocher la case qui correspond le mieux à votre opinion.

« Selon moi, le ou les **site(s) Web auxquels j'ai eu accès** au cours du projet de recherche…
38. … présentaient des choix et des alternatives par rapport à quand et comment faire de la marche à pied (incluant la possibilité d'être plus ou moins actif) ».

- ☐ Fortement en désaccord
- ☐ Assez en désaccord
- ☐ Légèrement en désaccord
- ☐ Ni en désaccord, ni en accord
- ☐ Légèrement en accord
- ☐ Assez en accord
- ☐ Fortement en accord

39. …exposaient des points de vue qui correspondaient à ma façon de voir les choses concernant la marche à pied ».

- ☐ Fortement en désaccord
- ☐ Assez en désaccord
- ☐ Légèrement en désaccord
- ☐ Ni en désaccord, ni en accord
- ☐ Légèrement en accord
- ☐ Assez en accord
- ☐ Fortement en accord

40. …présentaient des informations qui soutenaient ma confiance en moi pour faire de la marche à pied ».

- ☐ Fortement en désaccord
- ☐ Assez en désaccord
- ☐ Légèrement en désaccord
- ☐ Ni en désaccord, ni en accord
- ☐ Légèrement en accord
- ☐ Assez en accord

- ☐ Fortement en accord

41. …proposaient des moyens qui correspondaient à la façon que j'aimerais faire de la marche à pied ».

- ☐ Fortement en désaccord
- ☐ Assez en désaccord
- ☐ Légèrement en désaccord
- ☐ Ni en désaccord, ni en accord
- ☐ Légèrement en accord
- ☐ Assez en accord
- ☐ Fortement en accord

42. …m'encourageaient à chercher d'autres informations par rapport à la marche à pied ».

- ☐ Fortement en désaccord
- ☐ Assez en désaccord
- ☐ Légèrement en désaccord
- ☐ Ni en désaccord, ni en accord
- ☐ Légèrement en accord
- ☐ Assez en accord
- ☐ Fortement en accord

43. …incluaient des suggestions adaptées à mon point de vue par rapport à la marche à pied ».

- ☐ Fortement en désaccord
- ☐ Assez en désaccord
- ☐ Légèrement en désaccord
- ☐ Ni en désaccord, ni en accord
- ☐ Légèrement en accord
- ☐ Assez en accord
- ☐ Fortement en accord

Appendix E: Treatment Self-Regulation Questionnaire (TSRQ)

SECTION B. Vos opinions concernant la marche à pied

Pour la prochaine question, nous aimerions savoir à quelle mesure chacun des 12 énoncés suivants correspond présentement à l'une des **raisons** pour lesquelles **vous voudriez atteindre la recommandation de marcher 150 minutes par semaine**.

À chaque énoncé, veuillez cocher la case en dessous des nombres (entre 1 à 7) qui correspond le mieux à vos opinions.
1 = Ne correspond pas du tout
4 = Correspond modérément
7 = Correspond exactement

Utilisez votre souris pour répondre aux questions et passer aux suivantes !

S'il vous plaît, veuillez noter que dans cette section, une réponse à toutes les questions est nécessaire pour pouvoir passer à la section suivante.

POURQUOI voudriez-vous **atteindre la recommandation de marcher 150 minutes** par semaine **au cours des 4 prochaines semaines**?

13. Parce que je veux prendre la responsabilité pour ma santé.

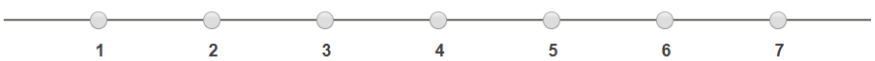
14. Parce que je me sentirais coupable si je ne le faisais pas.

15. Parce que je crois personnellement que c'est la meilleure chose pour ma santé.

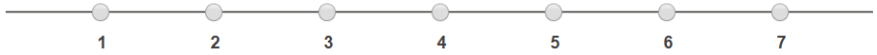
16. Parce que mes proches seraient mécontents si je ne le faisais pas.

17. Parce que j'y ai beaucoup pensé et je crois que c'est important pour plusieurs aspects de ma vie.

18. Parce que je me sentirais mal si je ne l'atteignais pas.



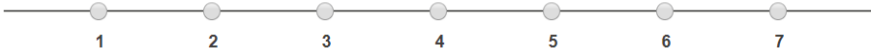
19. Parce que c'est un choix important que je veux vraiment faire.



20. Parce que je ressens de la pression de mes proches pour le faire.

21. Parce que c'est en accord avec mes objectifs de vie.

22. Parce que je veux que les autres m'acceptent.



23. Parce que c'est très important pour être en meilleure santé.

24. Parce que je veux que les autres voient que je suis capable de le faire.

Appendix F: Perceived Competence Scale

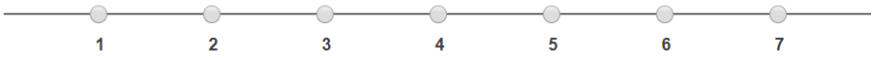
Pour la prochaine question, nous aimerions savoir à quelle mesure chacun des 4 énoncés suivants correspond présentement à votre **confiance à atteindre la recommandation de marcher 150 minutes** par semaine, **en supposant que vous voulez atteindre cette recommandation**.

À chaque énoncé, veuillez cocher la case en dessous des nombres (entre 1 à 7) qui correspond le mieux à vos opinions.
1 = Absolument pas vrai
4 = Assez vrai
7 = Très vrai

« Pour **atteindre la recommandation de marcher 150 minutes** par semaine **au cours des 4 prochaines semaines**…
25. …j'ai confiance en mes capacités ».

26. …en ce moment, je me sens capable ».

27. …je serai capable de continuer ».



28. …je serai capable de relever le défi ».

Appendix G: Barrier Self-Efficacy Scale

La prochaine question présente des raisons ou situations que les gens mentionnent pour ne pas atteindre la recommandation de marcher 150 minutes par semaine et/ou pour abandonner leur programme de marche. **Si chacune des 8 prochaines situations suivantes** survenait **au cours des 4 prochaines semaines**, quelle serait votre **niveau de votre confiance** pour atteindre la **recommandation de marcher 150 minutes** par semaine.

À chaque énoncé, veuillez inscrire le pourcentage % (entre 0 à 100) qui correspond le mieux à vos opinions.
0 = Pas du tout confiant(e)
50 = Moyennement confiant(e)
100 = Très confiant(e)

Seuls les chiffres « ronds » sont acceptés (pas de décimales, pas de pourcentage).

Vous vous **sentiriez confiant(te)** à … % de marcher 150 minutes, **au cours des 4 prochaines semaines**, **si**…

29. …vous craignez d'avoir un malaise cardiaque.

% (0 à 100) :

30. …vous avez mal au dos.

% (0 à 100) :

31. …vous souffrez des effets secondaires reliés à vos médicaments (prescriptions).

% (0 à 100) :

32. …la température est mauvaise (chaud, humide, pluvieux, froid).

% (0 à 100) :

33. …vous avez trop de choses à faire/Votre horaire est en conflit avec le temps que vous voudriez consacrer à marcher.

% (0 à 100) :

34. …vous n'avez pas le temps.

% (0 à 100) :

35. …vous avez des problèmes de santé/Vous ne vous sentez pas bien (p. ex. avoir des maux de tête ou être enrhumé).

% (0 à 100) :

36. …les coûts associés à la marche à pied sont trop élevés.

% (0 à 100) :

Appendix H: MacNew Heart Disease Health-Related Quality of Life

SECTION C. Votre qualité de vie

Les 27 prochaines questions sont au sujet de votre qualité de vie ou bien être **durant les 2 dernières semaines**.

Utilisez votre souris pour répondre aux questions et passer aux suivantes !

À chaque question, veuillez cocher la case qui correspond le mieux à votre situation.

37. En règle générale, pendant les 2 dernières semaines, combien de fois vous êtes- vous senti frustré[e], impatient[e] ou en colère?

- ☐ Tout le temps
- ☐ Très souvent
- ☐ Souvent
- ☐ Parfois
- ☐ Rarement
- ☐ Pratiquement jamais
- ☐ Jamais

38. Durant les 2 dernières semaines, combien de fois vous êtes-vous senti[e] sans valeur ou inadéquat[e]?

- ☐ Tout le temps
- ☐ Très souvent
- ☐ Souvent
- ☐ Parfois
- ☐ Rarement
- ☐ Pratiquement jamais
- ☐ Jamais

39. Durant les 2 dernières semaines, combien de fois vous êtes-vous senti[e] très sûr[e] de vous et certain[e] d'être capable d'assumer votre problème cardiaque?

- ☐ Jamais
- ☐ Pratiquement jamais
- ☐ Rarement
- ☐ Parfois
- ☐ Souvent
- ☐ Très souvent
- ☐ Tout le temps

40. En règle générale, durant les 2 dernières semaines, combien de fois vous êtes-vous senti[e] découragé[e] ou démoralisé[e]?

- ☐ Tout le temps

- ☐ Très souvent
- ☐ Souvent
- ☐ Parfois
- ☐ Rarement
- ☐ Pratiquement jamais
- ☐ Jamais

41. Durant les 2 dernières semaines, combien de fois vous êtes-vous senti[e] détendu[e]?

- ☐ Jamais
- ☐ Pratiquement jamais
- ☐ Rarement
- ☐ Parfois
- ☐ Souvent
- ☐ Très souvent
- ☐ Tout le temps

42. Durant les 2 dernières semaines, combien de fois vous êtes-vous senti[e] à bout de force ou "épuisé[e]"?

- ☐ Tout le temps
- ☐ Très souvent
- ☐ Souvent
- ☐ Parfois
- ☐ Rarement
- ☐ Pratiquement jamais
- ☐ Jamais

43. Dans quelle mesure avez-vous été heureux[se], satisfait[e] ou content[e] de votre vie durant ces 2 dernières semaines?

- ☐ Très insatisfait[e], malheureux[se] la plupart du temps
- ☐ Généralement insatisfait[e], malheureux[se]
- ☐ En partie insatisfait[e], malheureux[se]
- ☐ Généralement satisfait[e], content[e]
- ☐ Heureux[se] la plupart du temps
- ☐ Très heureux[se] la plupart du temps
- ☐ Extrêmement heureux[se], vous ne pourriez être plus satisfait[e] ou plus content[e]

44. En général, durant les 2 dernières semaines, combien de fois vous êtes- vous senti[e] agité[e], ou avez-vous éprouvé des difficultés à vous calmer?

- ☐ Tout le temps
- ☐ Très souvent
- ☐ Souvent
- ☐ Parfois
- ☐ Rarement
- ☐ Pratiquement jamais
- ☐ Jamais

45. Durant les 2 dernières semaines, dans quelle mesure avez-vous souffert de manque de souffle pendant vos activités quotidiennes?

- ☐ Manque de souffle extrême
- ☐ Manque de souffle très prononcé
- ☐ Manque de souffle assez modéré
- ☐ Manque de souffle modéré
- ☐ Peu de manque de souffle
- ☐ Très peu de manque de souffle
- ☐ Pas de manque de souffle

46. Durant les 2 dernières semaines, combien de fois vous êtes-vous senti[e] au bord des larmes?

- ☐ Tout le temps
- ☐ Très souvent
- ☐ Souvent
- ☐ Parfois
- ☐ Rarement
- ☐ Pratiquement jamais
- ☐ Jamais

47. Durant les 2 dernières semaines, comparé à votre situation avant votre hospitalisation pour votre problème cardiaque, combien de fois vous êtes-vous senti[e] plus dépendant[e] d'autrui?

- ☐ Tout le temps
- ☐ Très souvent
- ☐ Souvent
- ☐ Parfois
- ☐ Rarement
- ☐ Pratiquement jamais
- ☐ Jamais

48. Durant les 2 dernières semaines, combien de fois vous êtes-vous senti[e] incapable de mener votre vie sociale ou familiale?

- ☐ Tout le temps
- ☐ Très souvent
- ☐ Souvent
- ☐ Parfois
- ☐ Rarement
- ☐ Pratiquement jamais
- ☐ Jamais

49. Durant les 2 dernières semaines, comparé à votre situation avant votre hospitalisation pour votre problème cardiaque, combien de fois avez-vous ressenti un manque de confiance de la part d'autrui?

- ☐ Tout le temps

- ☐ Très souvent
- ☐ Souvent
- ☐ Parfois
- ☐ Rarement
- ☐ Pratiquement jamais
- ☐ Jamais

50. Durant les 2 dernières semaines, combien de fois avez-vous ressenti des douleurs à la poitrine durant vos activités quotidiennes?

- ☐ Tout le temps
- ☐ Très souvent
- ☐ Souvent
- ☐ Parfois
- ☐ Rarement
- ☐ Pratiquement jamais
- ☐ Jamais

51. Durant les 2 dernières semaines, combien de fois avez-vous ressenti une incertitude ou un manque de confiance en vous?

- ☐ Tout le temps
- ☐ Très souvent
- ☐ Souvent
- ☐ Parfois
- ☐ Rarement
- ☐ Pratiquement jamais
- ☐ Jamais

52. Durant les 2 dernières semaines, combien de fois avez-vous été gêné[e] par des jambes fatiguées ou douloureuses?

- ☐ Tout le temps
- ☐ Très souvent
- ☐ Souvent
- ☐ Parfois
- ☐ Rarement
- ☐ Pratiquement jamais
- ☐ Jamais

53. Durant les 2 dernières semaines, dans quelle mesure avez-vous été limité[e] dans vos activités sportives ou activités physiques?

- ☐ Extrêmement limité
- ☐ Très limité
- ☐ Limité de manière importante
- ☐ Modérément limité
- ☐ Peu limité
- ☐ Très peu limité

- ☐ Aucune limitation

54. Durant ces 2 dernières semaines, pendant combien de temps avez-vous ressenti de l'appréhension ou de l'anxiété?

- ☐ Tout le temps
- ☐ Très souvent
- ☐ Souvent
- ☐ Parfois
- ☐ Rarement
- ☐ Pratiquement jamais
- ☐ Jamais

55. Durant les 2 dernières semaines, combien de fois avez-vous eu un malaise ou des vertiges?

- ☐ Tout le temps
- ☐ Très souvent
- ☐ Souvent
- ☐ Parfois
- ☐ Rarement
- ☐ Pratiquement jamais
- ☐ Jamais

56. En général, durant les 2 dernières semaines, dans quelle mesure étiez-vous limité[e] par votre problème cardiaque?

- ☐ Extrêmement limité
- ☐ Très limité
- ☐ Limité de manière importante
- ☐ Modérément limité
- ☐ Peu limité
- ☐ Très peu limité
- ☐ Aucune limitation

57. Durant les 2 dernières semaines, combien de fois avez-vous été incertain[e] quant au degré d'exercice physique ou d'activité physique que vous devriez faire?

- ☐ Tout le temps
- ☐ Très souvent
- ☐ Souvent
- ☐ Parfois
- ☐ Rarement
- ☐ Pratiquement jamais
- ☐ Jamais

58. Durant les 2 dernières semaines, combien de fois avez-vous eu l'impression que votre famille avait une attitude hyper-protectrice envers vous?

- ☐ Tout le temps
- ☐ Très souvent

- ☐ Souvent
- ☐ Parfois
- ☐ Rarement
- ☐ Pratiquement jamais
- ☐ Jamais

59. Durant les 2 dernières semaines, combien de fois vous êtes-vous senti[e] comme si vous étiez une charge pour les autres?

- ☐ Tout le temps
- ☐ Très souvent
- ☐ Souvent
- ☐ Parfois
- ☐ Rarement
- ☐ Pratiquement jamais
- ☐ Jamais

60. Durant les 2 dernières semaines, dans quelle mesure vous êtes-vous senti[e] exclu[e] d'une activité par les autres en raison de votre problème cardiaque?

- ☐ Tout le temps
- ☐ Très souvent
- ☐ Souvent
- ☐ Parfois
- ☐ Rarement
- ☐ Pratiquement jamais
- ☐ Jamais

61. Durant les 2 dernières semaines, dans quelle mesure vous êtes-vous senti[e] incapable de mener une vie sociale en raison de votre problème cardiaque?

- ☐ Tout le temps
- ☐ Très souvent
- ☐ Souvent
- ☐ Parfois
- ☐ Rarement
- ☐ Pratiquement jamais
- ☐ Jamais

62. En général, durant les 2 dernières semaines, dans quelle mesure étiez-vous physiquement limité[e] dans vos activités par votre problème cardiaque?

- ☐ Extrêmement limité
- ☐ Très limité
- ☐ Limité de manière importante
- ☐ Modérément limité
- ☐ Peu limité
- ☐ Très peu limité
- ☐ Aucune limitation

63. Durant les 2 dernières semaines, combien de fois pensez-vous que votre problème cardiaque a interféré ou a limité votre activité sexuelle?

- ☐ Tout le temps
- ☐ Très souvent
- ☐ Souvent
- ☐ Parfois
- ☐ Rarement
- ☐ Pratiquement jamais
- ☐ Jamais
- ☐ Pas applicable

Appendix I: Seven-Day Point Prevalence Smoking Status

Pour la prochaine question, nous aimerions connaître votre **statut tabagique**. Veuillez cocher la case qui correspond le mieux à votre situation.

8. Avez-vous fumé une cigarette, ne serait-ce qu'une bouffée, au cours des 7 derniers jours?

- ☐ Oui
- ☐ Non
- ☐ Je n'ai jamais fumé

Appendix J: Self-Reported Medication-Taking Scale (MMAS-4)

Pour les 4 prochaines questions, nous aimerions savoir à **quelle régularité vous avez pris vos médicaments pour le cœur** au cours des **2 dernières semaines**. Il n'y a pas de bonnes ou de mauvaises réponses. Il s'agit uniquement de connaître vos habitudes personnelles. À chaque question, veuillez cocher la case qui correspond le mieux à votre situation.

9. Est-ce qu'il vous arrive d'oublier de prendre vos médicaments ?

☐ Non

☐ Oui

10. Est-ce que vous êtes parfois insouciant ou négligent pour prendre vos médicaments ?

☐ Non

☐ Oui

11. Quand vous vous sentez mieux, vous arrive-t-il d'arrêter de prendre vos médicaments ?

☐ Non

☐ Oui

12. S'il vous arrive de vous sentir mal suite à la prise de vos médicaments, vous arrive-t-il d'arrêter de les prendre ?

☐ Non

☐ Oui

Appendix K: Secondary Prevention Program Attendance

Pour les 2 prochaines questions, nous aimerions connaître votre utilisation des services d'un **centre de prévention secondaire / réadaptation cardiaque**.

13. Depuis votre congé de l'hôpital, avez-vous visité un centre de prévention secondaire / réadaptation cardiaque offrant le suivi d'un médecin, d'une infirmière et / ou d'autres professionnels de la santé par rapport à votre condition de santé, votre diète, la cessation tabagique et la pratique d'exercice physique ? Veuillez <u>cocher la case qui correspond le mieux à votre situation</u>.

☐ Non. Si vous avez coché « Non », **cliquez sur « continuer » en bas de la page**

☐ Oui. Si vous avez coché « Oui », **allez à la question 14**

14. Quel est le nom et quelles sont les coordonnées du programme de prévention secondaire?

Nom : Téléphone : Adresse :

Appendix L: Seattle Angina Questionnaire, Angina Frequency

SECTION D. Vos symptômes physiques

Les 2 prochaines questions sont au sujet des **symptômes d'angine de poitrine**.

Utilisez votre souris pour répondre aux questions et passer aux suivantes !

À chaque question, veuillez cocher la case qui correspond le mieux à votre situation.

64. Au cours des 2 dernières semaines, combien de fois en moyenne avez-vous ressenti des douleurs ou une sensation d'oppression dans la poitrine ou avez-vous eu des crises d'angine de poitrine?

« J'ai ressenti des douleurs ou une sensation d'oppression dans la poitrine ou j'ai eu des crises d'angine de poitrine…

- ☐ (1) …au moins 4 fois par jour ».
- ☐ (2) …1 à 3 fois par jour ».
- ☐ (3) …au moins 3 fois par semaine mais pas tous les jours ».
- ☐ (4) …1 à 2 fois par semaine ».
- ☐ (5) …moins d'une fois par semaine ».
- ☐ (6) …aucune fois au cours des 2 dernières semaines ».

Si vous avez coché les cases 1, 2, 3 ou 4, soit vous rapportez avoir des **douleurs d'angine au moins 1 à 2 fois par semaine**, nous vous conseillons de contacter le 911 dès que possible ou de vous présenter directement à l'urgence de votre l'hôpital.

Si vous avez coché la case 5, soit vous rapportez avoir des **douleurs d'angine moins d'une fois par semaine**, nous vous conseillons de contacter Info-Santé 811 ou votre médecin traitant ou une autre ressource que votre hôpital vous aura fournie.

65. Au cours des 2 dernières semaines, combien de fois en moyenne avez-vous dû prendre de la nitroglycérine(nitroglycérine en comprimés ou en aérosol) pour calmer vos douleurs ou la sensation d'oppression dans la poitrine ou vos crises d'angine de poitrine?

« J'ai pris de la nitroglycérine…

- ☐ (1) …au moins 4 fois par jour ».
- ☐ (2) …1 à 3 fois par jour ».
- ☐ (3) …au moins 3 fois par semaine mais pas tous les jours ».
- ☐ (4) …1 à 2 fois par semaine ».
- ☐ (5) …moins d'une fois par semaine ».
- ☐ (6) …aucune fois au cours des 2 dernières semaines ».

Si vous avez coché les cases 1, 2, 3 ou 4, soit vous rapportez avoir pris de la **nitroglycérine au moins 1 à 2 fois par semaine**, nous vous conseillons de contacter le 911 dès que possible ou de vous présenter directement à l'urgence de votre l'hôpital.

Si vous avez coché la case 5, soit vous rapportez avoir avoir pris de la **nitroglycérine moins d'une fois par semaine**, nous vous conseillons de contacter Info-Santé 811 ou votre médecin traitant ou une autre ressource que votre hôpital vous aura fournie.

Appendix M: Socio-Demographic Questionnaire

➢ Date : __ __ / __ __ / __ __ ➢ Heure de début : __ __ : __ __
AA MM JJ

Questionnaire socio-démographique (données provenant du patient)

1	Ville de résidence : 1 - ❑ sur l'île de Montréal 2 - ❑ autre (spécifier) : _____
2	Niveau de scolarité : 1 - ❑ Primaire 2 - ❑ Secondaire 3 - ❑ CÉGEP / collège / université 4 - ❑ Autre : _____
3	Occupation : 1 - ❑ Travailleur actif 2 - ❑ Retraité /à la maison 3 - ❑ Invalidé prolongé 4 - ❑ Au chômage 5 - ❑ Autre : _____
4	État civil : 1 - ❑ Marié(e) ou conjoint(e) de fait 2 - ❑ Célibataire 3 - ❑ Séparé(e) / divorcé(e) 4 - ❑ Veuf / veuve
5	Habitez-vous avec quelqu'un? 0 - ❑ Non 1 - ❑ Oui **Si oui**, avec qui habitez-vous ? 1 - ❑ Conjoint(e) 2 - ❑ Enfant(s) < 18 ans ➔ Nombre: _____ 3 - ❑ Enfant(s) ≥ 18 ans ➔ Nombre: _____ 4 - ❑ Autre membre de la famille 5 - ❑ Ami(e) ou colocataire
6	Avez-vous un médecin de famille ? 0 - ❑ Non 1 - ❑ Oui
7	Utilisez-vous d'autres services de santé / ressources communautaires ? 0- ❑ Non 1- ❑ Oui (CLSC, groupes, etc…)
8	Est-ce votre première hospitalisation pour un problème cardiaque ? 0 - ❑ Non 1 - ❑ Oui
9	Est-ce qu'un membre de votre proche famille (père, mère, frère ou sœur naturels) a déjà souffert de maladies cardiovasculaires (angine, infarctus, pontage, paralysie) avant d'avoir 60 ans ? 0 - ❑ Non 1 - ❑ Oui

Appendix N: Clinical Data from Patients' Medical Charts

No dossier: _____

	Date de naissance : __ __ / __ __ / __ __ AA MM JJ
	Sexe : 1 - ❑ Femme 2 - ❑ Homme

Date d'entrée à l'urgence : _____ **Heure :** _____

Date d'entrée à l'unité coro. :_____ **Heure :** _____

Date du congé de l'unité coro. : _____ **Heure :** _____

Destination : □ Domicile
□ Autre

ANTÉCÉDENTS

□ Aucun antécédent cardiaque
□ Insuffisance cardiaque
□ Antécédents vasculaires:

Le dernier épisode

□ Chirugie cardiaque
- □ pontage date : _____
- □ valve date : _____
- □ autre date : _____

□ Infarctus du myocarde date : _____

□ Angioplastie date : _____
- □ sans stent date : _____
- □ avec stent date : _____

□ Angine instable date : _____

□ Pacemaker / défibrillateur date : _____

□ Accident vasculaire-cérébral – ischémie cérébrale transitoire date : _____
□ Hypertension artérielle date : _____

□ Maladie artérielle périphérique date : _____
Symptomatique □ Oui □ Non
Specifier:_____

□ Autres, préciser : _____
date :_____

□ Autres Antécédents
□ Insuffisance rénale chronique
□ Maladies pulmonaires chroniques (MPOC, asthme, hypertension pulmonaire chronique)
Specifier: _____
□ Hypothyroïdie
□ Troubles hématologiques (anémie, leucopénie, thrombocytopénie)
Specifier: _____
□Désordres psychologiques (anxiété, dépression)
Specifier: _____
□ Cancer
□ Tabac
□ Autres : _____

DIAGNOSTIC

Mode de présentation : □ SCA avec sus-décalage ST
□ SCA sans sus-décalage ST
□ Autre : _____

Diagnostic médical final : □ Infarctus avec onde Q
□ Infarctus sans onde Q
□ Angine instable (angine de novo, angor, MCAS, angine accélérée, angine crescendo, angine à l'effort, angine post infarctus)

Territoire (pour IM) : □ Infarctus inférieur
□ Infarctus antérieur
□ Infarctus inféro-postérieur
□ Infarctus latéral
□ Autre

Classe Killip à l'arrivée (pour IM) : _____

FEVG : _____ % date : _____
Technique : □ Angio □ Écho □ Ventriculo

CLASSE D'ANGINE DE LA SOCIÉTÉ CANADIENNE DE CARDIOLOGIE :
_____

DERNIÈRES VALEURS AU DOSSIER PRÉCONGÉ DES ANALYSES DE LABORATOIRE

Créatinine : _____ µmol/L date :_____ heure : ____ : ____
Troponine :_____ µg/L date : _____ heure : ____ : ____
Glycémie : _____ mmol/L date :_____ heure : ____ : ____

Bilan lipidique (dernières valeurs au dossier):

CHOL Total : _____ mmol / L date : _____
HDL : _____ mmol / L date : _____
LDL : _____ mmol / L date : _____
Triglycérides : _____ mmol / L date : _____

FACTEURS DES RISQUE IDENTIFIÉS À L'HISTOIRE MÉDICALE AU DOSSIER :

□ Dyslipidémie
□ Obésité (BMI ≥ 30)
□ Alcool
Specifier:_____

□ Fume actuellement, tous les jours
□ Drogues illicites
Specifier:_____

□ Diabète
□ Hypertension traitée
□ Référé à un programme de prévention secondaire

INTERVENTIONS DURANT L'HOSPITALISATION

□ Coronarographie (bilan) site* : _____ date :_____
Nombre de vaisseaux obstrués : _____

AUTRES ÉVÉNEMENTS CLINIQUES SURVENUS PENDANT L'HOSPITALISATION

NEUROLOGIQUES □ AVC – ICT □ Délirium □ Confusion □ Migraine □ Syncope	**CARDIOVASCULAIRES** □ Angine post-infarctus □ Infarctus per-dilatation □ Dissection d'une artère □ Hypertension □ Hypotension □ Épanchement péricardique □ Tamponnade □ Thrombose veineuse / artérielle □ Arythmies (FA, Flutter, FAP) □ Autres arythmies (TSV, ESV, salves ESV, TV, FV, bradycardie ou tachycardie sinusale, bloc AV) □ Arrêt cardiorespiratoire □ Insuffisance cardiaque □ Péricardite □ Rupture septale - CIV
PULMONAIRES □ Épanchement pleural □ Pneumothorax □ OAP □ Embolie pulmonaire	**NÉPHROLOGIQUES** □ Insuffisance rénale aiguë □ Insuffisance rénale chronique
HÉMATOLOGIQUES □ Anémie □ Leucocytose □ Thrombocytopénie □ Hémorragie digestive □ Hématome □ Hématurie □ Hématochésie □ Hémorragie autre □ Rectorragie □ Hémoptysie □ Épistaxis	**MICROBIOLOGIQUES** □ Infection au site d'insertion d'un cathéter □ Clostridium difficile □ MRSA □ Infection urinaire □ Pneumonie □ Septicémie □ Infection à champignons □ IVRS
MUSCULOSQUELETTIQUES □ Chute □ Rhabdomyolyse	**ENDOCRINOLOGIQUES** □ Diabète de novo □ Hyperglycémie ou hypoglycémie

SYSTÉMIQUES □ Réaction allergique □ Choc anaphylaxique □ Choc hémorragique □ Choc septique □ Choc cardiogénique	**HÉPATIQUES** □ Insuffisance hépatique **AUTRES** _____ _____

MÉDICATION AU CONGÉ

[la prescription au départ]

Nom médic.	*Posologie*	*mode d'adm*	*Fréquence.*	*Date début*	*Date d'arrêt*

Prescription d'activité physique (copie dossier) :

0 - ❑ Non

1 - ❑ Oui

Médecin traitant :_____

Appendix O: Patient Health Questionnaire (PHQ-9)

QUESTIONNAIRE SUR LA SANTÉ DU PATIENT-9 (PHQ-9)

Au cours des deux dernières semaines, à quelle fréquence avez-vous été dérangé(e) par les problèmes suivants? *(Utilisez un « ✓ » pour indiquer votre réponse)*	**Jamais**	**Plusieurs jours**	**Plus de sept jours**	**Presque tous les jours**
1. Peu d'intérêt ou de plaisir à faire des choses	0	1	2	3
2. Se sentir triste, déprimé(e) ou désespéré(e)	0	1	2	3
3. Difficultés à s'endormir ou à rester endormi(e), ou trop dormir	0	1	2	3
4. Se sentir fatigué(e) ou avoir peu d'énergie	0	1	2	3
5. Peu d'appétit ou trop manger	0	1	2	3
6. Mauvaise perception de vous-même — ou vous pensez que vous êtes un perdant ou que vous n'avez pas satisfait vos propres attentes ou celles de votre famille	0	1	2	3
7. Difficultés à se concentrer sur des choses telles que lire le journal ou regarder la télévision	0	1	2	3
8. Vous bougez ou parlez si lentement que les autres personnes ont pu le remarquer. Ou au contraire — vous êtes si agité(e) que vous bougez beaucoup plus que d'habitude	0	1	2	3
9. Vous avez pensé que vous seriez mieux mort(e) ou pensé à vous blesser d'une façon ou d'une autre	0	1	2	3

FOR OFFICE CODING 0 + _____ + _____ + _____

=Total Score: _____

Si vous avez coché au moins un des problèmes nommés dans ce questionnaire, répondez à la question suivante : dans quelle mesure ce(s) problème(s) a-t-il (ont-ils) rendu difficile(s) votre travail, vos tâches à la maison ou votre capacité à bien vous entendre avec les autres?

Pas du tout difficile(s)	Plutôt difficile(s)	Très difficile(s)	Extrêmement difficile(s)
☐	☐	☐	☐

Mis au point par les Dr Robert L. Spitzer, Janet B. Williams et Kurt Kroenke et collègues, et une bourse d'étude de Pfizer Inc. Aucune permission requise pour reproduire, traduire, afficher or distribuer.

PROCEDURE WHEN PATIENTS REPORT PSYCHOLOGICAL DISTRESS BASED ON PHQ-9 RESULTS

Concerning potential psychological problems, we consulted Dr. Lamoureux, chief of the medical psychosomatic department of the ICM, about how to proceed when abnormal scores on the PHQ-9 depression scale are found or if the patient becomes distressed after completing this questionnaire during hospitalization (-T2). Symptoms of depression are assessed by 9 items of the PHQ-9 in which the score ranges between 0 and 27: 5 = mild, 10 = moderate, 15 = severe. A score of 10 or greater is considered abnormal. Thoughts of self-harm is assessed by only item 9 scored between “jamais” (0), and “presque tous les jours” (3). An abnormal score is indicated at any score of greater than “jamais” (0). In the instance of identifying abnormal scores, or noting patient distress that is caused by completing this questionnaire, the student, John Kayser, will ask the patient to inform the nurse or treating physician.

Appendix P: Short form PROMIS fatigue scale

Les 7 prochaines questions sont au sujet des **symptômes de la fatigue**.
À chaque question, veuillez cocher la case qui correspond le mieux à votre situation.

Au **cours des 7 derniers jours…**

66. …à quelle fréquence vous êtes-vous senti(e) fatigué(e)?

- ☐ Jamais
- ☐ Rarement
- ☐ Parfois
- ☐ Souvent
- ☐ Tout le temps

67. …à quelle fréquence avez-vous ressenti un épuisement extrême?

- ☐ Jamais
- ☐ Rarement
- ☐ Parfois
- ☐ Souvent
- ☐ Tout le temps

68. …à quelle fréquence vous êtes-vous senti(e) vidé(e)?

- ☐ Jamais
- ☐ Rarement
- ☐ Parfois
- ☐ Souvent
- ☐ Tout le temps

69. …à quelle fréquence votre épuisement vous a-t-il limité(e) dans votre travail (y compris le travail à la maison ou les tâches ménagères)?

- ☐ Jamais
- ☐ Rarement
- ☐ Parfois
- ☐ Souvent
- ☐ Tout le temps

70. …à quelle fréquence étiez-vous trop fatigué(e) pour penser clairement?

- ☐ Jamais

- ☐ Rarement
- ☐ Parfois
- ☐ Souvent
- ☐ Tout le temps

71. …à quelle fréquence étiez-vous trop fatigué(e) pour prendre un bain ou une douche?

- ☐ Jamais
- ☐ Rarement
- ☐ Parfois
- ☐ Souvent
- ☐ Tout le temps

72. …à quelle fréquence avez-vous eu suffisamment d'énergie pour faire de l'exercice?

- ☐ Jamais
- ☐ Rarement
- ☐ Parfois
- ☐ Souvent
- ☐ Tout le temps

Appendix Q: Consent Form

INSTITUT DE CARDIOLOGIE DE MONTRÉAL

Université de Montréal

* I C M 3 1 4 *

APPROUVÉ / APPROVED
Comité d'éthique ICM
MHI – Research Ethics Board
Date : 15 octobre 2015

FORMULAIRE D'INFORMATION ET DE CONSENTEMENT

PROJET DE RECHERCHE : ICM # MP-33-2015-1887

Évaluation d'une intervention infirmière personnalisée (TAVIEenM@RCHE) via le Web favorisant la marche à pied après un événement cardiaque : Une étude randomisée multicentrique

Investigateur principal et collaborateurs

Investigateur principal, Sylvie Cossette, inf., Ph.D.,
collaborateurs John Kayser, inf. M.Sc (A), José Côté, inf., Ph.D.,
Anne Bourbonnais, inf., Ph.D. Margaret Purden, inf., Ph.D., Dr Martin Juneau, M.D.,
Dr Jean-François Tanguay, M.D., Marie-Josée Simard, inf. M.Sc. et
Dr Jocelyn Dupuis, M.D.

Commanditaires ou organismes subventionnaires

Fonds de recherche du Québec – Santé (FRQ-S), le Réseau de recherche en interventions en sciences infirmières du Québec (RRISIQ), la Fondation des infirmières et infirmiers du Canada, le Programme MELS – Universités, la Chaire de recherche sur les nouvelles pratiques, la Fondation de l'Institut de Cardiologie de Montréal et la compagnie FitLinxx

PRÉAMBULE[1]

Nous vous invitons à participer à un projet de recherche parce que vous êtes hospitalisés pour un syndrome coronarien aigu (angine instable ou infarctus du myocarde). Vous êtes entièrement libre d'accepter ou de refuser de participer.

Avant d'accepter de participer à ce projet et de signer ce formulaire de consentement, veuillez prendre le temps de lire, de comprendre et de considérer attentivement les renseignements qui suivent.

Ce formulaire peut contenir des mots que vous ne comprenez pas. Nous vous invitons à poser toutes les questions que vous jugerez utiles au chercheur responsable du projet ou aux autres membres du personnel affecté au projet de recherche et à leur demander de vous expliquer tout mot ou renseignement qui n'est pas clair.

[1] Le genre masculin, employé pour alléger le texte, désigne autant les femmes que les hommes.

5000, rue Bélanger, Montréal (Québec) H1T 1C8 | Tél. : 514-376-3330 | Téléc. : 514-376-1355

La participation simultanée à plusieurs projets de recherche peut être dangereuse pour vous. Si vous participez déjà à une étude clinique, veuillez en aviser le chercheur de l'étude.

NATURE ET OBJECTIFS DU PROJET DE RECHERCHE

Le but du projet de recherche est d'évaluer une intervention faite à votre domicile à partir de votre ordinateur par internet. L'intervention vise à soutenir la motivation des personnes à faire de la marche à pied tel que recommandé par les médecins. Suite à un évènement coronarien, la marche à pied permet de se maintenir en santé et d'avoir une meilleure qualité de vie. L'intervention qui sera évaluée dans le projet vise à encourager les participants à faire la marche à pied selon les recommandations.

Pour participer à ce projet, vous devez avoir un ordinateur auquel vous pouvez brancher une clé USB.

Toute l'intervention se fera par internet, à partir de votre domicile.

L'augmentation du niveau d'activité physique est associée à une réduction des facteurs de risque cardiaque et du risque de mortalité cardiaque, une amélioration de la qualité de vie et une réduction de l'utilisation des soins de santé. Suite à un évènement coronarien, la marche à pied permet de se maintenir en santé et d'avoir une meilleure qualité de vie. Le counseling en matière d'activité physique via le Web offre des alternatives novatrices pour augmenter le temps de pratique de la marche à pied suite à un syndrome coronarien aigu.

Le but de ce projet de recherche est d'évaluer si, une fois de retour à votre domicile, l'accès à un counseling en matière d'activité physique aidera votre motivation à faire de la marche à pied.

Si les résultats de ce projet de recherche sont favorables, ils permettront potentiellement que cette nouvelle approche par internet fasse partie des services proposés aux patients suite à un évènement coronarien.

Dans le cadre de ce projet de recherche, 148 patients hospitalisés suite à un évènement coronarien seront recrutés dans quatre centres hospitaliers au Québec dont l'Institut de Cardiologie de Montréal (ICM), l'Hôpital Sacré-Cœur de Montréal (HSC), le Centre hospitalier de l'Université de Montréal (CHUM), et l'hôpital Maisonneuve-Rosemont (HMR); 37 participants proviendront de chaque centre.

FINANCEMENT DU PROJET DE RECHERCHE

Ce projet est subventionné par le Fonds de recherche du Québec – Santé (FRQ-S), le Réseau de recherche en interventions en sciences infirmières du Québec (RRISIQ), la Fondation des infirmières et infirmiers du Canada, le Programme MELS – Universités, la Chaire de recherche sur les nouvelles pratiques, la Fondation de l'Institut de Cardiologie de Montréal et la compagnie FitLinxx, le manufacturier du podomètre « Pebble ».

DÉROULEMENT DU PROJET DE RECHERCHE

Si vous acceptez de participer au présent projet de recherche, vous serez assigné à un des deux groupes suivants. C'est le hasard qui détermine dans quel groupe se fera votre participation et vous avez autant de chance d'être dans un groupe que dans l'autre.

1) Groupe A = les participants auront accès au site Web A, un site réservé au projet de recherche, qui contient de l'information et des conseils concernant l'activité physique et la marche

2) Groupe B = les participants auront accès au site Web B, un site qui vous redirigera vers d'autres sites Web publics à partir d'hyperliens, ce qui vous permettra d'accéder à de l'information et des conseils concernant l'activité physique et la marche

Au cours de cette étude, nous vous remettrons un podomètre que vous devrez porter à trois (3) reprises pendant sept (7) jours. Les données du podomètre seront téléchargées automatiquement sur une plateforme Web selon les instructions qui vous seront envoyées par courriel.

La durée de votre participation à ce projet de recherche est de quatre (4) mois. Votre participation implique de :

- visiter les sites Web du groupe auquel vous serez assigné;
- fournir les informations qui vous seront demandées;
- remplir des questionnaires;
- porter un podomètre, un petit instrument qui calcule le nombre de pas pendant que vous marchez.

Vous devrez porter le podomètre à trois reprises pendant l'étude, pour une durée de 7 jours à chaque fois.

Vous devrez nous fournir un numéro de téléphone ou une adresse courriel afin de pouvoir communiquer avec vous durant l'étude. Cependant, nous vous demanderons si vous avez d'autres préférences de communication comme un cellulaire, le texto, Skype ou autre. L'utilisation de tout moyen de communication peut vous occasionner des frais supplémentaires selon votre contrat de service avec le fournisseur.

Vous pourrez changer de moyen de communication en cours d'étude en contactant M. John Kayser par téléphone au 514-376-3330, poste 4026 ou par courriel « john.kayser@umontreal.ca ».

Qu'est-ce que votre participation implique ?

Quand	Quoi	Combien de temps	
		Groupe A	Groupe B
Avant votre congé de l'hôpital, à la suite de votre signature de ce formulaire de consentement:	1) Nous vous remettrons un podomètre et vous recevrez des explications concernant son utilisation ainsi qu'une feuille d'information concernant les façons possibles de le porter. 2) Nous vous remettrons une clé USB et vous indiquerons comment l'installer sur votre ordinateur. 3) Nous vous indiquerons comment nous retourner le podomètre, dans une enveloppe préaffranchie, à la fin de l'étude; 4) Vous devrez répondre à un questionnaire de 19 questions afin de nous permettre de décrire les participants des deux groupes.	10 minutes 15 minutes	
3 semaines après votre sortie de l'hôpital	1) Vous recevrez un appel téléphonique à votre domicile pour confirmer votre volonté de participation à l'étude et vous expliquer ce qui est attendu de vous. 2) Pendant cet entretien téléphonique, nous vous enverrons par courriel, un hyperlien pour vous permettre de télécharger sur votre ordinateur, un logiciel gratuit (avec la description de sa licence d'utilisation inclus dans le courriel) qui vous permettra de faire fonctionner le podomètre qui vous a été remis à votre sortie de l'hôpital.	15 minutes	

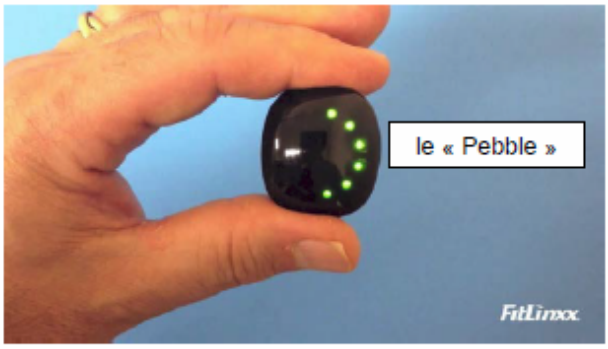
Quand	Quoi	Combien de temps	
		Groupe A	Groupe B
	3) Vous serez invité à répondre à 72 questions, à partir de votre ordinateur à la maison, pour décrire votre niveau de fatigue, votre qualité de vie et votre angine, vos raisons et votre confiance pour faire de la marche à pied et certaines de vos habitudes de vie incluant l'activité physique. 4) Vous devrez ensuite **commencer à porter le podomètre quotidiennement pendant 7 jours consécutifs** (ceci sera la première fois que vous porterez le podomètre). **Après 7 jours, vous cessez de porter le podomètre.**	45 minutes Le temps de porter le podomètre quotidiennement pendant 7 jours consécutifs	
Une semaine plus tard, soit 4 semaines après votre sortie de l'hôpital	Nous vous enverrons un message par courriel avec l'hyperlien vous permettant d'accéder au site Web A ou au site Web B, selon le groupe de l'étude auquel vous aurez été assigné au hasard. Si vous avez besoin d'aide pour établir la connexion avec le site Web, il vous sera possible de contacter un membre de notre équipe de recherche, M. John Kayser par téléphone au 514-376-3330, poste 4026. Les activités suite à votre première connexion à la semaine 4 sont indiquées ci-dessous.	1 minute	

Quand	Quoi	Combien de temps	
		Groupe A	Groupe B
Entre la semaine 4 et la semaine 8 après votre sortie de l'hôpital	À partir de la semaine 4, vous serez connecté au site Web auquel vous aurez été désigné au hasard, soit le site Web A ou le site Web B. Une fois connecté, nous vous demandons, selon les sites visités, de lire les informations ou recommandations à l'écran ou de visionner des vidéos. Il peut aussi y avoir des fichiers disponibles pour téléchargement sur votre ordinateur que vous pourrez consulter par la suite.	Entre 60 et 75 minutes. En général, entre 3 à 4 séances en raison de 15 à 25 minutes par séance sont à faire au gré du participant sur une période de 4 semaines.	Nombre de minutes à votre choix
8 semaines après votre sortie de l'hôpital	1) Nous vous enverrons un rappel par courriel concernant le questionnaire et le podomètre. 2) Dans ce courriel, vous serez invité à répondre à 43 questions à partir de votre ordinateur de la maison pour décrire votre niveau de soutien, d'appréciation des ressources sur le Web et de l'activité physique et vos raisons et votre confiance pour faire de la marche à pied. 3) Vous serez aussi invité à **porter à nouveau le podomètre quotidiennement pendant 7 jours** (deuxième fois que vous porterez le podomètre). **Après 7 jours, vous cessez de porter le podomètre.**	1 minute 30 minutes Le temps de porter le podomètre quotidiennement pendant 7 jours consécutifs	
11 semaines après votre sortie de l'hôpital	Si vous faites partie du groupe A, nous vous enverrons un rappel par courriel d'accéder au site Web A afin d'accéder à de l'information et des conseils concernant l'activité physique et la marche à pied.	Nombre de minutes à votre choix	N'est pas applicable

Quand	Quoi	Combien de temps	
		Groupe A	Groupe B
15 semaines après votre sortie de l'hôpital	1) Nous vous enverrons un rappel par courriel concernant le questionnaire et le podomètre. 2) Dans ce courriel, vous serez invité à répondre à 43 questions à partir de votre ordinateur, à la maison, pour décrire votre niveau de qualité de vie et d'angine, et certaines de vos habitudes de vie incluant l'activité physique. 3) Vous serez aussi invité à **porter à nouveau le podomètre quotidiennement pendant 7 jours** (troisième fois que vous porterez le podomètre). **Après 7 jours , vous cessez de porter le podomètre.**	1 minute 30 minutes Le temps de porter le podomètre quotidiennement pendant 7 jours consécutifs	
16 semaines après votre sortie de l'hôpital	Nous vous enverrons un rappel par courriel ou texto sur votre téléphone cellulaire, selon votre préférence, de nous retourner le podomètre en utilisant l'enveloppe préaffranchie qui vous aura été remise au début de l'étude.	1 minute	
Fin de la participation du projet de recherche			

Le podomètre
Le podomètre (appelé le « Pebble ») est un petit instrument qui calcule le nombre de pas pendant que vous marchez. Le Pebble est très petit. Nous vous demanderons de porter le Pebble du matin au lever jusqu'au soir au coucher à trois (3) reprises pendant sept (7) jours. Nous vous donnerons une feuille d'information concernant les façons possibles de porter le Pebble. Vous ne verrez pas le nombre de pas compté par le Pebble. Le compte de pas sert seulement à des fins de recherche et seuls les chercheurs auront accès à ces données. Le nombre de pas sera transféré entre le Pebble et un serveur qui est sous la responsabilité de Fitlinxx, le manufacturier du Pebble. Ce transfert se fait par la clé USB miniature que vous aurez installée sur votre ordinateur et fournie avec le Pebble.

Vous recevrez un courriel qui inclut le lien internet pour télécharger un logiciel gratuit ainsi qu'une traduction en français de sa licence. En acceptant sa licence, qui est similaire à toute entente lorsqu'on utilise un logiciel en accès libre, ce logiciel permettra de faire le transfert entre le Pebble et le serveur. Ce logiciel prend 24,3 Mo (Méga-octets) d'espace sur votre disque dur, est tout à fait sécuritaire pour votre ordinateur et peut être désinstallé à la fin du projet. Le logiciel n'utilise pas d'autres données sur votre ordinateur. Après la fin de l'étude, nous vous demanderons de retourner le Pebble dans une enveloppe préaffranchie que nous vous aurons remise à votre départ de l'hôpital.



RISQUES ASSOCIÉS AU PROJET DE RECHERCHE

Les données recueillies par le Pebble sont transmises par internet via un logiciel informatique sécurisé. Les données recueillies sont le nombre de pas par jour en lien avec le numéro de série du Pebble qui vous a été remis et ne comprennent aucun renseignement personnel vous concernant (par exemple votre nom). En conséquence, les risques anticipés par la transmission des données du Pebble sont estimés minimaux.

Avant votre congé de l'hôpital :
Si un problème de santé potentiel est détecté selon vos réponses aux questions avant votre congé de l'hôpital, nous vous suggérons de discuter de votre situation à l'infirmière ou au médecin de votre unité de soins.

Après votre sortie de l'hôpital :
Pour les patients atteints d'un syndrome coronarien aigu, un programme de marche progressif est recommandé après l'obtention du congé de l'hôpital. Même si votre condition médicale ne vous empêche pas de faire de la marche à pied, il se peut que vous présentiez des symptômes d'intolérance à l'effort. **Les symptômes d'intolérance à l'effort** comprennent entre autres **l'essoufflement** durant plus de dix minutes **après la fin de l'exercice ou au repos, les palpitations, les étourdissements et les douleurs angineuses**. Si vous ressentez un ou plusieurs de ces symptômes, il est **recommandé que vous ralentissez ou arrêtiez les efforts qui les provoquent.**

Si vous ressentez des symptômes ou un problème de santé **urgent**, veuillez contacter le 911 ou vous présenter directement à l'urgence de votre l'hôpital.

Si vous ressentez des symptômes ou un problème de santé **non urgent**, veuillez contacter l'Info-Santé 811 ou contacter votre médecin traitant ou une autre ressource que votre hôpital vous aura fournie.

INCONVÉNIENTS ASSOCIÉS AU PROJET DE RECHERCHE

Le temps requis pour répondre aux questions peut être un inconvénient possible si vous choisissez de participer à cette étude. Les questionnaires que vous aurez à compléter n'ont pas pour objectif de diagnostiquer une condition particulière. Cependant, il est possible que certaines questions soulèvent des inquiétudes. Si tel était le cas, vous êtes invité à contacter un membre de notre équipe de recherche, M. John Kayser par téléphone au 514-376-3330, poste 4026 ou par courriel au john.kayser@umontreal.ca **et ceci peu importe dans quel hôpital vous avez été hospitalisé**. Il pourra vous diriger vers des ressources appropriées si cela s'avère nécessaire.

La reprise d'une activité physique après une longue période d'inactivité peut représenter un inconvénient en raison des efforts requis, des douleurs musculaires possibles et de la volonté nécessaire pour suivre le programme de marche nécessaire à votre participation.

AVANTAGES

Il se peut que vous retiriez un bénéfice personnel de votre participation à ce projet de recherche, mais on ne peut pas vous l'assurer. Par ailleurs, les résultats obtenus contribueront à l'avancement des connaissances scientifiques dans le domaine de l'activité physique et la marche chez des personnes ayant vécu un événement coronarien.

PARTICIPATION VOLONTAIRE ET POSSIBILITÉ DE RETRAIT

Votre participation à ce projet de recherche est volontaire. Vous êtes donc libre de refuser d'y participer. Vous pouvez également vous retirer de ce projet à n'importe quel moment, sans avoir à donner de raisons, en faisant connaître votre décision au chercheur responsable du projet ou à l'un des membres du personnel affecté au projet.

Votre décision de ne pas participer à ce projet de recherche ou de vous en retirer n'aura aucune conséquence sur la qualité des soins et des services auxquels vous avez droit ou sur votre relation avec le chercheur responsable du projet et les autres membres du personnel de votre hôpital traitant.

Si vous vous retirez du projet ou si on a mis fin à votre participation, l'information déjà obtenue dans le cadre de ce projet sera conservée aussi longtemps que nécessaire tout comme celle des autres participants au projet dans des conditions rencontrant les exigences réglementaires.

Toute nouvelle connaissance acquise par l'équipe de recherche durant le déroulement du projet qui pourrait influencer votre décision de continuer d'y participer vous sera communiquée sans délai verbalement ou par écrit.

CONFIDENTIALITÉ

Durant votre participation à ce projet, le chercheur responsable ainsi que son équipe recueilleront et consigneront dans un dossier de recherche les renseignements vous concernant. Seuls les renseignements nécessaires pour répondre aux objectifs scientifiques de ce projet seront recueillis.

Ces renseignements peuvent comprendre les informations contenues dans vos dossiers médicaux concernant votre état de santé passé et présent, vos habitudes de vie, ainsi que les résultats de tests, examens et procédures que vous aurez subis durant votre hospitalisation. Votre dossier inclut aussi d'autres renseignements tels que votre sexe et votre date de naissance.

Tous les renseignements inscrits au dossier du projet de recherche demeureront strictement confidentiels dans les limites prévues par la loi. Afin de préserver votre identité et la confidentialité des renseignements, vous ne serez identifié que par un code d'identification. La clé du code reliant votre nom à votre dossier de recherche sera conservée à l'Institut de Cardiologie de Montréal par le chercheur responsable dans un fichier séparé du dossier de recherche.

Les données codées sont sauvegardées sur deux serveurs sécurisés. Le premier serveur sécurisé permet la gestion et la conservation des données codées provenant du questionnaire complété sur le Web; ce serveur est sous la responsabilité de l'Institut de Cardiologie de Montréal. L'autre serveur permet de gérer et conserver les données codées recueillies grâce au podomètre; ce serveur est sous la responsabilité de la compagnie FitLinxx, le manufacturier du podomètre (Pebble), à Green Bay, Wisconsin.

Les données seront accessibles à l'équipe de recherche pour chacun des deux serveurs. Deux programmeurs informatiques, un à l'Institut de Cardiologie de Montréal et un à FitLinxx, auront également accès aux données puisqu'ils agiront comme personnes ressources pour l'équipe de recherche en cas de problèmes techniques.

Les résultats de la recherche pourront être publiés dans des revues spécialisées ou faire l'objet de discussions scientifiques, mais il ne sera pas possible de vous identifier.

Vous avez le droit de consulter votre dossier de recherche pour vérifier les renseignements recueillis et les faire rectifier au besoin, et ce, aussi longtemps que le chercheur responsable du projet ou l'établissement détiennent ces informations. Cependant, afin de préserver l'intégrité scientifique du projet, vous pourriez n'avoir accès à certaines de ces informations qu'une fois votre participation terminée.

Le chercheur responsable du projet utilisera les données à des fins de recherche dans le but de répondre aux objectifs scientifiques du projet décrits dans le présent formulaire d'information et de consentement. Ces données seront conservées pendant 7 ans par le chercheur responsable. FitLinxx conservera les données du Pebble, qui sont identifiées seulement par un numéro de code, sur leur serveur pour une période indéfinie.

Une description de ce projet de recherche sera disponible au http://clinicaltrials.gov. Ce site Web ne présentera aucune information pouvant vous identifier. Ce site publiera les résultats de la recherche en sommaire. Vous pouvez visiter ce site Web en tout temps. Notez cependant que toute l'information disponible dans ce site est en anglais seulement.

À des fins de protection, notamment afin de pouvoir communiquer avec vous rapidement, vos noms et prénoms, vos coordonnées et la date de début et de fin de votre participation au projet seront conservés pendant un an après la fin du projet dans un répertoire à part maintenu par l'établissement. Vous pouvez accéder en tout temps aux données qui vous concernent pour en connaître le contenu et le faire rectifier au besoin.

COMMERCIALISATION

Votre participation au projet de recherche pourrait mener à la création de produits commerciaux. Cependant, vous ne pourrez en retirer aucun avantage financier.

INDEMNISATION EN CAS DE PRÉJUDICE ET DROITS DU PARTICIPANT À LA RECHERCHE

Dans l'éventualité où vous seriez victime d'un préjudice causé par l'intervention à l'étude ou par toute autre procédure requise par le protocole de recherche, Sylvie Cossette, inf. PhD. veillera à ce que vous receviez tous les soins que nécessite votre état de santé.

Si votre participation engendrait d'autres coûts qui ne sont pas présentement assurés par les régimes d'assurance-hospitalisation et d'assurance-maladie du Québec, ceux-ci ne sont pas couverts. Vous devrez donc en assumer les frais. De plus, aucune compensation pour perte de revenus, invalidité ou inconfort n'est prévue.

En signant ce formulaire de consentement, vous ne renoncez à aucun de vos droits. Notamment, vous ne libérez pas l'investigateur de ses responsabilités légales et professionnelles advenant une situation qui vous causerait préjudice.

IDENTIFICATION DES PERSONNES-RESSOURCES

Si vous avez des questions concernant le projet de recherche ou si vous rencontrez un problème que vous croyez relié à votre participation au projet de recherche, vous pouvez communiquer avec le chercheur responsable du projet de recherche aux numéros suivants :

Vous pouvez communiquer en tout temps avec :

Institut de Cardiologie de Montréal

M John Kayser, infirmier, candidat au doctorat à l'Université de Montréal	Tél. : (514) 376-3330 poste 4026
Chercheuse : Mme Sylvie Cossette, infirmière, PhD, Centre de recherche de l'Institut de Cardiologie de Montréal et Professeure titulaire, Faculté des sciences infirmières, Université de Montréal	Tél. : (514) 376-3330 poste 4012
Chercheuse : Mme José Côté, infirmière, PhD, Centre de recherche du Centre hospitalier de l'Université de Montréal. Professeur titulaire, Faculté des sciences infirmières, Université de Montréal	Tél. : (514) 890-8000 poste 12744

Pour toute question concernant vos droits en tant que participant à ce projet de recherche ou si vous avez des plaintes ou des commentaires à formuler vous pouvez communiquer avec le commissaire local aux plaintes et à la qualité des services de l'Institut de Cardiologie de Montréal au numéro suivant : (514) 376-3330 poste 3398.

Advenant votre décès, vos héritiers et représentants légaux peuvent aussi adresser toute plainte ou commentaire au commissaire local aux plaintes et à la qualité des services de l'ICM, et ce, en composant le même numéro.

FORMULAIRE DE CONSENTEMENT

PROJET DE RECHERCHE : ICM # MP-33-2015-1887

Évaluation d'une intervention infirmière personnalisée (TAVIEenM@RCHE) via le Web favorisant la marche à pied après un événement cardiaque : Une étude randomisée multicentrique

Investigateur principal et collaborateurs

Investigateur principal, Sylvie Cossette, inf., Ph.D.,
et collaborateurs John Kayser, inf. M.Sc (A)., José Côté, inf., Ph.D.,
Anne Bourbonnais, inf., Ph.D. Margaret Purden, inf., Ph.D., Dr Martin Juneau, M.D., Dr Jean-François Tanguay, M.D., Marie-Josée Simard, inf. M.Sc.
et Dr Jocelyn Dupuis, M.D.

Commanditaires ou organismes subventionnaires

Fonds de recherche du Québec – Santé (FRQ-S), le Réseau de recherche en interventions en sciences infirmières du Québec (RRISIQ), la Fondation des infirmières et infirmiers du Canada, le Programme MELS – Universités, la Chaire de recherche sur les nouvelles pratiques, la Fondation de l'Institut de Cardiologie de Montréal et la compagnie FitLinxx

J'ai eu l'occasion de poser toutes les questions voulues au sujet de ce projet de recherche et on y a répondu à ma satisfaction.
Je comprends que je demeure libre de me retirer de ce projet en tout temps sans que cela n'affecte d'aucune façon les soins dont je pourrais bénéficier à l'avenir.
J'ai lu ou l'on m'a lu ce formulaire d'information et de consentement et j'en comprends le contenu.
Après réflexion, j'accepte de participer à ce projet de recherche aux conditions qui y sont énoncées.

J'autorise le chercheur à informer mon médecin traitant de ma participation à ce projet. Nom et adresse du médecin traitant : _____ _____	☐ J'accepte	☐ Je refuse

5000, rue Bélanger, Montréal (Québec) H1T 1C8 | Tél. : 514-376-3330 | Téléc. : 514-376-1355

Signature du participant	*Nom du participant en lettres moulées*	*Date (jj-mm-aaaa)*
Signature de l'un des chercheurs	*Nom du chercheur en lettres moulées*	*Date (jj-mm-aaaa)*

J'ai expliqué au participant à la recherche les termes du présent formulaire d'information et de consentement et j'ai répondu aux questions qu'il m'a posées.

Signature du chercheur ou de son délégué	*Nom du chercheur ou de son délégué en lettres moulées*	*Date (jj-mm-aaaa)*

Le Comité d'éthique de la recherche et du développement des nouvelles technologies de l'Institut de Cardiologie de Montréal autorise le début du recrutement en date du 15 octobre 2015. La version courante no. 1 du consentement en français datée du 15 octobre 2015 est approuvée.

N.B. : Une copie signée et datée du présent formulaire d'information et de consentement sera déposée au dossier du participant, une copie gardée par l'investigateur et une copie remise au participant.

INSTITUT DE CARDIOLOGIE DE MONTRÉAL

AFFILIÉ À Université de Montréal

* I C M 3 1 4 *

APPROUVÉ / APPROVED
Comité d'éthique ICM
MHI – Research Ethics Board
Date : 11 avril 2017

FORMULAIRE D'INFORMATION ET DE CONSENTEMENT

PROJET DE RECHERCHE : ICM #MP-33-2015-1887

Évaluation d'une intervention infirmière personnalisée (TAVIEenM@RCHE) via le Web favorisant la marche à pied après un événement cardiaque : Une étude randomisée multicentrique.

TAVIEenM@RCHE

Investigateur principal et collaborateurs
Sylvie Cossette, inf., Ph.D., John Kayser, inf. M.Sc (A)., José Côté, inf., Ph.D., Anne Bourbonnais, inf., Ph.D., Margaret Purden, inf., Ph.D., Dr Martin Juneau, M.D., Dr Jean-François Tanguay, M.D., Marie-Josée Simard, inf. M.Sc. et Dr Jocelyn Dupuis, M.D.

Commanditaires ou organismes subventionnaires
Fonds de recherche du Québec – Santé (FRQ-S), le Réseau de recherche en interventions en sciences infirmières du Québec (RRISIQ), la Fondation des infirmières et infirmiers du Canada, le Programme MEES – Universités, la Chaire de recherche sur les nouvelles pratiques, la Fondation de l'Institut de Cardiologie de Montréal et la compagnie FitLinxx

PRÉAMBULE[1]

Nous vous invitons à participer à un projet de recherche parce que vous êtes hospitalisés pour un syndrome coronarien aigu (angine instable ou infarctus du myocarde). Vous êtes entièrement libre d'accepter ou de refuser de participer.

Avant d'accepter de participer à ce projet et de signer ce formulaire de consentement, veuillez prendre le temps de lire, de comprendre et de considérer attentivement les renseignements qui suivent.

Ce formulaire peut contenir des mots que vous ne comprenez pas. Nous vous invitons à poser toutes les questions que vous jugerez utiles au chercheur responsable du projet ou aux autres membres du personnel affecté au projet de recherche et à leur demander de vous expliquer tout mot ou renseignement qui n'est pas clair.

[1] Le genre masculin, employé pour alléger le texte, désigne autant les femmes que les hommes.

5000, rue Bélanger, Montréal (Québec) H1T 1C8 | Tél. : 514-376-3330 | Téléc. : 514-376-1355

La participation simultanée à plusieurs projets de recherche peut être dangereuse pour vous. Si vous participez déjà à une étude clinique, veuillez en aviser le chercheur de l'étude.

NATURE ET OBJECTIFS DU PROJET DE RECHERCHE

Le but du projet de recherche est d'évaluer une intervention faite à votre domicile à partir de votre ordinateur par internet. L'intervention vise à soutenir la motivation des personnes à faire de la marche à pied tel que recommandé par les médecins. Suite à un évènement coronarien, la marche à pied permet de se maintenir en santé et d'avoir une meilleure qualité de vie. L'intervention qui sera évaluée dans le projet vise à encourager les participants à faire la marche à pied selon les recommandations.

Pour participer à ce projet, vous devez avoir un ordinateur auquel vous pouvez brancher une clé USB.

Toute l'intervention se fera par internet, à partir de votre domicile.

L'augmentation du niveau d'activité physique est associée à une réduction des facteurs de risque cardiaque et du risque de mortalité cardiaque, une amélioration de la qualité de vie et une réduction de l'utilisation des soins de santé. Suite à un évènement coronarien, la marche à pied permet de se maintenir en santé et d'avoir une meilleure qualité de vie. Le counseling en matière d'activité physique via le Web offre des alternatives novatrices pour augmenter le temps de pratique de la marche à pied suite à un syndrome coronarien aigu.

Le but de ce projet de recherche est d'évaluer si, une fois de retour à votre domicile, l'accès à un counseling en matière d'activité physique aidera votre motivation à faire de la marche à pied.

Si les résultats de ce projet de recherche sont favorables, ils permettront potentiellement que cette nouvelle approche par internet fasse partie des services proposés aux patients suite à un évènement coronarien.

Dans le cadre de ce projet de recherche, 148 patients hospitalisés suite à un évènement coronarien seront recrutés dans quatre centres hospitaliers au Québec dont l'Institut de Cardiologie de Montréal (ICM), l'Hôpital Sacré-Cœur de Montréal (HSC), le Centre hospitalier de l'Université de Montréal (CHUM), et l'hôpital Maisonneuve-Rosemont (HMR).

Une description de ce projet de recherche sera disponible au http://clinicaltrials.gov. Ce site Web ne présentera aucune information pouvant vous identifier. Ce site publiera les résultats de la recherche en sommaire. Vous pouvez visiter ce site Web en tout temps. Notez cependant que toute l'information disponible sur ce site est en anglais seulement.

FINANCEMENT DU PROJET DE RECHERCHE

Ce projet est subventionné par le Fonds de recherche du Québec – Santé (FRQ-S), le Réseau de recherche en interventions en sciences infirmières du Québec (RRISIQ), la Fondation des infirmières et infirmiers du Canada, le Programme MEES – Universités, la

Chaire de recherche sur les nouvelles pratiques, la Fondation de l'Institut de Cardiologie de Montréal et la compagnie FitLinxx.

DÉROULEMENT DU PROJET DE RECHERCHE

Si vous acceptez de participer au présent projet de recherche, vous serez assigné à un des deux groupes suivants. C'est le hasard qui détermine dans quel groupe se fera votre participation et vous avez autant de chance d'être dans un groupe que dans l'autre.

1) Groupe A = les participants auront accès au site Web A, un site réservé au projet de recherche, qui contient de l'information et des conseils concernant l'activité physique et la marche

2) Groupe B = les participants auront accès au site Web B, un site qui vous redirigera vers d'autres sites Web publics à partir d'hyperliens, ce qui vous permettra d'accéder à de l'information et des conseils concernant l'activité physique et la marche

Au cours de cette étude, nous vous remettrons un podomètre que vous devrez porter à trois (3) reprises pendant sept (7) jours. Les données du podomètre seront téléchargées automatiquement sur une plateforme Web selon les instructions qui vous seront envoyées par courriel.

La durée de votre participation à ce projet de recherche est entre quatre (4) mois et quatre mois et demi (4.5). Votre participation implique de :

- visiter les sites Web du groupe auquel vous serez assigné;
- fournir les informations qui vous seront demandées;
- remplir des questionnaires;
- porter un podomètre, un petit instrument qui calcule le nombre de pas pendant que vous marchez.

Vous devrez porter le podomètre à trois reprises pendant l'étude, pour une durée de 7 jours à chaque fois.

Vous devrez nous fournir un numéro de téléphone ou une adresse courriel afin de pouvoir communiquer avec vous durant l'étude. Cependant, nous vous demanderons si vous avez d'autres préférences de communication comme un cellulaire, le texto, Skype ou autre. L'utilisation de tout moyen de communication peut vous occasionner des frais supplémentaires selon votre contrat de service avec le fournisseur.

Vous pourrez changer de moyen de communication en cours d'étude en contactant M. John Kayser par téléphone au 514-376-3330, poste 4026 ou 514-691-9140 ou par courriel « john.kayser@umontreal.ca ».

Qu'est-ce que votre participation implique ?

Quand	Quoi	Combien de temps	
		Groupe A	Groupe B
Avant votre congé de l'hôpital, à la suite de votre signature de ce formulaire de consentement:	1) Nous vous remettrons un podomètre et vous recevrez des explications concernant son utilisation ainsi que deux feuilles d'information : une concernant les façons possibles de le porter et l'autre concernant comment télécharger le logiciel qui vous permettra de faire synchroniser le podomètre et avec l'ordinateur. 2) Nous vous remettrons une clé USB et vous indiquerons comment l'installer sur votre ordinateur. 3) Nous vous indiquerons comment nous retourner le podomètre, dans une enveloppe préaffranchie au moment opportun. 4) Vous devrez répondre à un questionnaire de 19 questions afin de nous permettre de décrire les participants des deux groupes.	10 minutes 15 minutes	
3e semaine après votre sortie de l'hôpital	1) Vous recevrez un appel téléphonique à votre domicile pour confirmer votre volonté de participation à l'étude et vous expliquer ce qui est attendu de vous. 2) Pendant cet entretien téléphonique, nous vous enverrons par courriel (avec les mêmes deux feuilles d'information données à l'hôpital en fichiers joints) un hyperlien pour vous permettre de télécharger sur votre ordinateur le logiciel gratuit afin de synchroniser les données du podomètre qui vous a été remis à votre sortie de l'hôpital.	15 minutes	

Quand	Quoi	Combien de temps	
		Groupe A	Groupe B
	3) Vous devrez ensuite **commencer à porter le podomètre quotidiennement pendant 7 jours consécutifs** (ceci sera la première fois que vous porterez le podomètre). **Après 7 jours, vous cessez de porter le podomètre.**	Le temps de porter le podomètre quotidiennement pendant 7 jours consécutifs	
	4) **Après avoir porté le podomètre pour 7 jours,** nous vous enverrons un deuxième rappel par courriel. Dans ce courriel, nous vous demanderons de synchroniser les données du podomètre via le logiciel gratuit que vous avez installé dans votre ordinateur et répondre à 72 questions, à partir de votre ordinateur à la maison, pour décrire votre niveau de fatigue, votre qualité de vie et votre angine, vos raisons et votre confiance pour faire de la marche à pied et certaines de vos habitudes de vie incluant l'activité physique.	45 minutes	
Une semaine plus tard, soit à la 4e semaine après votre sortie de l'hôpital	Nous vous enverrons un message par courriel avec l'hyperlien vous permettant d'accéder au site Web A ou au site Web B, selon le groupe de l'étude auquel vous aurez été assigné au hasard. Si vous avez besoin d'aide pour établir la connexion avec le site Web, il vous sera possible de contacter un membre de notre équipe de recherche, M. John Kayser par téléphone au 514-376-3330, poste 4026 ou 514-691-9140. Les activités suite à votre première connexion à la semaine 4 sont indiquées ci-dessous.	1 minute	

Quand	Quoi	Combien de temps	
		Groupe A	Groupe B
Entre la semaine 4 et la semaine 7 après votre sortie de l'hôpital	À partir de la semaine 4, vous serez connecté au site Web auquel vous aurez été désigné au hasard, soit le site Web A ou le site Web B. Une fois connecté, nous vous demandons, selon les sites visités, de lire les informations ou recommandations à l'écran ou de visionner des vidéos. Il peut aussi y avoir des fichiers disponibles pour téléchargement sur votre ordinateur que vous pourrez consulter par la suite.	Entre 60 et 75 minutes. En général, entre 3 à 4 séances en raison de 15 à 25 minutes par séance sont à faire au gré du participant sur une période de 4 semaines.	Nombre de minutes à votre choix
8e semaine après votre sortie de l'hôpital	1) Nous vous enverrons deux rappels par courriel. 2) Dans le premier courriel, vous serez invité à **porter à nouveau le podomètre quotidiennement pendant 7 jours** (deuxième fois que vous porterez le podomètre). **Après 7 jours, vous cessez de porter le podomètre.** 3) **Après avoir porté le podomètre pour 7 jours,** nous vous enverrons le deuxième courriel. Dans ce courriel, nous vous demanderons de synchroniser les données du podomètre et répondre à 43 questions à partir de votre ordinateur de la maison pour décrire votre niveau de soutien, d'appréciation des ressources sur le Web et de l'activité physique et vos raisons et votre confiance pour faire de la marche à pied.	Le temps de porter le podomètre quotidiennement pendant 7 jours consécutifs 30 minutes	
11e semaine après votre sortie de l'hôpital	Si vous faites partie du groupe A, nous vous enverrons un rappel par courriel d'accéder au site Web A afin d'accéder à de l'information et des conseils concernant l'activité physique et la marche à pied.	Nombre de minutes à votre choix	N'est pas applicable

Quand	Quoi	Combien de temps	
		Groupe A	Groupe B
15e semaine après votre sortie de l'hôpital	1) Nous vous enverrons deux rappels par courriel.		
	2) Dans le premier courriel, vous serez aussi invité à **porter à nouveau le podomètre quotidiennement pendant 7 jours** (troisième fois que vous porterez le podomètre). **Après 7 jours, vous cessez de porter le podomètre.**	Le temps de porter le podomètre quotidiennement pendant 7 jours consécutifs	
	3) **Après avoir porté le podomètre pour 7 jours**, nous vous enverrons le deuxième courriel. Dans ce courriel, nous vous demanderons de synchroniser les données du podomètre et répondre à 43 questions à partir de votre ordinateur, à la maison, pour décrire votre niveau de qualité de vie et d'angine, et certaines de vos habitudes de vie incluant l'activité physique.	30 minutes	
16e semaine après votre sortie de l'hôpital	Nous vous enverrons un rappel par courriel de nous retourner le podomètre en utilisant l'enveloppe préaffranchie qui vous aura été remise au début de l'étude.	1 minute	
Fin de la participation du projet de recherche			

Note importante : Si vous avez Windows 10, vous n'avez pas à télécharger le logiciel en lien avec le podomètre.

**Par contre, nous vous demandons de retourner le podomètre après chacune des 3 fois que vous l'aurez porté pendant 7 jours en utilisant les enveloppes préaffranchies que nous vous fournirons lors de la rencontre au centre hospitalier au début de l'étude et par la poste par la suite.

Le podomètre

Le podomètre est un petit instrument qui calcule le nombre de pas pendant que vous marchez. Le podomètre est très petit. Nous vous demanderons de porter le podomètre du matin au lever jusqu'au soir au coucher à trois (3) reprises pendant sept (7) jours.

Nous vous donnerons une feuille d'information concernant les façons possibles de porter le podomètre. Vous ne verrez pas le nombre de pas compté par le podomètre. Le

compte de pas sert seulement à des fins de recherche et seuls les chercheurs auront accès à ces données. Le nombre de pas sera transféré (synchronisé) entre le podomètre et un serveur qui est sous la responsabilité de Fitbit, le manufacturier du podomètre. Ce transfert se fait par la clé USB miniature (appelé par le mot « dongle » par le logiciel lorsque vous installerez le logiciel gratuit expliqué ci-dessous) que vous aurez installée sur votre ordinateur et fournie avec le podomètre.

Vous recevrez un courriel qui inclut le lien internet pour télécharger un logiciel gratuit. En acceptant sa licence, qui est similaire à toute entente lorsqu'on utilise un logiciel en accès libre, ce logiciel permettra de faire le transfert (synchroniser) entre le podomètre et le serveur. Ce logiciel occupera 4 Ko (Kilo-octets) d'espace sur votre disque dur, est tout à fait sécuritaire pour votre ordinateur et peut être désinstallé à la fin du projet. Le logiciel n'utilise pas d'autres données sur votre ordinateur. Après la fin de l'étude, nous vous demanderons de retourner le podomètre dans une enveloppe préaffranchie, que nous vous aurons remise à votre départ de l'hôpital.

RISQUES ASSOCIÉS AU PROJET DE RECHERCHE

Les données recueillies par le podomètre sont transmises par internet via un logiciel informatique sécurisé. Les données recueillies sont le nombre de pas par jour en lien avec le numéro de série du podomètre qui vous a été remis et ne comprennent aucun renseignement personnel vous concernant (par exemple votre nom). En conséquence, les risques anticipés par la transmission des données du podomètre sont estimés minimaux.

Avant votre congé de l'hôpital :

Si un problème de santé potentiel est détecté selon vos réponses aux questions avant votre congé de l'hôpital, nous vous suggérons de discuter de votre situation à l'infirmière ou au médecin de votre unité de soins.

Après votre sortie de l'hôpital :

Pour les patients atteints d'un syndrome coronarien aigu, un programme de marche progressif est recommandé après l'obtention du congé de l'hôpital. Même si votre condition médicale ne vous empêche pas de faire de la marche à pied, il se peut que vous présentiez des symptômes d'intolérance à l'effort. **Les symptômes d'intolérance à l'effort** comprennent entre autres **l'essoufflement** durant plus de dix minutes **après la fin de l'exercice ou au repos, les palpitations, les étourdissements et les douleurs angineuses**. Si vous ressentez un ou plusieurs de ces symptômes, il est **recommandé que vous ralentissez ou arrêtiez les efforts qui les provoquent.**

Si vous ressentez des symptômes ou un problème de santé **urgent**, veuillez contacter le 911 ou vous présenter directement à l'urgence de votre l'hôpital.

Si vous ressentez des symptômes ou un problème de santé **non urgent**, veuillez contacter l'Info-Santé 811 ou contacter votre médecin traitant ou une autre ressource que votre hôpital vous aura fournie.

INCONVÉNIENTS ASSOCIÉS AU PROJET DE RECHERCHE

Le temps requis pour répondre aux questions peut être un inconvénient possible si vous choisissez de participer à cette étude. Les questionnaires que vous aurez à compléter n'ont pas pour objectif de diagnostiquer une condition particulière. Cependant, il est possible que certaines questions soulèvent des inquiétudes. Si tel était le cas, vous êtes invité à contacter un membre de notre équipe de recherche, M. John Kayser par téléphone au 514-376-3330, poste 4026 ou 514-691-9140 ou par courriel au john.kayser@umontreal.ca **et ceci peu importe dans quel hôpital vous avez été hospitalisé**. Il pourra vous diriger vers des ressources appropriées si cela s'avère nécessaire.

La reprise d'une activité physique après une longue période d'inactivité peut représenter un inconvénient en raison des efforts requis, des douleurs musculaires possibles et de la volonté nécessaire pour suivre le programme de marche nécessaire à votre participation.

AVANTAGES

Il se peut que vous retiriez un bénéfice personnel de votre participation à ce projet de recherche, mais on ne peut pas vous l'assurer. Par ailleurs, les résultats obtenus contribueront à l'avancement des connaissances scientifiques dans le domaine de l'activité physique et la marche chez des personnes ayant vécu un événement coronarien.

PARTICIPATION VOLONTAIRE ET POSSIBILITÉ DE RETRAIT

Votre participation à ce projet de recherche est volontaire. Vous êtes donc libre de refuser d'y participer. Vous pouvez également vous retirer de ce projet à n'importe quel moment, sans avoir à donner de raisons, en informant l'équipe de recherche.

Votre décision de ne pas participer à ce projet de recherche ou de vous en retirer n'aura aucune conséquence sur la qualité des soins et des services auxquels vous avez droit ou sur votre relation avec les équipes qui les dispensent.

Le chercheur responsable de ce projet de recherche et le comité d'éthique de la recherche peuvent mettre fin à votre participation, sans votre consentement. Cela peut se produire si de nouvelles découvertes ou informations indiquent que votre participation au projet n'est plus dans votre intérêt, si vous ne respectez pas les consignes du projet de recherche ou encore s'il existe des raisons administratives d'abandonner le projet.

Si vous vous retirez du projet ou êtes retiré du projet, l'information et le matériel déjà recueillis dans le cadre de ce projet seront néanmoins conservés, analysés ou utilisés pour assurer l'intégrité du projet.

Toute nouvelle connaissance acquise durant le déroulement du projet qui pourrait avoir un impact sur votre décision de continuer à participer à ce projet vous sera communiquée rapidement.

CONFIDENTIALITÉ

Durant votre participation à ce projet de recherche, le chercheur responsable de ce projet ainsi que les membres de son personnel de recherche recueilleront, dans un dossier de recherche, les renseignements vous concernant et nécessaires pour répondre aux objectifs scientifiques de ce projet de recherche.

Ces renseignements peuvent comprendre les informations contenues dans votre dossier médical incluant votre identité, concernant votre état de santé passé et présent, vos habitudes de vie ainsi que les résultats de tous les tests, examens et procédures qui seront réalisés.

Votre dossier peut aussi comprendre d'autres renseignements tels que votre nom, votre sexe, votre date de naissance et votre origine ethnique.

Tous les renseignements recueillis demeureront confidentiels dans les limites prévues par la loi. Vous ne serez identifié que par un numéro de code. La clé du code reliant votre nom à votre dossier de recherche sera conservée par le chercheur responsable de ce projet de recherche.

Les données codées sont sauvegardées sur deux serveurs sécurisés. Le premier serveur sécurisé permet la gestion et la conservation des données codées provenant du questionnaire complété sur le Web; ce serveur est sous la responsabilité de l'Institut de Cardiologie de Montréal. L'autre serveur permet de gérer et conserver les données codées recueillies grâce au podomètre; ce serveur est sous la responsabilité de la compagnie Fitbit, le manufacturier du podomètre, à San Francisco, Californie.

Les données seront accessibles à l'équipe de recherche pour chacun des deux serveurs. Deux programmeurs informatiques, un à l'Institut de Cardiologie de Montréal et un à Fitbit, auront également accès aux données puisqu'ils agiront comme des personnes ressources pour l'équipe de recherche en cas de problèmes techniques.

Pour assurer votre sécurité, une copie du formulaire de consentement sera versée dans votre dossier médical. Par conséquent, toute personne ou compagnie à qui vous donnerez accès à votre dossier médical aura accès à ces informations.

Ces données de recherche seront conservées pendant 7 ans par le chercheur responsable de ce projet de recherche.

Les données de recherche pourront être publiées ou faire l'objet de discussions scientifiques, mais il ne sera pas possible de vous identifier.

À des fins de surveillance, de contrôle de protection et de sécurité votre dossier de recherche ainsi que vos dossiers médicaux pourront être consultés par une personne mandatée par des organismes réglementaires ainsi que par des représentants de l'établissement ou du comité d'éthique de la recherche. Ces personnes et ces organismes adhèrent à une politique de confidentialité.

Vous avez le droit de consulter votre dossier de recherche pour vérifier les renseignements recueillis et les faire rectifier au besoin.

Par ailleurs, l'accès à certaines informations avant la fin de l'étude pourrait impliquer que vous soyez retiré du projet afin d'en préserver l'intégrité.

COMMERCIALISATION

Votre participation au projet de recherche pourrait mener à la création de produits commerciaux. Cependant, vous ne pourrez en retirer aucun avantage financier.

EN CAS DE PRÉJUDICE

Si vous deviez subir quelque préjudice relié à votre participation à ce projet de recherche, vous recevrez tous les soins et services requis par votre état de santé.

En acceptant de participer à ce projet de recherche, vous ne renoncez à aucun de vos droits et vous ne libérez pas le chercheur responsable de ce projet de recherche et l'établissement de leur responsabilité civile et professionnelle.

IDENTIFICATION DES PERSONNES-RESSOURCES

Si vous avez des questions ou éprouvez des problèmes en lien avec le projet de recherche, ou si vous souhaitez vous en retirer, vous pouvez communiquer en tout temps avec le médecin responsable ou avec une personne de l'équipe de recherche aux numéros suivants Vous pouvez communiquer en tout temps avec :

Institut de Cardiologie de Montréal

M. John Kayser, infirmier, candidat au doctorat à l'Université de Montréal — Tél. : (514) 376-3330 poste 4026

Chercheuse : Mme Sylvie Cossette, infirmière, PhD Centre de recherche de l'Institut de Cardiologie de Montréal et Professeure titulaire, Faculté des sciences infirmières, Université de Montréal — Tél. : (514) 376-3330 poste 4012

Chercheuse : Mme José Côté, infirmière, PhD Centre de recherche du Centre hospitalier de l'Université de Montréal. Professeur titulaire, Faculté des sciences infirmières, Université de Montréal — Tél. : (514) 890-8000 poste 12744

Pour toute question concernant vos droits en tant que participant à ce projet de recherche ou si vous avez des plaintes ou des commentaires à formuler, vous pouvez communiquer avec :

Le Commissaire local aux plaintes et à la qualité des services de l'Institut de Cardiologie de Montréal au numéro suivant : (514) 376-3330 poste 3398.

FORMULAIRE DE CONSENTEMENT

PROJET DE RECHERCHE : ICM #MP-33-2015-1887

Évaluation d'une intervention infirmière personnalisée (TAVIEenM@RCHE) via le Web favorisant la marche à pied après un événement cardiaque : Une étude randomisée multicentrique.

TAVIEenM@RCHE

Investigateur principal et collaborateurs

Sylvie Cossette, inf., Ph.D., John Kayser, inf. M.Sc (A)., José Côté, inf., Ph.D., Anne Bourbonnais, inf., Ph.D., Margaret Purden, inf., Ph.D., Dr Martin Juneau, M.D., Dr Jean-François Tanguay, M.D., Marie-Josée Simard, inf. M.Sc. et Dr Jocelyn Dupuis, M.D.

Commanditaires ou organismes subventionnaires

Fonds de recherche du Québec – Santé (FRQ-S), le Réseau de recherche en interventions en sciences infirmières du Québec (RRISIQ), la Fondation des infirmières et infirmiers du Canada, le Programme MEES – Universités, la Chaire de recherche sur les nouvelles pratiques, la Fondation de l'Institut de Cardiologie de Montréal et la compagnie FitLinxx

J'ai pris connaissance du formulaire d'information et de consentement. On m'a expliqué le projet de recherche et le présent formulaire d'information et de consentement. On a répondu à mes questions et on m'a laissé le temps voulu pour prendre une décision. Après réflexion, je consens à participer à ce projet de recherche aux conditions qui y sont énoncées.

J'autorise l'équipe de recherche à avoir accès à mon dossier médical.

J'autorise le chercheur à informer mon médecin de famille de ma participation à ce projet. Nom et adresse du médecin traitant : _____ _____	☐ J'accepte	☐ Je refuse

Nom du participant ***Signature*** ***Date (jj-mm-aaaa)***

5000, rue Bélanger, Montréal (Québec) H1T 1C8 | Tél. : 514-376-3330 | Téléc. : 514-376-1355

J'ai expliqué au participant le projet de recherche et le présent formulaire d'information et de consentement et j'ai répondu aux questions qu'il m'a posées.

Nom de la personne qui obtient le consentement	*Signature*	*Date (jj-mm-aaaa)*

Je certifie qu'on a expliqué au participant le présent formulaire d'information et de consentement, que l'on a répondu aux questions qu'il avait.

Je m'engage, avec l'équipe de recherche, à respecter ce qui a été convenu au formulaire d'information et de consentement et à en remettre une copie signée et datée au participant.

Nom du chercheur responsable	*Signature*	*Date (jj-mm-aaaa)*

Le Comité d'éthique de la recherche et du développement des nouvelles technologies de l'Institut de Cardiologie de Montréal autorise le début du recrutement en date du 15 octobre 2015. La version courante no. 5 du consentement en français datée du 11 avril 2017 est approuvée.

N.B. : Une copie signée et datée du présent formulaire d'information et de consentement sera déposée au dossier du participant, une copie gardée par l'investigateur et une copie remise au participant.

Appendix R : Procedures for Data Collection and Reminders

PLAN DES RAPPELS POUR TAVIE en m@rche

STRUCTURE ET CONTENU DES RAPPELS

TEMPS : 3 SEMAINES APRÈS LA SORTIE DE L'HÔPITAL (-T1)

PHASE DU PROJET

Collecte des données

OBJECTIFS

1) Confirmer la volonté de participation à l'étude;
2) Expliquer comment télécharger le logiciel qui permettra de faire fonctionner le podomètre;
3) Inviter le participant à porter le podomètre quotidiennement pendant 7 jours consécutifs et **ensuite de cesser de le porter;**
4) Inviter le participant à répondre au 1er questionnaire à partir de l'ordinateur à la maison, **après avoir porté le podomètre pour 7 jours**.

Les rappels pour le podomètre : débute la 3e semaine après la sortie de l'hôpital (jour 0)

	JOUR				
	0 + 2	**3 + 2**	**7 ± 2**		
Courriel	Planifié podomètre	--			
SMS	--	--			
Téléphone	Planifié podomètre	Rappel 1 podomètre	Rappel 2 podomètre		

Nous ne ferons pas plus de 3 rappels et il y aura un minimum d'un jour entre ces rappels.

Les rappels pour le questionnaire : débute la journée après avoir porté le podomètre (jour 0)

	JOUR		
	0 + 2	**3 + 2**	**7 ± 2**
Courriel	Planifié questionnaire	Rappel questionnaire	--
SMS	Planifié questionnaire	Rappel questionnaire	--
Téléphone	--	--	Rappel questionnaire[a]

[a] S'il manque quelques jours de synchronisation du podomètre, nous utiliserons ce moment au téléphone avec le participant pour lui demander d'effectuer la synchronisation.

Nous ne ferons pas plus de 3 rappels et il y aura un minimum d'un jour entre ces rappels.

CONTENU

COURRIEL : CONTACT PLANIFIÉ À JOUR 0 + 2

Objet : Projet TAVIE en m@rche | Initiation au projet

Date : Le JJ-MM-AAAA

Bonjour Monsieur ou Madame ABC,

Mon nom est John Kayser, infirmier en recherche, et vous recevez ce courriel parce que vous avez accepté de participer au projet de recherche TAVIE en m@rche. Votre participation à ce projet est grandement appréciée. Vous recevrez très bientôt un appel téléphonique à votre domicile pour confirmer votre volonté de participer à l'étude et pour vous guider sur les étapes de votre participation. Lors de cet appel, je vous inviterai à **(pour ceux qui utilisent Windows 10, envoyer seulement #2 ci-dessous)** faire deux choses :

1) (Pour le Pebble) À partir de votre ordinateur, je vous demanderai de cliquer sur l'hyperlien suivant ou de le copier dans votre navigateur Web :
http://www.myinertia.com/Downloads001.aspx

(Pour le Fitbit) https://www.fitbit.com/ca/setup
Veuillez suivre les instructions d'installation de ce logiciel de votre feuille d'informations donnée à l'hôpital (aussi ci-jointe).

Le logiciel à télécharger à partir de cet hyperlien permettra de faire fonctionner le podomètre. Vous trouverez la traduction en français de la licence d'utilisation dans le fichier joint au présent courriel. Je vous guiderai au besoin par téléphone pour télécharger ce logiciel. **(#1 est supprimé pour ceux qui utilisent Windows 10)**

2) Commencer à porter le podomètre quotidiennement pendant 7 jours. **Après 7 jours, vous cessez de porter le podomètre. Vous le conserverez dans un endroit facile à repérer, car on vous demandera de le reporter dans 5 semaines.**

Veuillez recevoir mes plus cordiales salutations,

John Kayser, infirmier, Candidat au doctorat en Sciences infirmières de l'Université de Montréal
L'Équipe de recherche clinique de Sylvie Cossette, inf., PhD.
Centre de recherche de l'Institut de cardiologie de Montréal
5000, rue Bélanger, Salle S-2490
Montréal (Québec) H1T 1C8
Tél. : 514-376-3330 poste 4026
Courriel : John.Kayser@icm-mhi.org
Projet : TAVIE en m@rche

Fichier ci-joint : Pour le Pebble : Licence Fitlinxx en français et les instructions sur comment porter Pebble; ou Pour le Fitbit : l'installation du logiciel pour votre podomètre et les instructions à propos de comment le porter et comment synchroniser les données.

TÉLÉPHONE : CONTACT PLANIFIÉ À JOUR 0 + 2 ET RAPPEL À JOUR 3 + 2 ET 7 ± 2 SI PAS DE RENCONTRE TÉLÉPHONIQUE

Bonjour Monsieur ou Madame ABC,

Mon nom est John Kayser, infirmier en recherche, et je vous appelle parce que vous faites partie du projet de recherche TAVIE en m@rche. Votre participation est grandement appréciée. Tel que convenu, je vous appelle pour confirmer votre volonté de participer à l'étude et pour vous guider sur les étapes de votre participation. Notre rencontre téléphonique prendra environ 15 minutes. Êtes-vous disponible maintenant pour cette rencontre téléphonique?

(Si **OUI**)
Confirmer la volonté de participation à l'étude. En regardant le courriel avec le participant : expliquer comment télécharger le logiciel permettant de faire fonctionner le podomètre et l'inviter à porter le podomètre quotidiennement pendant 7 jours consécutifs et **ensuite de cesser de le porter**.

(Si **NON**)
Puis-je vous rappeler à un autre moment? Lequel? _____

Note : _____

Si un message est laissé :

Bonjour Monsieur ou Madame ABC,

Mon nom est John Kayser, infirmier en recherche, et je vous appelle parce que vous faites partie du projet de recherche TAVIE en m@rche. Votre participation est grandement appréciée. Comme convenu, je vous appelle pour confirmer votre volonté de participer à l'étude et pour vous guider sur les étapes de votre participation. Notre rencontre téléphonique prendra environ 15 minutes. Je vais vous rappeler vers __ __ : __ __ pour cette rencontre téléphonique. Vous pouvez aussi laisser un message sur ma boite vocale au 514-376-3330 poste 4026 en spécifiant la date et l'heure la plus appropriée pour vous rejoindre. Merci!

Note : _____

RAPPEL TÉLÉPHONIQUE : RAPPEL À JOUR 7±2 POUR CEUX QUI PORTENT LE FITBIT ET UTILISENT WINDOWS 10 AFIN DE LEUR RAPPELER DE RETOURNER LE PODOMÈTRE PAR LA POSTE

Pour ceux qui portent le Fitbit et utilisent Windows 10 (contact réussi ou message laissé):

Bonjour Monsieur ou Madame ABC,

Mon nom est John Kayser, infirmier en recherche, et je vous appelle concernant votre participation à notre projet de recherche TAVIE en m@rche. Votre participation est grandement appréciée. Je vous téléphone pour vous rappeler de retourner le podomètre aujourd'hui en utilisant l'enveloppe préaffranchie fournie avec le podomètre. Aussi, je vous invite à lire le courriel que nous vous avons envoyé aujourd'hui et qui vous invite à compléter le premier questionnaire du projet. (À ajouter si un message est laissé) Il est possible de me contacter, John Kayser, par téléphone au 514-376-3330, poste 4026 , ou par courriel à John.Kayser@icm-mhi.org pour obtenir de l'aide afin de retourner le podomètre ou d'accéder au questionnaire. Note :

COURRIEL : CONTACT PLANIFIÉ À JOUR 0 + 2 ET RAPPEL À JOUR 3 + 2 SI LE QUESTIONNAIRE N'EST PAS COMPLÉTÉ

Sujet du courriel initial : TAVIE en m@rche | Rappel pour compléter le questionnaire
Sujet du courriel de rappel : TAVIE en m@rche | 2e rappel pour compléter le questionnaire

Date : Le JJ-MM-AAAA

Bonjour Monsieur ou Madame ABC,

Votre participation au projet TAVIE en m@rche est grandement appréciée. Ceci est un rappel pour vous inviter à compléter le premier questionnaire du projet. Pour le Fitbit : Ceci est un rappel pour vous inviter à 1) synchroniser les données de votre podomètre et 2) compléter le premier questionnaire du projet. (Cette dernière phrase est supprimée pour ceux qui portent le Fitbit et utilisent Windows 10)

Pour le Fitbit : 1) Synchroniser les données du podomètre en cliquant sur « Synchroniser maintenant » à partir du logiciel Fitbit installé sur votre ordinateur, et ce, tel que décrit dans la feuille d'informations qui vous a été remise à l'hôpital (aussi ci-jointe). **Si vous éprouvez des problèmes avec la synchronisation**, veuillez me contacter par téléphone ou par courriel pour spécifier la date et l'heure la plus appropriée pour vous rejoindre par téléphone afin de résoudre ce problème avant de passer à l'étape suivante. (Ce paragraphe est supprimée pour ceux qui portent le Fitbit et utilisent Windows 10)

2) S'il vous plaît, veuillez cliquer sur le lien suivant ou le copier dans votre navigateur Web : URL

Il est possible de me contacter, John Kayser, par téléphone au 514-376-3330, poste 4026, ou par courriel à John.Kayser@icm-mhi.org pour obtenir de l'aide avec (Pour Fitbit) la synchronisation des données du podomètre ou avec le questionnaire en ligne.

Veuillez recevoir mes plus cordiales salutations,

John Kayser, infirmier, Candidat au doctorat en Sciences infirmières de l'Université de Montréal
L'Équipe de recherche clinique de Sylvie Cossette, inf., PhD.
Centre de recherche de l'Institut de cardiologie de Montréal
5000, rue Bélanger, Salle S-2490
Montréal (Québec) H1T 1C8
Tél. : 514-376-3330 poste 4026
Courriel : John.Kayser@icm-mhi.org
Projet : TAVIE en m@rche

Fichier ci-joint : Pour le Fitbit : Comment porter le podomètre et synchroniser les données.

SMS : CONTACT PLANIFIÉ À JOUR 0+2 ET RAPPEL À JOUR 3 + 2 SI LE QUESTIONNAIRE N'EST PAS COMPLÉTÉ

Vous avez reçu un courriel concernant votre participation à TAVIE en m@rche ! Il est important de le lire ☺. Bonne journée ! John Kayser, infirmier.

RAPPEL TÉLÉPHONIQUE : RAPPEL À JOUR 7 ± 2 SI LE QUESTIONNAIRE N'EST PAS COMPLÉTÉ

Bonjour Monsieur ou Madame ABC,

Mon nom est John Kayser, infirmier en recherche, et je vous appelle parce que vous faites partie du projet de recherche TAVIE en m@rche. Votre participation est grandement appréciée. Je vous téléphone pour vous rappeler de lire le courriel que nous vous avons envoyé qui vous invite à compléter le premier questionnaire du projet.

Désirez-vous de l'information maintenant pour accéder au questionnaire du projet?

(Si **OUI**)
En regardant le courriel,

1) Aider le participant à répondre à ses questions portant sur l'accès au questionnaire du projet (Noter les questions).

(Si **NON**)
Puis-je vous rappeler à un autre moment? Lequel? _____
Note : _____

Si un message est laissé :

Bonjour Monsieur ou Madame ABC,

Mon nom est John Kayser, infirmier en recherche, et je vous appelle concernant votre participation à notre projet de recherche TAVIE en m@rche. Votre participation est grandement appréciée. Je vous téléphone pour vous rappeler de lire le courriel que nous vous avons envoyé vous invitant à compléter le premier questionnaire du projet. S'il vous plait, laisser un message sur ma boite vocale au 514-376-3330 poste 4026 en spécifiant la date et l'heure le plus appropriée pour vous rejoindre. Merci !
Note : _____

TEMPS : 4 SEMAINES APRÈS LA SORTIE DE L'HÔPITAL (T0)

PHASE DU PROJET

Randomisation

OBJECTIF

1) Donner, par courriel automatisé du système TAVIE, l'hyperlien et le mot de passe pour accéder à l'un ou l'autre des sites web.

	JOUR				
	0	**3**	**7 ± 2**	**10**	**14**
Courriel	Planifié	--	--	--	--
SMS		--	--	--	--
Téléphone	--	--	Rappel	--	--

Nous ne ferons pas plus de 3 rappels et il y aura un minimum d'un jour entre les rappels.

CONTENU

COURRIEL : CONTACT PLANIFIÉ À JOUR 0

Sujet du courriel automatisé : Projet TAVIE en m@rche | Établir la connexion

Date : Le JJ-MM-AAAA

Bonjour Monsieur ou Madame ABC,

Votre participation au projet TAVIE en m@rche est grandement appréciée.

Pour établir la connexion avec le site Web du groupe auquel vous appartenez, veuillez cliquer ou copier le lien suivant dans votre navigateur Web : URL

Ensuite, entrer le nom d'usager et le mot de passe de votre compte.

Votre nom d'usager est :
Votre mot de passe est :

S'il vous plaît, notez sur un papier ou dans un fichier sécurisé votre nom d'usager et votre mot de passe.

Il est possible de contacter John Kayser par téléphone au 514-376-3330, poste 4026, ou par courriel à John.Kayser@icm-mhi.org pour obtenir de l'aide afin d'établir la connexion.

Veuillez recevoir mes plus cordiales salutations,

John Kayser, infirmier, Candidat au doctorat en Sciences infirmières de l'Université de Montréal
L'Équipe de recherche clinique de Sylvie Cossette, inf., PhD.
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5000, rue Bélanger, Salle S-2490
Montréal (Québec) H1T 1C8
Tél. : 514-376-3330 poste 4026
Courriel : John.Kayser@icm-mhi.org
Projet : TAVIE en m@rche

RAPPEL TÉLÉPHONIQUE : RAPPEL À JOUR 7 ± 2 SI PAS DE CONNEXION AVEC LE SITE WEB

Bonjour Monsieur ou Madame ABC,

Mon nom est John Kayser, infirmier en recherche, et je vous appelle parce que vous faites partie du projet de recherche TAVIE en m@rche. Votre participation est grandement appréciée. Je vous téléphone pour savoir si je peux vous aider à établir la connexion avec le site Web du groupe auquel vous appartenez. Nous vous avons déjà envoyé par courriel l'information nécessaire. Désirez-vous de l'aide maintenant pour établir la connexion?

(Si **OUI**)
En regardant le courriel avec le participant : Expliquer comment accéder à l'un ou l'autre des sites Web avec l'hyperlien et le mot de passe.

(Si **NON**)
Puis-je vous rappeler à un autre moment? Lequel? _____

Note : _____

Si un message est laissé :

Bonjour Monsieur ou Madame ABC,

Mon nom est John Kayser, infirmier en recherche, et je vous appelle parce que vous faites partie du projet de recherche TAVIE en m@rche. Votre participation est grandement appréciée. Je vous téléphone pour savoir si je peux vous aider à établir la connexion avec le site Web du groupe auquel vous appartenez. Nous vous avons déjà envoyé par courriel l'information sur comment établir la connexion. S'il vous plait, laisser un message sur ma boite vocale au 514-376-3330 poste 4026 en spécifiant la date et l'heure la plus appropriée pour vous rejoindre. Merci !
Note : _____

TEMPS : 8 ET 15 SEMAINES APRÈS LA SORTIE DE L'HÔPITAL (T2 ET T3)

PHASE DU PROJET

Collecte des données

OBJECTIFS

1) Inviter le participant à commencer à porter le podomètre quotidiennement pendant 7 jours consécutifs et **ensuite de cesser de le porter**.
2) Inviter le participant à répondre au 2ième (T2) ou 3ième (T3) questionnaire à partir de l'ordinateur à la maison, **après avoir porté le podomètre pour 7 jours**

Les rappels pour le podomètre : débute à la 3e semaine après la sortie de l'hôpital (jour 0)

	JOUR				
	0 + 2	**3 + 2**	**7 ± 2**		
Courriel	Planifié podomètre	Rappel podomètre			
SMS	Planifié podomètre	Rappel podomètre			
Téléphone	--	--	Rappel podomètre		

Nous ne ferons pas plus de 3 rappels et il y aura un minimum d'un jour entre les rappels.

Les rappels pour le questionnaire : débute la journée après avoir porté le podomètre (jour 0)

	JOUR		
	0 + 2	**3 + 2**	**7 ± 2**
Courriel	Planifié questionnaire	Rappel questionnaire	--
SMS	Planifié questionnaire	Rappel questionnaire	--
Téléphone	--	--	Rappel questionnaire[a]

[a] S'il manque quelques jours de synchronisation du podomètre, nous utiliserons ce moment au téléphone avec le participant pour lui demander d'effectuer la synchronisation.

Nous ne ferons pas plus de 3 rappels et il y aura un minimum d'un jour entre les rappels.

CONTENU

COURRIEL : CONTACT PLANIFIÉ À JOUR 0 + 2 ET RAPPEL À JOUR 3 + 2 SI PAS DE DONNÉES PODOMÈTRE ENREGISTRÉS (SYNCHRONISÉS)

Sujet du courriel initial : TAVIE en m@rche | Rappel pour porter le podomètre
Sujet du courriel de rappel : TAVIE en m@rche | 2e rappel pour porter le podomètre

Pour ceux qui portent le Fitbit et utilisent le Windows 10 : Une semaine avant l'envoi de ce courriel, le message ci-dessous est aussi envoyé par la poste dans la même enveloppe contenant le podomètre

Date : Le JJ-MM-AAAA

Bonjour Monsieur ou Madame ABC,

Votre participation au projet TAVIE en m@rche est grandement appréciée.

Ceci est un rappel pour vous inviter à commencer à porter le podomètre quotidiennement pendant 7 jours. **Après 7 jours (de lundi, le 8 août à dimanche, le 14 août), vous cessez de porter le podomètre, soit le 15 août (note : les dates sont mises au 1er rappel). (À T2) Vous le conservez dans un endroit facile à repérer car on vous demandera de le reporter dans 7 semaines. (ÀT3) Vous le conserver dans un endroit facile à repérer car on vous demandera de le retourner dans 1 semaine. (Les deux dernières phrases sont supprimées pour ceux qui portent le Fitbit et utilisent Windows 10)**

Pour le Fitbit : Lors de la première et la quatrième journée que vous portez le podomètre, s'il vous plaît, synchronisez les données du podomètre en cliquant sur « Synchroniser maintenant » à partir du logiciel Fitbit installé sur votre ordinateur (voir la feuille d'informations ci-joint). **(Ce paragraphe est supprimé pour ceux qui portent le Fitbit et utilisent Windows 10)**

Pour ceux qui portent le Fitbit et utilisent Windows 10 : Veuillez retourner le podomètre le lundi, 15 août, en utilisant l'enveloppe préaffranchie fournie. Entre le 15 et le 18 août, nous vous rappellerons par téléphone 1) de le retourner et 2) de confirmer par téléphone ou par courriel la date que vous avez commencé à le porter.

Il est possible de contacter John Kayser par téléphone au 514-376-3330, poste 4026, ou par courriel à John.Kayser@icm-mhi.org pour obtenir de l'aide avec le podomètre.

Veuillez recevoir mes plus cordiales salutations,

John Kayser, infirmier, Candidat au doctorat en Sciences infirmières de l'Université de Montréal
L'Équipe de recherche clinique de Sylvie Cossette, inf., PhD.
Centre de recherche de l'Institut de cardiologie de Montréal
5000, rue Bélanger, Salle S-2490
Montréal (Québec) H1T 1C8
Tél. : 514-376-3330 poste 4026

Projet : TAVIE en m@rche

Fichier ci-joint : Pour le Fitbit : Comment porter le podomètre et synchroniser les données.

SMS : CONTACT PLANIFIÉ À JOUR 0 + 2 ET RAPPEL À JOUR 3 + 2

Vous avez reçu un courriel concernant votre participation à TAVIE en m@rche ! Il est important de le lire ☺. Bonne journée ! John Kayser, infirmier.

COURRIEL : CONTACT PLANIFIÉ À JOUR 0 + 2 ET RAPPEL À JOUR 3 + 2 SI LE QUESTIONNAIRE N'EST PAS COMPLÉTÉ

Sujet du courriel initial : TAVIE en m@rche | Rappel pour compléter le questionnaire
Sujet du courriel de rappel : TAVIE en m@rche | 2e rappel pour compléter le questionnaire

Date : Le JJ-MM-AAAA

Bonjour Monsieur ou Madame ABC,

Votre participation au projet TAVIE en m@rche est grandement appréciée. Ceci est un rappel pour vous inviter à compléter le (deuxième ou troisième) questionnaire du projet **après les 7 jours pendant lesquels vous avez porté le podomètre**. Pour le Fitbit : Ceci est un rappel pour vous inviter à 1) synchroniser les données de votre podomètre **(1 est supprimé pour ceux qui portent le Fitbit et utilisent Windows 10)** et 2) compléter le (deuxième ou troisième) questionnaire du projet.

Pour le Fitbit : 1) S'il vous plaît, synchronisez les données du podomètre en cliquant sur « Synchroniser maintenant » à partir du logiciel Fitbit installé sur votre ordinateur (voir la feuille d'informations ci-jointe). **Si vous éprouvez des problèmes avec la synchronisation**, veuillez me contacter par téléphone ou par courriel pour spécifier la date et l'heure la plus appropriée pour vous rejoindre par téléphone afin de résoudre ce problème avant de passer à l'étape suivante. **(Ce paragraphe est supprimé pour ceux qui portent le Fitbit et utilisent Windows 10)**

2) S'il vous plaît, veuillez cliquer ou copier le lien suivant dans votre navigateur Web : URL

Il est possible de contacter John Kayser par téléphone au 514-376-3330, poste 4026, ou par courriel à John.Kayser@icm-mhi.org pour obtenir de l'aide avec le questionnaire en ligne.

Veuillez recevoir mes plus cordiales salutations,

John Kayser, infirmier, Candidat au doctorat en Sciences infirmières de l'Université de Montréal
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Tél. : 514-376-3330 poste 4026
Courriel : John.Kayser@icm-mhi.org
Projet : TAVIE en m@rche

Fichier ci-joint : Pour le Fitbit : Comment porter le podomètre et synchroniser les données.

SMS : CONTACT PLANIFIÉ À JOUR 0 + 2 ET RAPPEL À JOUR 3 + 2 SI LE QUESTIONNAIRE N'EST PAS COMPLÉTÉ

Vous avez reçu un courriel concernant votre participation à TAVIE en m@rche ! Il est important de le lire ☺. Bonne journée! John Kayser, infirmier.

RAPPEL TÉLÉPHONIQUE : RAPPEL À JOUR 7 ± 2 SI PAS DES DONNÉES PODOMÈTRE ENREGISTRÉS (SYNCHRONISÉS) OU SI LE QUESTIONNAIRE N'EST PAS COMPLÉTÉ

Bonjour Monsieur ou Madame ABC,

Mon nom est John Kayser, infirmier en recherche, et je vous appelle parce que vous faites partie du projet de recherche TAVIE en m@rche. Votre participation est grandement appréciée. Je vous téléphone pour vous rappeler de lire le courriel que nous vous avons envoyé et qui vous invite à :

1) commencer à porter le podomètre quotidiennement pendant 7 jours
Ou
2) compléter le (deuxième ou troisième) questionnaire du projet

Désirez-vous maintenant de l'information pour
1) savoir comment porter le podomètre ?
Ou
2) accéder au questionnaire du projet ?

(Si **OUI**)
En regardant le courriel,

Aider le participant à répondre à ses questions portant sur l'utilisation du podomètre ou l'accès au questionnaire du projet (Noter les questions)

(Si **NON**)
Puis-je vous rappeler à un autre moment ? Lequel ? _____
Note : _____

Si un message est laissé :

Bonjour Monsieur ou Madame ABC,

Mon nom est John Kayser, infirmier en recherche, et je vous appelle concernant votre participation à notre projet de recherche TAVIE en m@rche. Votre participation est grandement appréciée. Je vous téléphone pour vous rappeler de lire le courriel que nous vous avons envoyé vous invitant à :

1) commencer à porter le podomètre quotidiennement pendant 7 jours
Ou
2) compléter le (deuxième ou troisième) questionnaire du projet.

S'il vous plait, laisser un message sur ma boite vocale au 514-376-3330 poste 4026 ([illegible]) en spécifiant la date et l'heure la plus appropriée pour vous rejoindre. Merci !
Note : _____

RAPPEL TÉLÉPHONIQUE : RAPPEL À JOUR 7 ± 2 POUR CEUX QUI PORTENT LE FITBIT ET UTILISENT WINDOWS 10 AFIN DE LEUR RAPPELER LE RETOUR DU PODOMÈTRE PAR LA POSTE

Pour ceux qui portent le Fitbit et utilisent Windows 10 (contact réussi ou message laissé):

Bonjour Monsieur ou Madame ABC,

Mon nom est John Kayser, infirmier en recherche, et je vous appelle concernant votre participation à notre projet de recherche TAVIE en m@rche. Votre participation est grandement appréciée. Je vous téléphone pour vous rappeler de retourner le podomètre aujourd'hui en utilisant l'enveloppe préaffranchie fournie avec le podomètre. Aussi, je vous invite à lire le courriel que nous vous avons envoyé aujourd'hui et qui vous invite à compléter le (deuxième ou troisième) questionnaire du projet. (À ajouter si un message est laissé) Il est possible de me contacter, John Kayser, par téléphone au 514-376-3330, poste 4026 ou par courriel à John.Kayser@icm-mhi.org pour obtenir de l'aide afin de retourner le podomètre ou d'accéder au questionnaire.

Note : _____

TEMPS : 11 SEMAINES APRÈS LA SORTIE DE L'HÔPITAL

PHASE DU PROJET

« Booster » TAVIE en m@rche, pour le groupe expérimental

OBJECTIF

1) Inviter le participant à consulter TAVIE en m@rche.

	JOUR				
	0 + 2	**3**	**7**	**10**	**14**
Courriel	Planifié	--	--	--	--
SMS	Planifié	--	--	--	--
Téléphone	--	--	--	--	--

CONTENU

COURRIEL : CONTACT PLANIFIÉ À JOUR 0 + 2

Objet : TAVIE en m@rche | Rappel pour accéder au site Web

Date : Le JJ-MM-AAAA

Bonjour Monsieur ou Madame ABC,

Votre participation au projet TAVIE en m@rche est grandement appréciée.

Ceci est un rappel pour vous inviter à consulter TAVIE en m@rche à l'ordinateur afin d'accéder à de l'information et des conseils supplémentaires concernant l'activité physique et la marche à pied. Après cette connexion à TAVIE en m@rche, il est très important que vous accédiez au test des SYMPTÔMES D'INTOLÉRANCE À L'EFFORT, disponible sous l'onglet du MENU DES AIDE-MÉMOIRE, et que vous refassiez ce test. Ce test a pour but de vérifier s'il est souhaitable pour vous, selon votre condition, de participer à l'intervention.

Pour établir la connexion, veuillez cliquer sur le lien suivant ou le copier dans votre navigateur Web : URL

Ensuite, entrez le nom d'usager et le mot de passe de votre compte.

Il est possible de me contacter, John Kayser, par téléphone au 514-376-3330, poste 4026, ou par courriel à John.Kayser@icm-mhi.org pour obtenir de l'aide afin d'établir la connexion.

Veuillez recevoir mes plus cordiales salutations,

John Kayser, infirmier, Candidat au doctorat en Sciences infirmières de l'Université de Montréal
L'Équipe de recherche clinique de Sylvie Cossette, inf., PhD.
Centre de recherche de l'Institut de cardiologie de Montréal
5000, rue Bélanger, Salle S-2490
Montréal (Québec) H1T 1C8
Tél. : 514-376-3330 poste 4026
Courriel : John.Kayser@icm-mhi.org
Projet : TAVIE en m@rche

SMS : CONTACT PLANIFIÉ JOUR 0

Vous avez reçu un courriel concernant votre participation à TAVIE en m@rche! Il est important de le lire ☺. Bonne journée ! John Kayser, infirmier.

TEMPS : 16 SEMAINES APRÈS LA SORTIE DE L'HÔPITAL

PHASE DU PROJET

Retour du podomètre.

OBJECTIF

1) Inviter le participant à retourner le podomètre.

	JOUR				
	0 + 2	**3**	**7**	**10 ± 2**	**14**
Courriel	Planifié	--	--	--	--
SMS	Planifié	--	--	--	--
Téléphone	--	--	--	Rappel	--

Nous ne ferons pas plus de trois rappels et il y aura un minimum d'un jour entre les rappels.

CONTENU

COURRIEL : CONTACT PLANIFIÉ À JOUR 0 + 2

Sujet du courriel initial : TAVIE en m@rche | Rappel pour retourner le podomètre

Date : Le JJ-MM-AAAA

Bonjour Monsieur ou Madame ABC,

C'est la fin de votre participation au projet TAVIE en m@rche. Il m'a fait plaisir de collaborer avec vous lors de ce projet. Votre participation à ce projet de recherche contribuera probablement à l'avancement des connaissances scientifiques dans le domaine de l'activité physique et de la marche à pied chez des personnes ayant vécu un événement coronarien.

Veuillez, s'il vous plaît, retourner le podomètre en utilisant l'enveloppe préaffranchie que nous vous avons fournie lorsque vous étiez à l'hôpital au début du projet.

(Les informations ci-dessous, concernant la désinstallation du logiciel, sont supprimées pour ceux qui portent le Fitbit et qui utilisent Windows 10) Afin d'effacer (désinstaller) le logiciel qui fait fonctionner le podomètre, veuillez suivre ces étapes :

(PEBBLE) Pour Windows :
1) Ouvrir le menu « Démarrer » et cliquer sur « Ordinateur »
2) Ouvrir le Disque locale « Local Disk (C:) »
3) Ouvrir le dossier « Program Files »
4) Ouvrir le dossier « FitLinxx »
5) Ouvrir le dossier « SyncUtility »
6) Ouvrir le fichier « UnInstall.exe »
7) Effacer le dossier « FitLinxx ».

Pour Mac :
1) Ouvrir « Finder »
2) Ouvrir le dossier « Applications »
3) Trouver le fichier « Sync Utility »
4) Mettre le fichier « Sync Utility » dans le poubelle « Trash ».

FITBIT Pour Windows :
1) Ouvrir le menu « Démarrer » et cliquersur « Tous les programmes »
2) Cliquersur « Fitbit Connect »
3) Double-cliquer sur « Désinstaller Fitbit Connect ».

FITBIT pour Mac :
1. Ouvrir le menu « Applications »
2. Trouver le programme « Fitbit Connect »
3. Cliquer à droit de la souris afin d'afficher « Corbeille » dans le menu déroulant
4. Placer Fitbit Connect dans la « Corbeille ».

Il est possible de me contacter, John Kayser, par téléphone au 514-376-3330, poste 4026, ou par courriel à John.Kayser@icm-mhi.org pour obtenir de l'aide afin de retourner le podomètre.

Veuillez recevoir mes plus cordiales salutations,

John Kayser, infirmier, Candidat au doctorat en Sciences infirmières de l'Université de Montréal
L'Équipe de recherche clinique de Sylvie Cossette, inf., PhD.
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Tél. : 514-376-3330 poste 4026
Courriel : John.Kayser@icm-mhi.org
Projet : TAVIE en m@rche

3 Fichiers joints : Les graphiques du podomètre

SMS : CONTACT PLANIFIÉ À JOUR 0 + 2

Vous avez reçu un courriel concernant votre participation à TAVIE en m@rche ! Il est important de le lire ☺. Bonne journée ! John Kayser, infirmier.

RAPPEL TÉLÉPHONIQUE : RAPPEL À JOUR 10 ± 2 SI LE PODOMÈTRE N'EST PAS RETOURNÉ

Bonjour Monsieur ou Madame ABC,

Mon nom est John Kayser, infirmier en recherche, et je vous appelle parce que vous faites partie du projet de recherche TAVIE en m@rche. Votre participation est grandement appréciée. Je vous téléphone pour vous rappeler de retourner le podomètre en utilisant l'enveloppe préaffranchie que nous vous avons fournie lorsque vous étiez à l'hôpital au début de votre participation au projet.

Note : _____

Si un message est laissé :

Bonjour Monsieur ou Madame ABC,

Mon nom est John Kayser, infirmier en recherche, et je vous appelle concernant votre participation à notre projet de recherche TAVIE en m@rche. Votre participation est grandement appréciée. Je vous téléphone pour vous rappeler de retourner le podomètre en utilisant l'enveloppe préaffranchie que nous vous avons fournie lorsque vous étiez à l'hôpital au début de votre participation au projet. S'il vous plait, laissez un message sur ma boite vocale au 514-376-3330 poste 4026 , en spécifiant la date et l'heure le plus appropriée pour vous rejoindre. Merci!
Note : _____

TEMPS : 2 SEMAINES APRÈS LA DÉCONNEXION | SYMPTÔMES D'INTOLÉRANCE À L'EFFORT

PHASE DU PROJET

Rappel pour les participants du groupe expérimental qui ont été déconnectés parce qu'ils ont ressenti un ou plusieurs symptômes d'intolérance à l'effort il y a environ 2 semaines.

OBJECTIF

1) Réinviter le participant à consulter TAVIE en m@rche.

	JOUR				
	0	**3**	**7**	**10**	**14**
Courriel	Planifié	--	--	--	--
SMS	Planifié	--	--	--	--
Téléphone	--	--	--	--	--

CONTENU

COURRIEL : CONTACT PLANIFIÉ À JOUR 0

Sujet du courriel : TAVIE en m@rche | Rappel pour rétablir la connexion

Date : Le JJ-MM-AAAA

Bonjour Monsieur ou Madame ABC,

Votre participation au projet TAVIE en m@rche est grandement appréciée.

Il y a environ 2 semaines que vous avez établi la connexion dans TAVIE en m@rche. Vous avez été déconnecté du site Web TAVIE en m@rche parce que vous avez indiqué avoir ressenti un ou plusieurs symptômes d'intolérance à l'effort. Nous vous invitons à rétablir la connexion. Après cette connexion à TAVIE en m@rche, il est très important que vous accédiez au test des SYMPTÔMES D'INTOLÉRANCE À L'EFFORT, disponible sous l'onglet du MENU DES AIDE-MÉMOIRE, et que vous refassiez ce test. Ce test a pour but de vérifier s'il est souhaitable pour vous, selon votre condition, de participer à l'intervention.

Veuillez :
1) cliquer sur le lien suivant ou le copier dans votre navigateur Web : URL
2) entrer le nom d'usager et le mot de passe de votre compte; et
3) cliquer sur le bouton « Retourner à l'évaluation des symptômes d'intolérance à l'effort ».

Il est possible de me contacter, John Kayser, par téléphone au 514-376-3330, poste 4026, ou par courriel à John.Kayser@icm-mhi.org pour obtenir de l'aide afin d'établir la connexion.

Veuillez recevoir mes plus cordiales salutations,

John Kayser, infirmier, Candidat au doctorat en Sciences infirmières de l'Université de Montréal
L'Équipe de recherche clinique de Sylvie Cossette, inf., PhD.
Centre de recherche de l'Institut de cardiologie de Montréal
5000, rue Bélanger, Salle S-2490
Montréal (Québec) H1T 1C8
Tél. : 514-376-3330 poste 4026
Courriel : John.Kayser@icm-mhi.org
Projet : TAVIE en m@rche

SMS : CONTACT PLANIFIÉ À JOUR 0

Vous avez reçu un courriel concernant votre participation à TAVIE en m@rche! Il est important de le lire ☺. Bonne journée ! John Kayser, infirmier.