Université de Montréal

Predictors of response to cognitive behavioral therapy guided self-help (GSH-CBT) for generalized anxiety disorder (GAD) in older adults

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Résumé

Le trouble d'anxiété généralisée (TAG) demeure l'un des troubles anxieux les plus courants chez les personnes âgées. Bien qu'il existe des traitements pharmacologiques et psychologiques efficaces, des études suggèrent que le TAG soit sous-traité chez les personnes âgées puisque l'accès à la thérapie leur serait plus difficile. Afin d'augmenter l'accessibilité, des auto-traitements guidés permettant à la personne d'apprendre de manière autonome, à domicile, ont été développés. Toutefois, les recherches antérieures soulignent la nécessité d'examiner les variables prédictives pour déterminer qui bénéficie de ces traitements auto-guidés, considérant le peu d'informations disponibles sur les individus bénéficiant de telles interventions. De plus, l'efficacité à long terme des auto-traitements guidés n'a pas encore été démontrée de manière concluante. Ce problème est d'autant plus important chez les personnes âgées. Il est donc essentiel, pour une bonne application clinique, d'acquérir des connaissances sur les prédicteurs de résultats afin d'identifier les personnes susceptibles de répondre à ces types d'interventions. Par conséquent, cette thèse vise à développer une compréhension plus détaillée de la façon dont différentes variables sont associées à différentes mesures de résultats cliniques chez les personnes âgées, tant à court terme qu'à long terme, afin de faciliter les applications cliniques futures. Les données utilisées dans la présente thèse proviennent d'un essai contrôlé randomisé de plus grande envergure, conçu pour déterminer l'efficacité d'un auto-traitement guidé de 15 semaines pour traiter le TAG chez les personnes âgées, basé sur les principes de la thérapie cognitivo-comportementale (GSH-CBT) et guidé par des non-professionnels. La première étude a examiné les variables démographiques, motivationnelles et psychologiques qui ont prédit les résultats cliniques et l'abandon du traitement GSH-CBT en utilisant les données de 106 adultes âgés de 60 ans et plus. Les résultats cliniques comprenaient l'anxiété, l'inquiétude et l'intolérance à l'incertitude, mesurées respectivement par le GAD-7, le

PSWQ et l'IUI. Une anxiété moins importante et une plus grande confiance vis-à-vis du traitement ont permis de prédire de meilleurs résultats post-traitement sur le GAD-7, tandis des inquiétudes moins intenses, une plus grande confiance dans le traitement et des attentes de résultats plus élevées ont permis de prédire de meilleurs résultats sur le PSWQ. Enfin, un niveau plus faible d'intolérance à l'incertitude et d'inquiétude, une plus grande motivation externe pour débuter le traitement, une meilleure perception de la crédibilité de la thérapie et des attentes de résultats plus élevées ont permis de prédire de meilleurs résultats sur l'IUI. Dans les analyses multivariées, seuls les niveaux initiaux d'anxiété, d'inquiétude et d'intolérance à l'incertitude permettaient de prédire l'issue du traitement. La seconde étude visait à déterminer quels facteurs prédisaient l'efficacité à long terme de ce traitement en examinant différentes variables qui prédisaient les mêmes résultats cliniques six mois et douze mois après le traitement, en utilisant les données de 26 adultes âgés de soixante ans et plus. Dans les analyses multivariées, des niveaux moins élevés d'anxiété, d'inquiétude et d'intolérance à l'incertitude, ainsi qu'une plus grande motivation externe, ont permis de prédire les résultats six mois après le traitement, tandis qu'un niveau moins élevé d'anxiété et une plus grande satisfaction à l'égard du soutien social ont permis de prédire les résultats douze mois après le traitement. L'ensemble de ces résultats révèle qu'une sévérité initiale des symptômes plus faible prédit un meilleur résultat du traitement, et que ce traitement peut être plus bénéfique à long terme pour les personnes âgées ayant des niveaux légers à modérés d'anxiété, d'inquiétude et d'intolérance à l'incertitude, motivées à suivre le traitement et ayant un plus grand niveau de satisfaction en matière de soutien social.

Mots-clés : Trouble d'anxiété généralisée, thérapie cognitivo-comportementale, auto-traitement guidé, personnes âgées, prédicteurs de résultats, étude longitudinale.

Abstract

Generalized anxiety disorder (GAD) remains one of the most common anxiety disorders in older adults. Although effective pharmacological and psychological treatments are available, studies suggest that GAD is still undertreated in seniors because access to therapy is particularly difficult for older individuals. To increase accessibility, guided self-help treatments where the person learns autonomously from home have been developed. However, previous research highlights the need for more effective targeting through the determination of predictor variables to determine who benefits from these treatments, as little is known about which individuals benefit from guided self-help interventions. Furthermore, there is inconclusive evidence regarding the long-term effectiveness of guided self-help treatments. This issue is compounded with regards to older adults, thus gaining knowledge on outcome predictors to properly distinguish who is likely to respond from these types of interventions is vital to its proper clinical application. Therefore, this thesis focuses on developing a more detailed understanding of how different variables are associated with different measures of clinical outcomes in older adults both in the short-term and in the long-term to facilitate future clinical applications. The data used in the current thesis originates from a larger multisite randomized controlled trial designed to determine the efficacy of a 15-week guided self-help treatment of threshold and subthreshold GAD in older adults based on the principles of cognitive-behavioral therapy (GSH-CBT) and guided by lay providers. The first study examined the demographic, motivational, and psychological variables that predicted clinical outcomes and treatment dropout in this GSH-CBT using data from 106 older adults aged sixty years and over. Clinical outcomes included anxiety, worry, and intolerance of uncertainty measured by the GAD-7, PSWQ, and IUI respectively. Lower anxiety severity and higher confidence in the treatment predicted better post-treatment outcomes on the GAD-7, whereas lower worry severity, higher

confidence in the treatment, and higher outcome expectations predicted better outcomes on the PSWQ. Lastly, lower intolerance of uncertainty and worry severity, greater external motivation for starting the treatment, greater perceived credibility of the therapy, and higher outcome expectations predicted better outcomes on the IUI. In multivariate analyses, only initial anxiety, worry, and intolerance of uncertainty severity predicted treatment outcome. The second study sought to determine which factors predicted the long-term efficacy of this treatment by examining different variables that predicted the same clinical outcomes at 6- and 12-months post-treatment using data from 26 older adults aged sixty years and over. In the multivariate analyses, lower initial anxiety, worry, and intolerance of uncertainty severity, as well as greater external motivation predicted treatment outcome at 6-months post-treatment, and lower initial anxiety and social support satisfaction predicted treatment outcome at 12-months post-treatment. Overall, the results of this thesis suggest that lower initial symptom severity predicts better treatment outcome, and that this treatment may be more beneficial in the long-term to older individuals with mild to moderate anxiety, worry, and intolerance of uncertainty, who are motivated to do the treatment and who have greater social support satisfaction.

Keywords: Generalized anxiety disorder, cognitive behavioral therapy, guided self-help, older adults, outcome predictors, longitudinal study.

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List of Abbreviations

ADIS-5: Anxiety and Related Disorders Interview Schedule for DSM-5

CEQ: Credibility/Expectancy Questionnaire

CIHR: Canadian Institutes of Health Research

DSM-5: Diagnostic and statistical manual of mental disorders, fifth edition

GAD: Generalized anxiety disorder

GAD-7: General Anxiety Disorder-7 Questionnaire

GDS: Geriatric Depression Scale

GSH: Guided self-help

GSH-CBT: Guided self-help based on the principles of cognitive-behavioral therapy

ICBT: Internet-delivered cognitive behaviour therapy

IUI: Intolerance of Uncertainty Inventory

PQPTM: Quebec Program for Mental Disorders

PSWQ: Penn State Worry Questionnaire

RCT: Randomized controlled trial

SSQ-6 : Social Support Questionnaire

TMMSE: Telephone Mini-Mental State Examination

TMQ: Treatment Motivation Questionnaire

WAI: Working Alliance Inventory

WAI-G: Working Alliance Inventory – Short Form Guide Version

WAI-P: Working Alliance Inventory – Short Form Participant Version

WAQ: Worry and Anxiety Questionnaire

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Introduction

1. Overview

Studies have suggested that, although effective pharmacological and psychological treatments are available, generalized anxiety disorder (GAD) is still undertreated in older adults because access to therapy is particularly difficult for older individuals, who often have mobility issues (Gonçalves & Byrne, 2012; Karlin et al., 2008; Gum et al., 2010). With GAD rates ranging from 2.3% to 7.3% in community-dwelling seniors, this anxiety disorder requires further research to improve the effectiveness of existing treatments (Witlox et al., 2021; Grenier et al., 2019; Zhang et al., 2015; Wolitzky-Taylor et al., 2010). With subthreshold GAD being even more present, a guided self-help (GSH) treatment where the person learns autonomously from home could potentially be successful in these populations as it increases the accessibility of treatment (Miloyan et al., 2015; Cuijpers et al., 2010). This is called a guided self-help based on the principles of cognitive-behavioral therapy (GSH-CBT) and it will be used in this thesis to treat GAD in older participants. However, as this is a new therapy design, the characteristics of individuals benefiting from this treatment are important to determine in order to facilitate future clinical applications. Previous research shows limited success for GSH-CBT treatments for anxiety, and it has been suggested that more effective targeting through the determination of predictor variables may be needed to determine who benefits from GSH-CBT (Coull & Morris, 2011; Lovell et al., 2008). In studies on GSH, variables such as age, education, severity of clinical symptoms, treatment credibility, motivational type, treatment adherence, and therapeutic alliance have been shown to affect outcome (Keeley et al., 2008; Nordgreen et al., 2011; Alfonsson et al., 2016). This thesis will be focusing on developing a more detailed understanding of how such variables are associated with different measures of clinical outcomes in older adults, which can help future clinical

dissemination to those who are more likely to respond and help in designing more effective GSH-CBT treatments for older adults suffering from GAD.

2. Generalized anxiety disorder definition and prevalence

Generalized Anxiety Disorder (GAD) remains one of the most common anxiety disorders in older adults. According to the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; DSM–5; American Psychiatric Association, 2013), it is mainly characterized by excessive anxiety and worries regarding a multitude of subjects that are difficult to control. These worries are present most days for at least six months and are associated with at least three of the following symptoms: agitation, tiring easily, impaired concentration or gaps in memory, irritability, muscle tension, and sleep disturbance (American Psychiatric Association, 2013). A study conducted by Zhang et al. (2015) has shown a 4.6% six-month prevalence rate of GAD in community-dwelling seniors. In addition, two comprehensive reviews on the prevalence rates of GAD in older adults conducted by Wolitzky-Taylor et al. (2010) and Witlox et al. (2021) demonstrated that some researchers have reported 6-month prevalence rates as high as 7.3%. Subthreshold GAD, that is individuals who do not meet all diagnostic criteria for clinical GAD, has been shown to be as prevalent as threshold GAD in older individuals, with prevalence rates reaching 7.1% (Miloyan et al., 2015). Prevalence rates for GAD have been shown to remain stable over time among people aged 65 and over are even higher in clinical settings, with threshold and subthreshold anxiety rates as high as 19.4% and 11.7% respectively (Grenier et al., 2019; Creighton et al., 2018).

2.1 Cost and impact of GAD

Late-life GAD has several negative impacts on older individuals. Seniors with anxiety have been shown to have a decreased quality of life, more disability, and greater healthcare usage (Porensky et al., 2009; Wolitzky-Taylor et al., 2010). For example, a study conducted by Brenes et al. (2008)

examining the relationship between anxiety, depression, and physical disability demonstrated that, after controlling for demographics, health, and depression, anxiety was associated with increased disability and that older individuals tended to also experience greater disability than younger adults. In addition, late-life anxiety has been shown to be associated with increase suicide risk, pain, depression, sleep difficulties, health problems, and cognitive disorders in older adults (Wolitzky-Taylor et al., 2010; Préville et al., 2008; Magee & Carmin, 2010). Late-life anxiety is also associated with significant healthcare costs, both for the affected individuals and for society in general (Wolitzky-Taylor et al., 2010). For example, a study conducted by Vasiliadis et al. (2013) examining the healthcare costs associated with anxiety disorders in older individuals in Quebec demonstrated that only GAD was associated with increased healthcare costs, with an excess of $4688 per-capita, which translates to annual costs between $26.0 and $61.2 million per 1,000,000 population of older adults.

2.2 Under-treatment of GAD among older adults

Even though GAD is associated with several adverse effects within older adults and effective psychological and pharmacological treatments are available, GAD remains undertreated in older adults (Gonçalves & Byrne, 2012; Baek & Khan, 2017). The majority of older adults do not seek help for their GAD, and only a minority of seniors use mental health services for their psychological distress (Mackenzie et al., 2011; Préville et al., 2008). It has been demonstrated that the majority of older adults suffering from anxiety disorders fail to receive appropriate treatment, with rates as low as 5.1% for therapy and 3.8% for medication (Hendriks et al., 2008). Older adults are also three times less likely to receive treatment because access to psychotherapy for seniors is particularly difficult, especially in rural areas where large travel distances are required (Karlin et al., 2008; Gum et al., 2010; Weaver & Himle, 2017). Older adults often do not have access to

treatment due to mobility issues (63%) and a lack of transportation (46%) (Gum et al., 2010). Because psychotherapy is based on weekly sessions, low access to treatment is an important treatment obstacle (Landreville et al., 2016). Therefore, further research focusing on improving the availability of existing treatments for GAD is required.

3. Guided self-help

To increase accessibility to psychological treatment, a guided self-help treatment where the person learns autonomously from home has been developed with outcomes comparable with face-to-face therapy (Miloyan et al., 2015; Cuijpers et al., 2010). In a systematic review and meta-analysis conducted by Cuijpers et al. (2010) exploring the effectiveness of GSH versus face-to-face psychotherapy for anxiety disorders and depression amongst adults in 21 studies (N=810), the authors concluded that GSH and face-to-face treatments have comparable effects that were maintained up to one year after treatment, with a post-test effect size of d = -.02 in favour of GSH. The authors define GSH as a psychological treatment where the patient takes home a standardized exercise package and works through it more or less independently (Cuijpers et al., 2010). This type of treatment can be in book form or be on other media, such as the Internet, television, video, or audio (Cuijpers et al., 2010). GSH is distinguished from traditional psychotherapy, which is based on regular personal interaction with a therapist, because in GSH (a) the patient uses step-by-step instructions on how to apply a psychological treatment procedure to himself, (b) the role of the therapist is primarily of a supportive or facilitative nature, and (c) the amount of contact between the patient and therapist is minimized (Cuijpers et al., 2010). The benefits of using a GSH for GAD include providing a long-term treatment approach for people with this chronic disorder, providing an alternative to psychotherapy for people who cannot consult a specialist or prefer to manage the disorder themselves, and providing an alternative when access to traditional psychological services

is difficult, which is often the case with older individuals, especially those living in rural regions (McIntosh et al., 2004). The relevancy of utilizing GSH in mental health care to address these issues has been demonstrated and is recommended in Canada (Mental Health Commission of Canada, 2012). With difficulties accessing therapy on the rise, incorporating GSH-CBT within a stepped care model where patients are treated with low intensity versions of CBT, like GSH-CBT, before being stepped up to more advanced care could improve accessibility to treatment. A review on stepped-care treatments for anxiety and depression conducted by Meuldijk et al. (2019) concluded that it can lead to better clinical outcomes and is more cost-effective than treatment as usual. In addition, they suggest that these approaches are feasible in older adults and can indeed increase access to care (Meuldijk et al., 2019). There is currently an initiative referred to as the "Quebec Program for Mental Disorders" (PQPTM) to implement this type of treatment model in Quebec, which is a stepped care model designed to increase access to therapy (Quebec Ministry of Health and Social Services, 2023). Therefore, this research can shed light on who might benefit from GSH treatments and can facilitate treatment implementation on an organizational level.

3.1 Guided self-help for GAD among older adults

A GSH for the treatment of GAD may be beneficial to seniors. Although minimal literature exists, the efficacy of GSH-CBT in the treatment of GAD in seniors shows promise. Jones et al. (2016) examined the efficacy of a guided internet-delivered cognitive behaviour therapy (ICBT) for older adults with GAD and found large effect sizes in the reduction of anxiety symptoms (d=.85, d=1.17) at post-treatment and a further reduction 1 month after. Titov et al. (2016) also studied the efficacy of a self-guided transdiagnostic ICBT for older adults with anxiety and depression and found large reductions ($d \geq 1.00$) in symptoms at post-treatment. Albeit limited, the research on GSH treatments for late-life GAD seems to indicate that it may be effective in reducing symptoms.

Therefore, in the context of the larger study within which this thesis is inserted, Landreville et al. (2016) have developed a GSH-CBT to treat GAD in older adults to further explore its efficacy (to learn more about the content of the eight modules included in this GSH-CBT, see Annex A). The GSH-CBT that was developed is a manual-based intervention that was based on the intolerance of uncertainty model of GAD developed by Dugas et al. (1998) and the treatment protocol associated with this model (Dugas et al., 2003). It was decided to include non-professionals (or lay providers) as the guides in the GSH because lay providers have been shown in a Cochrane review to have positive results comparable to professionals when applying a psychotherapy for anxiety and depressive symptoms (Boer et al., 2005). Another reason for using lay providers is the limited accessibility of psychologists for seniors, especially those who cannot travel or who live in remote areas, thus there is a potential to reduce health-care costs for society (Weaver & Himle, 2017). With regards to older adults and GAD, Stanley et al. (2014) compared treatment results of bachelor-level lay providers with those of doctorate-level expert providers in a CBT for GAD among older adults and concluded that both groups demonstrated similar GAD symptom reductions that were maintained at 6- and 12-months post-treatment. Similar results were also reported by Freshour et al. (2016) in a CBT delivered by lay and expert providers for late-life GAD. Therefore, it was deemed appropriate to use lay providers as therapeutic guides. Landreville et al. (2016) have tested the efficacy of this new GSH-CBT treatment in a single-case multiple-baseline study with three older individuals who met criteria for GAD and found that participants had reduced worries and GAD severity at post-test, results which were maintained one year later. The results are promising and show that a GSH-CBT guided by a non-licensed provider can be effective, but the authors suggest that future research should identify the characteristics of individuals that are most likely to benefit from the treatment (Landreville et al., 2016).

4. Importance of identifying outcome predictors

As this is a new therapy design, the characteristics of individuals benefiting from this treatment are important to determine in order to facilitate future clinical applications. It has been suggested that more effective targeting through the determination of predictor variables may be needed to determine who benefits from GSH-CBT (Coull & Morris, 2011; Lovell et al., 2008). The importance of identifying predictors of response to GSH-CBT to more effectively target populations who may benefit from these treatments has been highlighted by both Coull and Morris (2011) and Lovel et al. (2008) as a priority for future research because of a lack of understanding regarding who benefits from GSH-CBT. This view is reflected by both Cuijpers and Schuurmans (2007) and Nordgreen et al. (2011) who mention that, because little is known about which individuals benefit from guided self-help interventions, gaining knowledge on outcome predictors to properly distinguish who is likely to respond from these types of interventions is vital to its proper clinical application. Therefore, the first goal of this thesis will be to identify the predictors of outcome for this GSH-CBT. The importance of identifying predictors of response to GSH-CBT becomes even more important in the long-term. Indeed, a systematic review conducted by Coull and Morris (2011) exploring the clinical effectiveness of CBT-based guided self-help interventions for anxiety and depressive disorders found inconclusive evidence regarding the long-term effectiveness of GSH-CBT in 13 randomized control trials. For example, studies that measured outcome immediately post-treatment found significant effects versus studies that measured clinical outcomes at 3-month follow-up. The authors also mention that the methodologically stronger randomized controlled trials demonstrated no significant improvements in the longer term (Coull & Morris, 2011). Therefore, GSH-CBT seems to be effective at post-treatment, but has limited effectiveness at follow-up, thus highlighting the need for longitudinal data. The authors suggest

that further research into the long-term outcomes of GSH-CBT is required before it can be deemed effective for adults in the treatment of anxiety and highlight the necessity for a greater understanding of who benefits from GSH-CBT to guide future use of GSH within clinical practice (Coull & Morris, 2011). This research gap will be also addressed in the current thesis, as outcome measures will be gathered at 6 months and 12 months post-treatment to identify the factors that predict long-term treatment success.

5. Outcome predictors

5.1 Demographic predictors

It is unclear which demographic variables can predict treatment outcome in a GSH for GAD in older adults, as current research is inconclusive. A study exploring outcome predictors of a guided ICBT for social anxiety disorder explored the age, sex, education level, employment status, and family status of participants (El Alaoui, Ljótsson, et al., 2015). They found that being older and being employed were associated with lower social anxiety symptoms post-treatment and that males had lower adherence, but higher education was positively associated with adherence (El Alaoui, Ljótsson, et al., 2015). Similarly, in an individual patient data meta-analysis that included ten studies (n = 2705 participants) conducted by Karyotaki et al. (2015) on the predictors of treatment dropout in self-guided web-based interventions for depression, the researchers also concluded that male sex and lower educational level significantly increased the risk of dropping out, while being older significantly decreased the risk of dropping out. In total, only 17% of participants completed all treatment modules, suggesting low adherence and high attrition rates. However, the majority of these studies did not include older participants in their analyses. Only 3 studies included participants up to age 65 and only 1 study focused on older participants aged between 50 and 57 years. However, this last study conducted by Spek et al. (2008) found similar results with regards

to sex and educational outcome predictors. Although multiple studies found that being a male (El Alaoui, Ljótsson, et al., 2015; Karyotaki et al., 2015) and having lower education (Alfonsson et al., 2016; El Alaoui, Ljótsson, et al., 2015; Karyotaki et al., 2015) negatively predicted treatment progress, the impact of these predictors have yet to be determined with older populations due to a lack of literature. Few studies have looked at demographic predictor variables for CBT effectiveness in older individuals, and of those, none of them explored GSH interventions. For example, Hundt et al. (2014) examined demographic predictors of outcome with seniors in a traditional CBT for late-life GAD, but found no significant correlations. Wetherell et al. (2005) also studied predictors for CBT for late-life GAD and also determined that demographic variables did not predict posttreatment symptom reduction. Therefore, demographic predictors in older individuals with regards to GSH-CBT need to be further studied. It is important to note that the majority of research on outcome predictors for guided-self help CBT treatments do not include older populations in their samples nor are they focused on GAD specifically. Therefore, our selection of outcome predictors was not restricted to GSH-CBT interventions, but instead refers to the larger literature of CBT for GAD in adults and is guided by previous research in this area. The outcome predictors of GSH studies in combination with predictors in studies focusing on traditional CBT or GAD were used as points of reference to determine which predictors may affect treatment outcome in a GSH-CBT treatment for GAD in older adults.

5.2 Initial GAD symptomology severity as predictors

The initial severity of GAD symptomology presented by individuals entering treatment can also be important predictors of treatment outcome. For example, a study looking at predictors of traditional CBT in older adults with GAD found that both lower anxiety severity and worry severity, measured by the Penn State Worry Questionnaire (PSWQ), predicted positive 6-month

treatment outcome (Hundt, et al., 2014). These results are further supported by Wetherell et al. (2005), who also studied outcome predictors in CBT for late-life GAD and found that higher baseline GAD severity and tendency to worry (measured by the PSWQ) predicted better 6-month treatment outcomes. In addition, a study looking at group CBT for GAD found that intolerance of uncertainty (a critical construct underlying GAD) predicted GAD symptom improvement at post-treatment (Torbit & Laposa, 2016). Initial symptom severity has also been shown to be an important outcome predictor in guided and unguided treatments of social anxiety disorder, health anxiety, obsessive-compulsive disorder, and depression (Nordgreen et al., 2011; El Alaoui, Ljótsson, et al., 2015; Hedman et al., 2013; Keeley et al., 2008; Spek et al., 2008). Therefore, GAD symptom severity will be considered as an outcome predictor in this study, as well as excessive worries and intolerance of uncertainty, which are also key mechanisms within this disorder (Landreville et al., 2016). These two factors will be measured in addition to GAD severity when determining symptomology because research has shown that they can predict CBT treatment outcome for adults with GAD (Hundt, et al., 2014; Wetherell et al., 2005; Torbit & Laposa, 2016). However, as can be seen, the research is mixed on whether higher or lower initial GAD symptomology severity is related to more positive treatment outcomes (Hundt, et al., 2014; Wetherell et al., 2005). Therefore, participants with subthreshold and clinically significant GAD will both be included in this thesis to determine whether individuals with lower or higher GAD severity benefit more from the GSH-CBT treatment. If individuals with subthreshold anxiety are found to also benefit from the GSH-CBT, it increases its clinical reach potential.

5.3 Credibility predictor

Treatment credibility as an outcome predictor can also be important, as researchers have argued that program credibility may be especially relevant for self-help treatment outcomes because these

treatments may not hold the same credibility as face-to-face therapy amongst patients (Ritterband et al., 2010; Geraghty et al., 2010; Nordgreen et al., 2011). Boettcher et al. (2013) describes treatment credibility as how logical, trustworthy, or beneficial a treatment seems to the individual engaging in it. Research into treatment credibility has shown that it is an important predictor of treatment outcome because it can impact intervention adherence, without which clinical improvement is unlikely (Ritterband et al., 2010). For example, a study on the outcome predictors in ICBT for social anxiety found that credibility emerged as both a significant predictor of symptom improvement and increased treatment adherence (El Alaoui, Ljótsson, et al., 2015). These results are further supported by Alfonsson et al. (2016), who found that credibility significantly predicted treatment dropout and overall symptom improvement in an ICBT relaxation program for mild to moderate stress. In a study on GSH for panic disorder, reported treatment credibility by participants was also associated with treatment outcomes with regards to panic disorder symptoms (Carlbring et al., 2005). Although there is a lack of literature on GSH-CBT outcome predictors for older individuals, Jones et al. (2016) found that treatment credibility measured prior to an ICBT given to older adults with GAD predicted improvements in GAD symptoms over time. This was further supported by a study looking at predictors of traditional CBT in older adults with GAD that found that credibility predicted 6-month anxiety outcome (Hundt, et al., 2014). Therefore, it may be useful to include this predictor for a GSH-CBT with older adults, as Geraghty et al. (2010) suggest that credibility seems to be a robust predictor that is generalizable across varying interventions. Overall, treatment credibility has been shown to be a generally stable predictor of response to GSH-CBT in the short-term, but little is known about its long-term predictive value regarding treatment effects (El Alaoui, Hedman, et al., 2015).

Therefore, treatment credibility will be included as an outcome predictor in this thesis and its predictive value in the long-term will also be determined.

5.4 Motivation predictor

As the treatment used in this study involves self-help, the motivational type of individuals choosing to participate in the program may play an important role in treatment adherence, as more motivated individuals may complete more treatment modules. Therefore, it can also be a primary factor influencing treatment outcome. According to Ryan (2012), the self-determination theory model posits that there are different types of motivation that govern behavior change. There are two main types of motivation: intrinsic and extrinsic. Intrinsic motivation involves doing an activity because the person enjoys it and has genuine interest in it, thus it is self-determined (Ryan, 2012). Extrinsic motivation involves doing an activity for external rewards or to avoid punishment (Ryan, 2012). Therefore, if an individual possesses more motivation when beginning the treatment, then this may predict adherence and outcome because more motivated individuals may complete more modules. Indeed, previous research has shown that motivation can influence outcome measures in GSH. A recent study conducted by Alfonsson et al. (2016) on the outcome predictors of an ICBT relaxation program found that higher external motivation for entering treatment negatively predicted treatment outcome. Further experimentation by Alfonsson et al., (2017) also found that intrinsic motivation predicted adherence in an online intervention. A review conducted by Newman et al. (2003) exploring predictors of outcome in self-help therapies concluded that they are more effective for more motivated clients. In support of this, a qualitative study conducted by Bendelin et al. (2011) on guided ICBT for depression found that motivation was a crucial aspect of adherence when using a GSH approach. Motivation has also been shown to be an important outcome predictor in guided and unguided treatments of obsessive-compulsive disorder, panic

disorder, bulimia nervosa, and substance abuse (Bachofen et al., 1999; Keeley et al., 2008; Klein et al., 2006; Steele et al., 2010; Ryan et al., 1995). Although the literature on the predictive nature of motivation in GSH-CBT with older individuals is lacking, Wetherell et al. (2005) studied outcome predictors in CBT for late-life GAD and suggested that motivation may be responsible for both treatment adherence and outcome. Based on these previous findings, in this thesis, baseline motivation for treatment will be measured as a potential outcome predictor.

5.5 Adherence predictor

Adherence has also been shown to be related to treatment outcome in both face-to-face CBT and ICBT (Rapee et al., 2007; Mausbach et al., 2010). For example, a meta-analysis conducted by Mausbach et al. (2010) on the relationship between homework compliance and traditional CBT outcomes in 23 studies (n = 2183) found a significant relationship between adherence and treatment outcome (r = .26), suggesting that adherence may predict treatment outcome in CBT. Furthermore, Donkin et al. (2011) conducted a systematic review examining the impact of adherence on the effectiveness of e-therapies and found that, although only one third of the 69 studies explored the relationship between anxiety and outcomes, the number of modules completed was found to be the factor that was the most related to outcome in interventions that targeted anxiety disorders. The importance of treatment adherence is also highlighted by Alfonsson et al. (2016) who state that adherence to treatment, which includes assignment completion, is one of the best outcome predictors in ICBT. With regards to GSH, Nordgreen et al. (2011) found that increased adherence was related to reductions in social anxiety in a GSH. They report that, at the end of the treatment, 65% of individuals who completed at least seven treatment modules no longer had a diagnosis of social anxiety, whereas only 35% of those who completed less modules reached the same status (Nordgreen et al., 2011). These results are further supported by El Alaoui, Ljótsson,

et al., (2015) who found that higher adherence to an ICBT treatment for social anxiety predicted a faster improvement rate during treatment. Alfonsson et al. (2016) also found that treatment adherence, measured by treatment progress (β = -31) and registered exercises (β = -.21) both predicted post-treatment stress symptoms significantly in a study on outcome predictors in a guided ICBT behavioral relaxation program. Hilvert-Bruce et al. (2012) also highlighted the importance of adherence in determining CBT treatment effectiveness for both anxiety and depressive disorders in a series of three studies. In addition, treatment adherence has also been shown to be an important outcome predictor in studies on health anxiety and social anxiety disorder (Hedman et al., 2013; El Alaoui, Ljótsson, et al., 2015). Although literature is scarce on predictors of CBT outcome in older adults with GAD, Hundt et al. (2014) found that adherence to homework predicted 6-month anxiety outcome in randomized controlled trial of CBT for late-life GAD. This was further supported by Wetherell et al. (2005) who also found that homework adherence predicted outcome in a CBT for late-life GAD. This suggests that considering adherence as an outcome predictor may be pertinent for older adults. Taking into consideration the previous findings that suggest that adherence can predict treatment outcome in a GSH-CBT, it will also be included as a predictor of treatment outcome in this thesis.

5.6 Working alliance predictor

Lastly, the perception of the therapeutic alliance between guides and participants may play an important role in the treatment because participants are guided weekly throughout their self-help intervention. Therefore, the quality of the relationship that participants have with their guides can be a factor predicting treatment outcome. Several researchers have suggested that support in therapy, and more specifically the working alliance between participants and guides may play an important role in therapeutic outcome (Nordgren et al., 2013; Boettcher et al., 2013; Alfonsson et

al., 2016). For example, a study conducted by Kleiboer et al. (2015) directly comparing supported and unsupported interventions in Internet-based problem-solving therapy for depression and anxiety found that only participants who received weekly support improved significantly more than wait-list controls for depression and anxiety, thus underscoring the importance of structural support in Internet-based interventions for depression and anxiety. Several meta-analyses have also demonstrated that guided interventions with support from a coach or therapist (for example, guided ICBT) had moderate or high effects sizes compared to face-to-face interventions, and that supported interventions yielded better treatment outcomes and greater retention than unguided interventions (Cuijpers et al., 2010; Andersson et al., 2014; Spek et al., 2007; Richards & Richardson, 2012). Because adherence to treatment has been shown to be higher in GSH treatments compared to unguided treatments, it has been argued that treatment adherence may also be enhanced by human support through accountability (Christensen et al., 2009; Mohr et al., 2011). This is further supported by Richards and Richardson (2012), who reported high drop-out rates of 74% for unsupported treatments compared to 28% for therapist-supported and 38% for administrative-supported treatments. Therefore, receiving support during treatment fosters adherence, which has been repeatedly shown to result in better treatment outcomes (Mausbach et al., 2010; Donkin et al., 2011; Alfonsson et al., 2016). However, within supported therapies, the working alliance between participants and guides seems to be what plays an important role. The effects of the working alliance between participants and guides on therapeutic outcome has been demonstrated in multiple studies. In a recent systematic review on the role of the therapeutic alliance in guided ICBT therapy programs for both depression and anxiety disorders, the authors found that alliance directly predicted treatment outcome, with a high level of client-therapist alliance being reported in all studies (Pihlaja et al., 2018). In support of the relationship between

working alliance and treatment outcome in guided treatments, Alfonsson et al. (2016) also demonstrated that treatment outcome was positively predicted by the working alliance in a study examining the outcome predictors for an ICBT relaxation program. This indicates that the working alliance can be considered as an outcome predictor in GSH treatments. However, the literature is still mixed on this relationship, as Andersson et al. (2012) found insignificant change scores on the primary outcome measures when examining the effect of the working alliance in an ICBT for depression, generalized anxiety disorder, and social anxiety disorder. A review conducted by Berger (2017) on the importance of therapeutic alliance in different ICBT treatment modalities (including GSH) reveals that the evidence is currently mixed on whether or not the working alliance plays an important role in GSH treatments. This highlights the need for further research into the effects of the working alliance in GSH-CBT. It is also not known if guidance given by lay persons, instead of professionals, may affect the strength of the working alliance, but the low drop-out rates reported by Richards and Richardson (2012) are promising. The relation between working alliance and outcome measures will thus also be explored in this study.

5.7 Social support and depression as long-term predictors

Social support and depression symptom severity may both also be important factors that predict treatment outcome, especially in the long-term. As noted by Lindfors et al. (2014), social support may help individuals put change into practice after treatment, as a facilitating environment can foster the utilisation of new ways of coping. A review conducted by Ozbay et al. (2007) also highlighted the role of social support in helping to manage stress and promoting the use effective coping strategies. Since the chances of being confronted with stressful events increase over time, social support has the potential to have a long-term impact on a person's ability to apply the coping strategies that they learned in treatment. Considering that social support has been shown to be a

protective factor for anxiety and increases resilience when faced with these events and that studies have yet to look at this factor in seniors, it will be included as a long-term predictor of outcome in this thesis (Ozbay et al., 2007). Depression will also be included as a factor predicting outcome in the long-term, as previous research has shown that not only can it predict outcome 6 months after treatment has been completed, but that residual depression symptoms post-treatment can also lead to relapse (Hundt et al., 2014; Ali et al., 2017). Considering its role in influencing outcome well after treatment is completed, including this factor as a potential predictor of outcome in the long-term can help shed more light on the clinical evolution of older adults with GAD after they complete this GSH-CBT. All measures and questionnaires used for each outcome predictor can be found in Annex B.

6. Objectives and hypotheses

A new CBT-based GSH treatment will be administered to older adults to determine its efficacy in reducing GAD symptoms over time. However, as the factors associated with therapeutic outcome and completion are unknown with this new treatment, research into the predictors of treatment response will allow for more effective GSH intervention targeting. Therefore, the global objectives of this thesis are to identify various demographic, motivational, and psychological variables that could predict both treatment dropout and clinical outcomes in a new GSH-CBT therapy designed to treat GAD in older adults. The results will allow us to determine who benefits from this treatment, as it is currently unclear (Lovell et al., 2008). In order to answer these objectives, two studies will be carried out.

The first article's main objective is to identify the factors that predict treatment outcome, which will be measured by GAD severity, worry intensity, and level of intolerance to uncertainty at post-treatment. The outcome predictors include sociodemographic data (age, sex, and level of

education), baseline clinical symptomology severity (anxiety, worry, and intolerance of uncertainty), treatment credibility, participant motivation, treatment adherence, and working alliance. The second objective is to predict dropout rates using the same variables, except for the working alliance, as it was measured at post-test. Dropout will be measured by counting the number of participants who dropped out of the study before completing the treatment. We hypothesize (H1) that positive views of treatment credibility, greater motivation (internal and external) for beginning treatment, a positive experience shared between lay providers and participants, and higher adherence to the treatment modules will lead to reduced GAD symptomology at post-treatment. We also hypothesize (H2) that the above-mentioned factors will predict dropout rates during treatment.

The objective of the second article is to identify the factors that predicted the long-term outcome of the intervention, which will be measured by GAD severity, worry intensity, and level of intolerance to uncertainty at 6- and 12-months post-treatment. The outcome predictors include sociodemographic data (age, sex, and level of education), baseline clinical symptoms (anxiety, depression, worry, and intolerance of uncertainty), treatment credibility, participant motivation, treatment adherence, and social support. We hypothesize that lower initial anxiety and depression symptom severity, positive views of treatment credibility, greater motivation for beginning treatment, higher adherence to the treatment modules, and greater social support will lead to reduced GAD severity, worry intensity, and level of intolerance to uncertainty at 6 and 12 months after treatment. The manuscripts for both articles are written, but not yet published, as we are waiting for the results of the main study from which the data has been sourced to be published before the articles on outcome predictors are sent for publishing.

Article 1

Predictors of response to cognitive behavioral therapy guided self-help (GSH-CBT) for generalized anxiety disorder (GAD) in older adults

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Abstract

Generalized anxiety disorder (GAD) remains one of the most common anxiety disorders in older adults. Although effective pharmacological and psychological treatments are available, studies suggest that GAD is still undertreated in seniors because access to therapy is particularly difficult for older individuals. To increase accessibility, guided self-help treatments where the person learns autonomously from home have been developed. This study is a secondary analysis of data from a larger multisite randomized controlled trial designed to determine the efficacy of a 15-week guided self-help treatment of threshold and subthreshold GAD based on the principles of cognitive-behavioral therapy (GSH-CBT) and guided by lay providers. The purpose of the current study was to identify the demographic, motivational, and psychological variables that predict clinical outcomes and treatment dropout in this new GSH-CBT treatment for GAD. Clinical outcomes included anxiety, worry, and intolerance of uncertainty severity measured by the GAD-7, PSWQ, and IUI respectively. Participants in the current study were older adults aged 60 years and over (n = 106). Results showed that lower anxiety severity and higher confidence in the treatment predicted better post-treatment anxiety outcomes on the GAD-7, whereas lower worry severity, higher confidence in the treatment, and higher outcome expectations predicted better post-treatment anxiety outcomes on the PSWQ. Lastly, lower intolerance of uncertainty and worry severity, greater external motivation for starting the treatment, greater credibility of the therapy, and higher outcome expectations predicted better post-treatment anxiety outcomes on the IUI. However, in multivariate analyses, only initial anxiety, worry, and intolerance of uncertainty severity predicted treatment outcome. Overall, these results suggest that lower initial symptom severity predicts better treatment outcome, thus indicating that this treatment may be more beneficial to older individuals with mild to moderate anxiety.

Introduction

Generalized anxiety disorder (GAD), characterized by excessive anxiety and worries that are difficult to control and are related to a variety of symptoms and activities, remains one of the most common anxiety disorders in older adults. With GAD prevalence rates ranging from 2.3% to 7.3% in community-dwelling seniors, this anxiety disorder requires further research to improve the effectiveness of existing treatments (Witlox et al., 2021; Grenier et al., 2019; Zhang et al., 2015; Wolitzky-Taylor et al., 2010). Late-life GAD has several negative impacts on older individuals including a decreased quality of life, more disability, and greater healthcare usage (Porensky et al., 2009; Wolitzky-Taylor et al., 2010). Although effective pharmacological and psychological treatments are available, studies have suggested that GAD is still undertreated in older adults because access to therapy is particularly difficult for older individuals, especially those living in rural areas where large travel distances are required (Gonçalves & Byrne, 2012; Karlin et al., 2008; Gum et al., 2010). Older individuals often do not have access to treatment due to mobility issues (63%) and a lack of transportation (46%) (Gum et al., 2010). Because psychotherapy is based on weekly sessions, low access to treatment is an important treatment obstacle (Landreville et al., 2016). To increase accessibility to psychological treatment, guided self-help treatments where the person learns autonomously from home have been developed with outcomes comparable with face-to-face therapy (Miloyan et al., 2015; Cuijpers et al., 2010). A guided self-help treatment (GSH) is distinguished from traditional psychotherapy, which is based on regular personal interaction with a therapist, because in GSH (a) the patient uses step-by-step instructions on how to apply a psychological treatment procedure to himself, (b) the role of the therapist is primarily of a supportive or facilitative nature, and (c) the amount of contact between the patient and therapist is minimized (Cuijpers et al., 2010). In a systematic review and meta-analysis conducted

by Cuijpers et al. (2010) exploring the effectiveness of GSH versus face-to-face psychotherapy for anxiety disorders and depression amongst adults in 21 studies (n = 810), the authors concluded that GSH and face-to-face treatments have comparable effects that were maintained up to 1 year after treatment, with a post-test effect size of d = -.02 in favour of GSH. The benefits of using a GSH for GAD include providing a long-term treatment approach for people with this chronic disorder, providing an alternative to psychotherapy for people who cannot consult a specialist or prefer to manage the disorder themselves, and providing an alternative when access to traditional psychological services is difficult, which is often the case with older individuals (McIntosh et al., 2004).

Although minimal literature exists, the efficacy of GSH-CBT in the treatment of GAD in seniors shows promise. Jones et al. (2016) examined the efficacy of a guided internet-delivered cognitive behaviour therapy (ICBT) for older adults with GAD and found large effect sizes in the reduction of GAD symptoms (d = .85) at post-treatment and a further reduction one month after. However, as the factors associated with therapeutic success and completion are unknown with the new GSH-CBT treatment used in the current study, the characteristics of individuals benefiting from this treatment are important to determine in order to facilitate future clinical applications. It has been suggested that more effective targeting through the determination of predictor variables may be needed to determine who benefits from GSH-CBT (Coull & Morris, 2011; Lovell et al., 2008). This view is reflected by both Cuijpers and Schuurmans (2007) and Nordgreen et al. (2011) who mention that, because little is known about which individuals benefit from guided self-help interventions, gaining knowledge on outcome predictors to properly distinguish who is likely to respond from these types of interventions is vital to its proper clinical application. Although research studying the predictors of CBT in the treatment of anxiety have found that age, sex,

education, severity of clinical symptoms, treatment credibility, motivation, working alliance, and adherence predict outcome (El Alaoui, Hedman, et al., 2015; Karyotaki et al., 2015; Ritterband et al., 2010; Alfonsson et al., 2017; Keeley et al., 2008; Nordgreen et al., 2011), only two studies have looked at predictor variables for CBT effectiveness specifically in older individuals (Hundt et al., 2014; Wetherell et al., 2005), and of those, none of them explored GSH interventions. For example, Hundt et al. (2014) looked at predictors of traditional CBT in older adults with GAD and found that both lower anxiety severity and worry severity, measured by the Penn State Worry Questionnaire (PSWQ), predicted positive 6-month treatment outcome. Wetherell et al. (2005), who also studied outcome predictors in CBT for late-life GAD, found that higher baseline GAD severity and tendency to worry (measured by the PSWQ) predicted better 6-month treatment outcomes. Therefore, anxiety and worry severity will be considered as outcome predictors in this study. However, the research is currently mixed on whether higher or lower initial anxiety and worry severity is related to more positive treatment outcomes in seniors (Hundt, et al., 2014; Wetherell et al., 2005). It is also not known if the predictors identified in these two studies apply specifically to a GSH-CBT. Therefore, a more detailed understanding of how such variables are associated with clinical outcomes in a GSH-CBT may help in future clinical dissemination to those who are more likely to respond and help in designing more effective GSH-CBT treatments for older individuals suffering from GAD. Intolerance of uncertainty (a critical construct underlying GAD) has also been suggested to be a key mechanism maintaining this disorder (Landreville et al., 2016). A study looking at group CBT for adults with GAD found that intolerance of uncertainty significantly predicted GAD symptom improvement at post-treatment (Torbit & Laposa, 2016). Therefore, this construct will also be included as an additional outcome predictor in this study.

Our team recently developed a GSH-CBT guided by lay providers that was administered to older adults to determine its efficacy in reducing GAD symptoms, which provided an opportunity to study the predictors of outcome of this new treatment (Landreville et al., 2021). The originality of this GSH-CBT is the use of lay providers, i.e. providers with no post-graduate training in a specialized mental health program, under the supervision of licensed providers, to increase access to treatment, as the capacity of the health care system to adequately meet the needs of seniors is being questioned. In this larger multisite randomized controlled trial, participants completing the at-home GSH-CBT guided by lay providers were compared to a wait-list control group. Using this data, we conducted secondary data analyses to determine the outcome predictors of this new GSH-CBT. The goal of the current study was to identify demographic, motivational, and psychological variables that could predict treatment dropout and clinical outcomes of this new GSH-CBT.

The current study had two main objectives. The first objective was to identify the factors that predicted the efficacy of the intervention, which was measured by the severity of GAD symptoms, worry, and intolerance of uncertainty at post-treatment. The outcome predictors included in the current study were identified as important in previous research cited above and included sociodemographic data (age, sex, and level of education), baseline clinical symptomology severity (anxiety, worry, and intolerance of uncertainty), treatment credibility, participant motivation, treatment adherence, and working alliance. Based on previous research studying the predictors of CBT in the treatment of anxiety in adults and seniors, we hypothesized (H1) that positive views of treatment credibility, greater motivation (internal and external) for beginning treatment, a positive experience shared between lay providers and participants, and higher adherence to the treatment modules would predict lower GAD symptomology at post-treatment (El Alaoui, Hedman, et al.,

2015; Karyotaki et al., 2015; Ritterband et al., 2010; Alfonsson et al., 2017; Keeley et al., 2008; Nordgreen et al., 2011; Hundt et al., 2014; Wetherell et al., 2005)

The second objective was to predict dropout rates using the same variables, except for the working alliance, as it was measured at post-test. Dropout was measured by counting the number of participants who dropped out of the study before completing the treatment. We thus hypothesized (H2) that the above-mentioned predictors would predict dropout rates during treatment.

Methodology

Recruitment and assessment procedure

The current research is part of a larger multisite randomized controlled trial (RCT) designed to determine if a GSH-CBT guided by lay providers is effective in treating older adults with GAD. This manual-based GSH-CBT treatment lasted 15 weeks. Participants (n = 150) also received weekly 15-to-20-minute telephone sessions with lay providers who provided support throughout the treatment (for further details about the treatment protocol, see Landreville et al., 2021). All participants were recruited from advertisements placed in various institutions attended by seniors. These include retirement residences, senior and community centers, articles placed in regional newspapers, seniors' awareness conferences, media interviews, and ads placed on the Internet and newspapers. Individuals interested in participating in the study contacted a research professional who answered their questions, obtained their informed consent, and conducted an initial telephone screening to verify their eligibility based on the following inclusion criteria: 1) be at least 60 years of age, 2) meet at least the criteria for subthreshold GAD based on the Worry and Anxiety Questionnaire (WAQ) (Dugas et al., 2001), 3) meet the DSM-5 criteria for generalized anxiety, diagnosed using the *Anxiety and Related Disorders Interview Schedule for DSM-5* (ADIS-5), a

semi-structured interview to diagnose anxiety, mood, obsessive-compulsive, trauma, and other related disorders (Brown & Barlow, 2014), 4) be able to read and speak French and use a telephone without difficulty, and 5) must be willing, if an anxiety medication is used, to commit to maintaining the type of medication and dose starting eight weeks prior to the treatment and during the treatment program. Participants who had a comorbid anxiety or mood disorder were eligible only if their primary difficulties were associated with GAD and not another disorder. The exclusion criteria were the following: 1) a disabling physical disorder that was not adequately controlled (e.g., an acute heart disease or a recent stroke), 2) the presence of a substance use disorder, 3) the presence of bipolar disorder or symptoms of a psychotic disorder, 4) significant cognitive impairment (determined by a score inferior to 22 on the Telephone version of the Mini-Mental State Examination (TMMSE) (Newkirk et al., 2004), and 5) receiving or having received psychotherapy for GAD over the last six months. A detailed description of all inclusion/exclusion criteria can be found elsewhere (Landreville et al., 2021). Eligible participants based on the initial telephone screening then took part in a two-step pre-treatment assessment. This included a telephone clinical psychological assessment using the ADIS-5, and a series of self-administered questionnaires pertaining to outcome measures and potential outcome predictors (questionnaires used in the current study are described below). The remaining assessments at post-treatment included the ADIS-5, the T-MMSE, the self-administered questionnaires, and a questionnaire pertaining to anxiety medication. Both the participants and the lay providers also evaluated the working alliance and the treatment at post-treatment. At all assessment times, participants had the option of completing questionnaires either on paper or online using LimeSurvey. Individuals not eligible for the study after the initial telephone screening or the ADIS-5 were offered references to alternative local resources. Each participant received $20 in financial compensation for each of the

post-treatment and follow-up assessments to encourage participation. The main study was financed by the Canadian Institutes of Health Research (CIHR) and was accepted by the *Comité d'éthique de la recherche vieillissement-neuroimagerie du CIUSSS du Centre-Sud-de-l'île-de-Montréal* (# CER VN 18-19-11).

Participants

Although the original study was comprised of 150 participants, the TMQ, CEQ, and WAI questionnaires were added after the beginning of the study, thus reducing the number of eligible participants in this study. A flowchart presenting study enrollment and exclusion criteria is shown in Figure 1. The final sample included in the current study consisted of 66 participants for the first objective and 106 participants for the second objective. Data used in this research was collected at pre-treatment and post-treatment.

Outcome measures

GAD symptom severity

A French version of the GAD-7 (Spitzer et al., 2006) was used to evaluate GAD severity. It is a self-reported 7-item questionnaire that assesses the severity of generalized anxiety symptoms present in the past two weeks. Each item is scored on a 4-point Likert scale according to the following criteria: "Not at all" (0 points); "Several days" (1); "More than half the days" (2); "Nearly every day" (3), with a larger score indicating greater severity. The GAD-7 has been validated for use with older adults (Wild et al., 2014) and shows good internal consistency with a Cronbach's alpha of 0.82, as well as good specificity (0.9) and reasonable sensitivity (0.63) for detecting GAD in older adults (Wild et al., 2014). The French version of the GAD-7 has been shown to have good psychometric properties, with a Cronbach's alpha of 0.898, indicating

satisfactory internal consistency, and a sensitivity and specificity of 95.9% and 76% respectively (Micoulaud-Franchi et al., 2016).

Intensity of worries

A French version of the 16-item Penn State Worry Questionnaire (PSWQ) was used to assess the intensity of worries (Meyer et al., 1990). The items are rated on a Likert scale ranging from 1 to 5, with higher scores indicating a larger tendency to worry. The PSWQ has been shown to have adequate psychometric properties with older adults (Beck et al., 1995; Wuthrich et al., 2014). The French version of the PSWQ has also been shown to have good psychometric properties, with an excellent internal consistency ($\alpha = 0.90$) and good test-retest reliability three weeks later (Gana et al., 2002).

Intolerance of uncertainty

A shortened (27-item) French version of the 45-item Intolerance of Uncertainty Inventory (IUI) was used to assess participants' intolerance of uncertainty (Gosselin et al., 2008). The items are rated on a Likert scale ranging from 1 to 5, with higher scores indicating a higher intolerance of uncertainty. The French version of the IUI has been shown to possess excellent psychometric qualities with adults and an excellent internal consistency ($\alpha = 0.92$) and reliability. Its temporal stability is also adequate after a 5-week interval (Gosselin et al., 2008).

Potential predictors of GSH-CBT outcome

Sociodemographic characteristics

Information regarding sociodemographic data (i.e., age, sex, and level of education) was gathered during the pre-treatment assessment. Education was defined as having university education or not.

Treatment credibility/expectancy

Treatment credibility was measured at pre-treatment using the French version of the Credibility/Expectancy Questionnaire (CEQ) which measures how each participant views the logic of the treatment (credibility) and the possible improvements that can be achieved (expectancy) from the treatment (Devilly & Borkovec, 2000). The French version of the scale, adapted by Coste et al. (2019), includes four items on a 9-point Likert scale, with a higher score indicating more trust in the treatment, and two items asking participants to rate on a percentage from 0% to 100% their expected level of symptom reduction at the end of the treatment. As has been done by Cohen et al. (2015), the expectancy subscale scores were standardized into z scores before calculating the total scores to account for different scales. This questionnaire was deemed useful for French-speaking adult populations with a strong internal consistency, test-retest reliability, and discriminant validity, and a Cronbach's alpha of 0.97 and 0.95 for both credibility and expectancy respectively (Coste et al., 2019).

Participant motivation

Participant motivation to enter treatment was measured at pre-treatment using the Treatment Motivation Questionnaire (TMQ), which is a 26-item scale that measures the dimensions of an individual's motivation for entering treatment based on the self-determination theory (Ryan et al., 1995). The items are listed on a 7-point Likert scale ranging from 1 (not at all true) to 7 (very true). Specifically, it contains subscales measuring external and internal motivation, as well as confidence in treatment outcome and help-seeking behaviors. These domains have been confirmed using principal component analysis and Ryan et al. (1995) established that the TMQ has good internal consistency, with Cronbach's alphas ranging from .70 to .98. The French version of the TMQ that was used in this study was translated and validated by Csillik et al. (2007), who showed

that the scale had good internal consistency with a Cronbach's alpha of .78, demonstrating its usefulness with French-speaking adult populations. Although the TMQ was initially developed in the context of alcohol abuse, it has since been used in in studies on motivation, substance abuse, health psychology, borderline personality disorder, and severe mental illness, and was thus adapted in this study to suit the context of a guided self-help psychotherapy (Ryan et al., 1995; Webb & McMurran, 2009; Millere et al., 2014; Ferron, 2007; Khakwani et al., 2017).

Treatment adherence

Treatment adherence was operationalised as the number of modules completed by participants at 15 weeks, as has been done in previous studies (Pihlaja et al., 2018; El Alaoui, Ljótsson, et al., 2015; Hilvert-Bruce et al., 2012). As the treatment consisted of 8 such modules, this variable ranged from 0 (no modules completed) to 8 (completion of the entire treatment).

Working alliance

As has been demonstrated in a recent systematic review (Pihlaja et al., 2018), the majority of studies exploring the effects of working alliance on adherence and treatment outcomes in GSH-CBT treatments have used the 12-item short version of the Working Alliance Inventory (WAI) (Horvath & Greenberg, 1989). The short version has been shown to be as valid as the full-scale 36-item version, thus it is interchangeable (Busseri & Tyler, 2003). The items are listed on a 7-point Likert scale, with higher scores indicative of greater alliance. Although the WAI is composed of three subscales — task, bond, and goal, all the studies in the systematic review used the mean alliance rating of WAI to conduct analyses of the association between alliance and treatment outcome, thus it was approached in the same manner in this study (Pihlaja et al., 2018). Like has been done by Nordgren et al. (2013), some minor modifications to the scale were made to adapt it for self-help rather than face-to-face delivery. For example, the word "treatment" was changed to

"self-help treatment." In addition, although some studies measured working alliance at mid-treatment (Nordgren et al., 2013; Andersson et al., 2012), for this study, working alliance was measured at post-treatment to avoid implementing an additional data collection point (no other measures were taken at mid-treatment), which could interfere with the treatment. A French version of the WAI was validated by Corbière et al. (2006) in its short form and it has been shown to have good internal consistency, with Cronbach's alphas of 0.88 for the client version and 0.93 for the case manager version. The French short form version of the WAI was thus used in this study.

Statistical analyses

Objective 1

Three separate multiple regressions were carried out to assess the association between the outcome variables (GAD-7, PSWQ, and IUI) at post-intervention (T2) and the following predictors (independent variables measured at baseline): age, sex, education level, initial severity of clinical symptoms (measured by the GAD-7, PSWQ, and IUI), treatment credibility, motivation, working alliance, and adherence. Individual regressions (not adjusted) were first carried out. For each outcome variable, individual regressions were then adjusted for the baseline measure of each outcome variable. Finally, for each outcome variable, a multiple regression model was constructed by including all independent variables presenting a $p \leq 0.25$ in the non-adjusted models, as has been done in previous research studying CBT outcome predictors for GAD (Hundt et al., 2014). Effects were judged significant if $p \leq 0.05$.

Objective 2

One logistic regression was carried out to assess the association between the completion status at T2 and the same predictors mentioned above, excluding the working alliance and adherence measures, as they were gathered at post-test. For this analysis, we included all the participants who

completed the treatment regardless of whether they completed the post-test measures and compared them to the individuals who dropped out. Therefore, the sample analysed was comprised of 106 participants (92 completers and 14 who dropped out; see Figure 1).

Results

The baseline demographic and clinical characteristics of participants are presented in Table 1.

The results of the individual linear regression analyses with GAD-7 as the dependent variable revealed that lower initial GAD-7 severity ($b = 0.433$, $p < 0.001$) predicted lower post-test GAD-7 scores. The results also show that higher confidence in treatment ($b = -0.893$, $p = 0.050$) individually predicted lower post-test GAD-7 scores, controlling for baseline GAD-7 (Table 2). A multiple linear regression with all significant predictors ($p < 0.25$) indicated that initial GAD-7 severity ($b = 0.363$, $p = 0.023$) remained significant when all predictors were included in the same model. This model explains 33% of the total variance.

The results of the individual linear regression analyses with PSWQ as the dependent variable revealed that lower initial PSWQ severity ($b = 0.607$, $p < 0.001$) predicted lower post-test PSWQ scores. The results also show that higher confidence in the treatment ($b = -2.604$, $p = 0.011$) and higher outcome expectations ($b = -0.679$, $p = 0.034$) each individually predicted lower post-test PSWQ scores, controlling for baseline PSWQ (Table 3). A multiple linear regression with all significant predictors ($p < 0.25$) indicated that initial PSWQ severity ($b = 0.435$, $p = 0.002$) and initial GAD-7 severity ($b = 0.513$, $p = 0.039$) remained significant when all predictors were included in the same model. This model explains 44.6% of the total variance.

The results of the individual linear regression analyses with IUI as the dependent variable revealed that lower initial IUI severity ($b = 0.459$, $p < 0.001$) predicted lower post-test IUI scores. The

results also show that lower initial PSWQ severity (b = 0.629, p = 0.020), greater external motivation (b = -4.915, p = 0.015) for starting the treatment, greater credibility of the therapy (b = -0.792, p = 0.034), and higher outcome expectations (b = -1.829, p = 0.004) each individually predicted lower post-test IUI scores, controlling for baseline IUI (Table 4). A multiple linear regression with all significant predictors ($p < 0.25$) indicated that initial IUI severity (b = 0.280, p = 0.018) remained significant when all predictors were included in the same model. This model explains 42.7% of the total variance.

None of the considered variables were significantly associated with treatment dropout (Table 5).

Discussion

The aim of the present study was to identify the factors that predicted outcome in a new GSH-CBT guided by lay providers aimed at reducing GAD symptomatology in older adults by measuring the intensity of these symptoms at post-treatment (measured by the GAD-7, PSWQ, and IUI). The results indicated that, in the individual regression models adjusted for baseline, higher confidence in treatment individually predicted better post-treatment outcomes on the GAD-7. Moreover, a higher confidence in the treatment and higher outcome expectations individually predicted better post-treatment outcomes on the PSWQ. Lastly, lower worry severity, greater external motivation for starting the treatment, greater credibility of the therapy, and higher outcome expectations individually predicted better post-treatment outcomes on the IUI. In multivariate analyses, however, only initial anxiety, worry, and intolerance of uncertainty severity predicted treatment outcome. Our hypothesis was partially confirmed, as we had initially hypothesized that positive views of treatment credibility, greater internal motivation and external motivation for beginning treatment, a positive experience shared between lay providers and participants, and higher adherence to the treatment modules would predict lower GAD symptomology at post-treatment.

Although not significant in the multivariate analyses, the variables obtained in the individual regression analyses adjusted for baseline scores are still important to consider because they may be useful in future studies focusing on predictors of GSH-CBT.

First, greater confidence in the treatment, as well as higher perceived treatment credibility and treatment expectancy, variables generally associated with greater engagement, were associated with more favorable treatment outcomes. As self-guided treatments may be perceived differently than traditional face-to-face treatments, the results suggest that an individual's perception with regards to this new treatment and their treatment expectations are important factors to consider when suggesting this type of therapy. Researchers have argued that program credibility may be especially relevant for self-help treatment outcomes because these treatments may not hold the same credibility as face-to-face therapy amongst patients (Ritterband et al., 2010; Geraghty et al., 2010; Nordgreen et al., 2011). Efforts should thus be made to carefully explain the usefulness and legitimacy of this new type of treatment in future clinical use in order to foster greater engagement and more positive outcomes.

Second, higher motivation to begin the treatment also predicted lower post-treatment intolerance of uncertainty. As this is a self-guided therapy where individuals work through the modules more or less independently at home, initial motivation levels of older adults beginning the therapy is an important factor influencing treatment outcome. This notion was supported in a review conducted by Newman et al. (2003) exploring predictors of outcome in self-help therapies, which concluded that these treatments are more effective for more motivated individuals. Specifically, external motivation significantly predicted lower intolerance of uncertainty in the current study. This has been shown in previous research on GSH for psychological distress in cancer patients, where individuals often started therapy for extrinsic reasons, such as recommendations from a healthcare

professional (Krebber et al., 2017). Although therapeutic changes that arise from extrinsic motivation are less likely to be maintained once these motivators are removed, they are beneficial in the short term, as they motivate the individual to begin therapy (Mohr et al., 2011). The therapist can then cultivate more persistent change by substituting extrinsic motivation over time by intrinsic motivation. Although it has been shown that individuals with greater intrinsic motivation attending face-to-face psychotherapy tend to show more positive outcomes, GSH comes with its own set of challenges (Michalak et al., 2004). It has been suggested that only a small minority of individuals pursuing these types of treatment have enough intrinsic motivation to be able to successfully implement and maintain the use of self-guided material (Mohr et al., 2011). Therefore, for most individuals, at least some extrinsic motivation is required for GSH. The results of our study seem to reflect this notion, as the weekly calls made by non-professionals may have fostered enough external motivation in participants to facilitate treatment completion. This external support seems to also have been reflected in the high adherence rates encountered in this study, as around 93% of participants completed all treatment modules in 15 weeks. The results thus indicate that it may be useful to evaluate and cultivate the motivation of older individuals beginning this GSH-CBT in future clinical applications.

Ultimately, less severe initial anxiety, worry, and intolerance of uncertainty were associated with better treatment outcome and remained significant in the multivariate analyses, thus suggesting that the GSH-CBT treatment may be more effective for older individuals with mild or moderate GAD symptomology. These results indicate that this new treatment may be effective for individuals with both threshold and subthreshold GAD, as research has shown that both groups can have mild or moderate anxiety symptoms (Grenier et al., 2011; Grenier & Richer, 2021).

Variables that were not associated with treatment outcome included the level of education and the working alliance ratings of both the lay providers and participants. Although multiple studies found that having lower education (Alfonsson et al., 2016; El Alaoui, Ljótsson, et al., 2015; Karyotaki et al., 2015) negatively predicted treatment progress, the impact of these predictors were yet to be determined with older populations due to a lack of literature. Few studies have looked at demographic predictor variables for CBT effectiveness in older individuals, and of those, none of them explored GSH interventions. For example, Hundt et al. (2014) examined demographic predictors of outcome with seniors in a traditional CBT for late-life GAD, but found no significant correlations. Wetherell et al. (2005) also studied predictors for CBT for late-life GAD and also determined that demographic variables did not predict posttreatment symptom reduction. Despite the paucity of research focusing on older populations, the results of our study support these previous findings, suggesting that education level plays a minor role in predicting treatment outcome in seniors. Therefore, this suggests that this GSH-CBT can be used with older adults of all education levels, thus augmenting the accessibility of the treatment. It was also initially predicted that the therapeutic alliance between lay providers and participants may play an important role in the treatment because participants were guided weekly throughout their self-help intervention. It was thought that the quality of the relationship that participants have with their lay providers would be a factor predicting outcome, as several researchers have suggested that support in therapy, and more specifically the working alliance between participants and lay providers may play an important role in therapeutic outcome (Nordgren et al., 2013; Boettcher et al., 2013; Alfonsson et al., 2016). Alfonsson et al. (2016) demonstrated that treatment outcome was positively predicted by the working alliance in a study examining the outcome predictors for an internet-based cognitive behavioral relaxation program. However, Andersson et al. (2012) found

nonsignificant change scores on the primary outcome measures when examining the effect of the working alliance in an ICBT for depression, generalized anxiety disorder, and social anxiety disorder. A review conducted by Berger (2017) on the importance of therapeutic alliance in different ICBT treatment modalities (including GSH) revealed that the evidence is currently mixed on whether or not the working alliance plays an important role in GSH treatments. GSH differs from traditional CBT in that there is only brief contact with the patient per week, thus the working alliance may be a less important factor for treatment success than it is for traditional therapy where the patient has more extensive contact with the therapist. In GSH, the guide also has a different role than a therapist with regards to the therapy. Since the guide's role consists primarily of a supportive or facilitative nature, other factors may more strongly influence treatment outcome in GSH. The lack of significant associations between working alliance and outcome found in the current study highlights the need for further research into the effects of the working alliance in GSH-CBT with older populations. Overall, the results seem to suggest that the initial intensity of GAD symptomatology and, to a lesser extent, motivation and treatment credibility/expectations are stronger predictors of outcome than education level and working alliance for this GSH-CBT.

Surprisingly, treatment adherence was also not associated with treatment outcome, in contrast to prior studies with older adults (Hundt et al., 2014; Wetherell et al., 2005). However, this result may be due to the restricted range of data for this variable, as the vast majority of participants in the current study completed all of the treatment modules at 15 weeks. This suggests that engagement was high, which has been repeatedly shown to be beneficial to treatment outcome (Mausbach et al., 2010; Donkin et al., 2011). Significant variables such as motivation, treatment confidence, credibility, and expectancy may have contributed to greater engagement with the GSH-CBT treatment, thus explaining why little variability with regards to module completion was

detected. Clinically, however, the high completion rate is promising, as it seems realistic for older adults to complete the entirety of the treatment in 15 weeks, thus suggesting that the length of the GSH-CBT treatment is well adapted to this population.

Treatment dropout

The second objective of the present study was to predict dropout rates using the same variables, excluding working alliance and adherence measures, as they were measured at post-test. We had hypothesized that the above-mentioned predictors would lead to lower participant dropout rates during treatment, but the results indicate that none of these variables predicted greater treatment dropout. Although the findings show that none of the included variables were significantly associated with dropouts, there may be other factors specific to older adults that contributed to participants dropping out of the study other than the variables studied. Older adults may have other medical issues that arise as they age, thus increasing the risk of these factors contributing to dropping out of treatment. This is reflected in the comments collected in the current study after individuals dropped out, where many of them stated that they dropped out because of health reasons. This is consistent with literature that states that the older an individual becomes, the higher they are at risk of getting health problems including cancer, cardiovascular disease, diabetes, and hypertension among others (Public Health Agency of Canada, 2020). Other common reasons given by participants who dropped out of the current study were that they lacked the time to do the readings, lacked motivation, and that there were too many questionnaires to fill out. Motivation thus seems to also contribute to treatment perseverance, as well as treatment outcome. The main results thus suggest that this treatment is best suited for older adults with mild to moderate GAD symptomology who are motivated to begin treatment. Further studies are needed to confirm the associations between advanced age, increased risk of health problems, and dropout rates.

Limitations and Strengths

The current study's findings are subject to certain limitations. The lack of males in the sample makes it impossible to generalize the results to older men. Although GAD prevalence generally increases with age, the lack of males in the sample may be because generalized anxiety is generally more present in females, with women aged 65 years and older having six times the likelihood of developing this disorder compared to men (Grenier et al., 2019; Wittchen & Hoyer, 2001). More female interest in the study may also have occurred because men generally tend to engage less in help-seeking behaviors (O'Brien et al., 2005). Lastly, males in general tend to have shorter life expectancies than women, and anxiety disorders have been shown to significantly increase mortality risk, thus decreasing the availability of males in an older GAD population (Meier, 2016). While this may help to explain why the sample was mostly comprised of older female participants, there may also be interest for this type of treatment from older males. Future studies should include a large sample of older males to determine if the outcome predictors remain the same or if different characteristics in males effect treatment outcome. For the analyses, the final sample size was reduced from 150 to 66 to include only the participants who answered all the questionnaires. This was done to maximize the number of predictors included in the model and to not lose pertinent clinical information with regards to who exactly benefits from this treatment. Other limitations include the use of self-report questionnaires and the measurement of alliance at post-test. The latter could have been influenced by clinical gains, thus previous authors suggest assessing it at various time points (Nordgren et al., 2013; Andersson et al., 2012). Further studies with a larger sample size accounting for the limitations mentioned above are needed to advance our findings and to confirm which factors predict treatment outcome.

Although this study contained several limitations, it is the first to examine the outcome predictors of a guided self-help treatment for GAD in older adults. A wide variety of outcome predictors were included to perform in-depth analysis of which factors may influence treatment outcome and treatment dropout. This was done to bolster the body of knowledge with regards to treatment outcome predictors with older adults, contribute to the lack of literature on novel CBT treatments for anxiety in this population, and to promote future research avenues. Other strengths of the study include the use of rigorous selection criteria to evaluate the presence of GAD to maximise the internal validity of the study.

Clinical Implications and Recommendations

The goal of the present study was to explore factors associated with treatment response to a GSH-CBT guided by lay providers designed to treat older adults with GAD. This treatment has the potential to increase the accessibility to therapy for older adults, but it may not be useful for everyone. The main results suggest that this treatment is more effective for older adults who are motivated to begin treatment and have mild to moderate GAD symptomology. The treatment thus seems to be effective regardless of the presence of clinical or subclinical GAD. As individuals with subthreshold GAD can have anxiety symptoms similar to mild or moderate GAD, they can also benefit from the GSH-CBT, thus increasing its clinical reach potential. It seems that it can also be applied regardless of the education level of the older person, but additional research overcoming the above limitations is necessary to confirm these results.

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Table 1

Baseline sociodemographic and clinical characteristics of complete responders and dropouts

	Objective 1	Objective 2 (n = 106)	
Characteristics	Completers (n = 66)	Completers (n = 92)	Dropouts (n = 14)
Age, mean (SD)	68.06 (5.05)	68.45 (5.42)	69.93 (7.55)
Female, n (%)	60 (91%)	83 (90%)	12 (86%)
University, n (%)	30 (55%)	52 (57%)	8 (62%)
Assessment scores, mean (SD)			
GAD-7	9.13 (4.73)	8.97 (4.66)	10.88 (4.36)*
PSWQ	57.09 (8.75)	57.16 (8.59)	58.88 (11.43)*
IUI	82.24 (21.46)	81.18 (20.94)	80.38 (23.27)*
TMQ (n=68, 4)			
External Motivation	2.02 (0.89)	1.99 (0.89)	1.56 (1.13)
Internal Motivation	4.89 (0.76)	4.89 (0.76)	4.59 (1.01)
Confidence in Treatment	4.47 (0.85)	4.41 (0.91)	3.80 (1.90)
CEQ (n= 68, 4)			
Treatment Credibility	20.58 (4.70)	20.62 (4.65)	20.25 (6.18)
Treatment Expectancy	-0.09 (2.73)	-0.12 (2.70)	0.58 (1.82)
WAI-G	24.62 (2.78)	24.14 (3.02)	-
WAI-P	25.07 (3.46)	24.77 (3.39)	-
Mean of completed modules at 15 weeks (sd, %)	7.44 (0.66, 93%)	7.45 (0.64, 93%)	1.59 (2.24, 20%)

Note: GAD-7 = General Anxiety Disorder-7 Questionnaire; PSWQ = Penn State Worry Questionnaire; IUI = Intolerance of Uncertainty Inventory; TMQ = Treatment Motivation Questionnaire; CEQ = Credibility/Expectancy Questionnaire; Treatment Expectancy scores were standardized; WAI-G = Working Alliance Inventory – Short Form Guide Version; WAI-P = Working Alliance Inventory – Short Form Participant Version.

*n = 8

Table 2

Variables predicting post-test GAD-7 (n = 66)

	Individual regressions					Individual regressions adjusted for baseline GAD-7				Multiple regression			
	b	SE(b)	t	P	p < 0.25	b	SE(b)	t	P	b	SE(b)	t	P
Baseline GAD-7	0.433	0.082	5.30	<.001	Y					0.363	0.114	3.18	0.023
Baseline PSWQ	0.192	0.047	4.07	<.001	Y	0.082	0.054	1.52	0.134	0.119	0.062	1.92	0.060
Baseline IUI	0.054	0.021	2.65	0.010	Y	-0.010	0.023	-0.42	0.679	-0.025	0.027	-0.95	0.346
Age	0.077	0.091	0.84	0.404		0.105	0.076	1.38	0.174				
Sex	0.550	1.600	0.34	0.732		1.094	1.342	0.82	0.418				
Education	0.489	0.923	0.53	0.598		0.857	0.772	1.11	0.272				
Working Alliance – Guide	-0.031	0.167	-0.18	0.854		0.054	0.141	0.38	0.704				
Working Alliance – Participant	-0.099	0.133	-0.74	0.461		-0.114	0.112	-1.02	0.310				
External Motivation	-0.565	0.517	-1.09	0.279		-0.784	0.429	-1.83	0.072				
Internal Motivation	-0.001	0.608	-0.00	1.000		-0.588	0.517	-1.14	0.259				
Confidence in Treatment	-1.090	0.530	-2.06	0.044	Y	-0.893	0.447	-2.00	0.050	-0.688	0.536	-1.28	0.204
Treatment Credibility	-0.060	0.098	-0.83	0.412		-0.099	0.082	-1.20	0.234				
Treatment Expectancy	-0.210	0.168	-1.25	0.215	Y	-0.250	0.140	-1.79	0.078	-0.100	0.165	-0.60	0.549
Adherence	-0.922	0.689	-1.34	0.186	Y	-0.284	0.600	-0.47	0.638	-0.161	0.603	-0.27	0.790

Note: GAD-7 = General Anxiety Disorder-7 Questionnaire; PSWQ = Penn State Worry Questionnaire; IUI = Intolerance of Uncertainty Inventory; Y = variables included in the multiple regression.

Table 3

Variables predicting post-test PSWQ (n = 66)

	Individual regressions					Individual regressions adjusted for baseline PSWQ				Multiple regression			
	b	SE(b)	t	P	p < 0.25	b	SE(b)	t	P	b	SE(b)	t	P
Baseline PSWQ	0.607	0.101	6.04	<.001	Y					0.435	0.136	3.21	0.002
Baseline GAD-7	0.940	0.201	4.67	<.001	Y	0.423	0.227	1.87	0.066	0.513	0.243	2.11	0.039
Baseline IUI	0.175	0.046	3.77	<0.001	Y	0.012	0.056	0.22	0.828	-0.028	0.058	-0.49	0.627
Age	0.054	0.218	0.25	0.804		0.137	0.175	0.78	0.438				
Sex	-0.533	3.81	-0.14	0.889		2.131	3.084	0.69	0.492				
Education	3.333	2.158	1.54	0.127	Y	2.291	1.754	1.31	0.196	3.045	1.713	1.78	0.081
Working Alliance – Guide	-0.138	0.396	-0.35	0.729		0.019	0.320	0.06	0.952				
Working Alliance – Participant	0.043	0.318	0.14	0.892		-0.507	0.263	-1.93	0.058				
External Motivation	0.220	1.241	0.18	0.860		-0.440	1.003	-0.44	0.662				
Internal Motivation	2.053	1.422	1.44	0.154	Y	0.601	1.187	0.51	0.614	2.023	1.251	1.62	0.111
Confidence in Treatment	-2.518	1.262	-2.00	0.050	Y	-2.604	0.994	-2.62	0.011	-0.952	1.193	-0.80	0.428
Treatment Credibility	-0.133	0.234	-0.57	0.571		-0.240	0.187	-1.28	0.205				
Treatment Expectancy	-0.689	0.395	-1.75	0.086	Y	-0.679	0.314	-2.17	0.034	-0.768	0.395	-1.95	0.057
Adherence	-0.402	1.661	-0.24	0.810		-0.490	1.335	-0.37	0.715				

Note: PSWQ = Penn State Worry Questionnaire; GAD-7 = General Anxiety Disorder-7 Questionnaire; IUI = Intolerance of Uncertainty Inventory; Y = variables included in the multiple regression.

Table 4

Variables predicting post-test IUI (n = 66)

	Individual regressions					Individual regressions adjusted for baseline IUI				Multiple regression			
	b	SE(b)	t	P	p < 0.25	b	SE(b)	t	P	b	SE(b)	t	P
Baseline IUI	0.459	0.082	5.60	<.001	Y					0.280	0.115	2.43	0.018
Baseline GAD-7	1.630	0.406	4.02	<.001	Y	0.526	0.478	1.10	0.276	0.428	0.471	0.91	0.368
Baseline PSWQ	1.104	0.203	5.44	<.001	Y	0.629	0.265	2.37	0.020	0.444	0.275	1.61	0.112
Age	-0.355	0.423	-0.84	0.404		-0.236	0.351	-0.67	0.503				
Sex	-9.317	7.321	-1.27	0.208	Y	-1.969	6.268	-0.31	0.754	4.851	5.823	0.83	0.408
Education	7.033	4.189	1.68	0.098	Y	6.037	3.456	1.75	0.086	5.919	3.405	1.74	0.087
Working Alliance – Guide	0.021	0.773	0.03	0.978		0.316	0.639	0.49	0.622				
Working Alliance – Participant	-0.368	0.618	-0.60	0.553		-0.654	0.508	-1.29	0.203				
External Motivation	-1.952	2.404	-0.81	0.420		-4.915	1.960	-2.51	0.015				
Internal Motivation	0.326	2.812	0.12	0.908		-4.060	2.388	-1.70	0.094				
Confidence in Treatment	-2.454	2.513	-0.98	0.333		-3.493	2.052	-1.70	0.094				
Treatment Credibility	-0.641	0.450	-1.42	0.159	Y	-0.792	0.365	-2.17	0.034	-0.075	0.509	-0.15	0.884
Treatment Expectancy	-1.389	0.767	-1.81	0.075	Y	-1.829	0.611	-2.99	0.004	-1.617	0.875	-1.85	0.070
Adherence	-0.557	3.234	-0.17	0.864		-0.806	2.669	-0.30	0.764				

Note: IUI = Intolerance of Uncertainty Inventory; GAD-7 = General Anxiety Disorder-7 Questionnaire; PSWQ = Penn State Worry Questionnaire; Y = variables included in the multiple regression.

Table 5

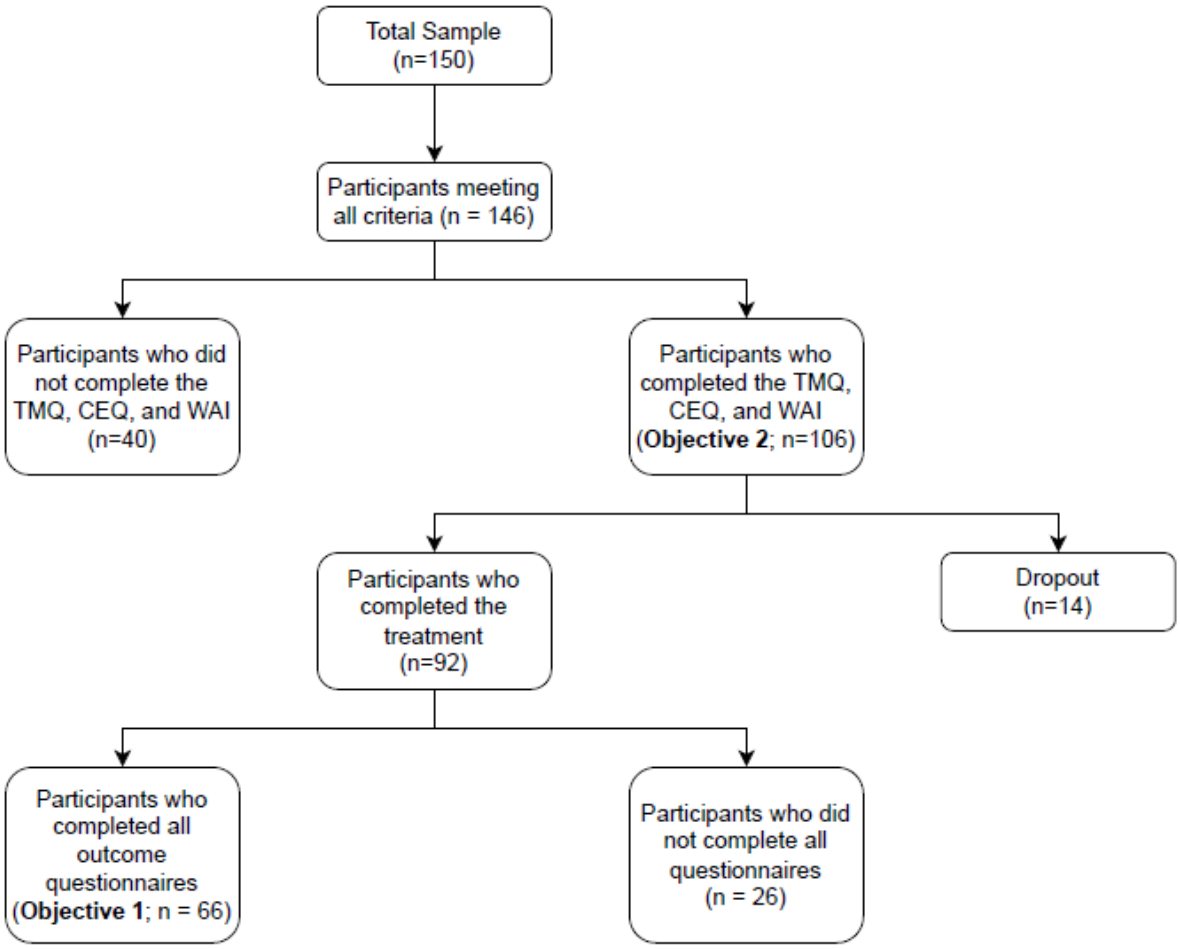
Variables predicting treatment dropout (n = 92 completers, 14 dropouts)

	Individual regression			
	Odds Ratio	Confidence Interval		P
Baseline GAD-7*	1.087	0.937	1.261	0.270
Baseline PSWQ*	1.023	0.941	1.112	0.596
Baseline IUI*	0.998	0.964	1.033	0.917
Age	1.044	0.951	1.146	0.367
Sex	1.537	0.296	7.983	0.609
Education	1.231	0.374	4.049	0.733
External Motivation**	0.501	0.113	2.219	0.363
Internal Motivation**	0.606	0.163	2.252	0.455
Confidence in Treatment**	0.597	0.251	1.416	0.241
Treatment Credibility**	0.983	0.794	1.218	0.878
Treatment Expectancy**	1.112	0.741	1.668	0.608

Note: GAD-7 = General Anxiety Disorder-7 Questionnaire; PSWQ = Penn State Worry Questionnaire; IUI = Intolerance of Uncertainty Inventory.
*N=92 completors, 8 dropouts
**N=68 completors, 4 dropouts

Figure 1

Flowchart of participants



Article 2

Cognitive behavioral therapy guided self-help (GSH-CBT) for generalized anxiety disorder (GAD) in older adults: Which factors predict long-term outcome?

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Abstract

The purpose of this study was to identify the variables that predict long-term clinical outcomes in a guided self-help treatment based on the principles of cognitive-behavioral therapy (GSH-CBT) and guided by lay providers for generalized anxiety disorder (GAD) in older adults. The data used in the current study stems from a larger multisite randomized controlled trial designed to determine the long-term efficacy of a GSH-CBT guided by lay providers in treating older adults with threshold and subthreshold GAD. Older adults aged 60 years and over (n = 26) were randomized to receive a 15-week GSH-CBT intervention, with follow-ups at 6- and 12-months post-treatment. Clinical outcomes included the severity of GAD symptoms, measured by the GAD-7, the intensity of worries, measured by the PSWQ, and intolerance of uncertainty, measured by the IUI. Results showed that, in the multivariate analyses, lower initial anxiety, worry, and intolerance of uncertainty severity, as well as greater external motivation predicted treatment outcome at 6-months post-treatment, and that lower initial anxiety and social support satisfaction predicted treatment outcome at 12-months post-treatment. These results suggest that this treatment may be more beneficial in the long-term to older individuals with mild to moderate anxiety, worry, and intolerance of uncertainty, who are motivated to do the treatment and who have greater social support satisfaction.

Introduction

Generalized Anxiety Disorder (GAD), characterized by excessive anxiety and worries regarding a multitude of subjects, remains one of the most common anxiety disorders in older adults with rates ranging from 2.3% to 7.3% in community-dwelling seniors (Witlox et al., 2021; Grenier et al., 2019; Zhang et al., 2015; Wolitzky-Taylor et al., 2010). However, this disorder remains undertreated because access to therapy is particularly difficult for older individuals, who often have mobility issues or live in rural areas (Karlin et al., 2008; Gum et al., 2010). One study conducted by Gum et al. (2010) examining barriers to therapy in older adults found that affordability (71.8%), difficulty traveling (62.7%), and lack of transportation (45.8%) were the most common barriers. To increase accessibility to psychological treatment, a guided self-help treatment where the person learns autonomously from home has been developed with outcomes comparable with face-to-face therapy (Miloyan et al., 2015; Cuijpers et al., 2010). However, a systematic review conducted by Coull and Morris (2011) exploring the clinical effectiveness of CBT-based guided self-help interventions for anxiety and depressive disorders found inconclusive evidence regarding the long-term effectiveness of GSH-CBT in 13 randomized control trials. For example, studies that measured outcome immediately post-treatment found significant effects compared to studies that measured clinical outcomes at 3-month follow-up. The authors also mention that the methodologically stronger RCT's demonstrated no significant improvements in the longer term (Coull & Morris, 2011). Further research is thus needed to understand exactly who can benefit from this new type of therapy in the long-term.

To understand who benefits from GSH treatments, it is important to identify which factors predict treatment outcome. The importance of identifying predictors of response to GSH-CBT to more effectively target populations who may benefit from these treatments has been highlighted by both

Coull and Morris (2011) and Lovel et al. (2008) as a priority for future research because there is a lack of understanding regarding who benefits from GSH-CBT. This view is reflected by both Cuijpers and Schuurmans (2007) and Nordgreen et al. (2011) who mention that, because little is known about which individuals benefit from guided self-help interventions, gaining knowledge on outcome predictors to properly distinguish who is likely to respond from these types of interventions is vital to its proper clinical application. Research has also shown that factors predicting long-term treatment outcome in GSH may differ from factors predicting acute post-treatment success. As has been demonstrated by Diefenbach et al. (2015), the same variables that predicted post-treatment response in an internet guided self-help treatment for OCD did not predict responder status at 6-month follow-up. Another study by Wetherell et al. (2005) on the outcome predictors of CBT for late-life GAD found that different factors predicted outcome at 6-months follow-up in contrast to post-treatment. This indicates that outcome predictors can change over time, thus highlighting the need for longitudinal data. However, as explained by Schuurmans et al. (2009), there is a paucity of studies on treatment outcome predictors for older adults with anxiety, with few studies having been conducted on CBT treatments for GAD in this population. This lack of data is amplified with regards to longitudinal research. Therefore, the current study will be the first to identify predictors of GSH-CBT treatment outcomes up to 12 months following treatment in an understudied population, older adults. A more detailed understanding of which variables are associated with long-term clinical outcomes may help in future clinical dissemination to those who are more likely to maintain therapeutic gains and help in designing more effective GSH-CBT treatments for older individuals.

Considering the lack of literature on this subject, the choice of predictors for this study were based on predictor variables found in the larger research literature on adult samples with anxiety.

Although research studying the predictors of CBT in the treatment of anxiety have found that age, sex, and education, as well as individuals' initial intensity of clinical symptoms, perceived credibility of treatment, motivation to begin treatment, and adherence to treatment predict outcome (El Alaoui, Hedman, et al., 2015; Karyotaki et al., 2015; Ritterband et al., 2010; Alfonsson et al., 2017; Keeley et al., 2008; Nordgreen et al., 2011), few studies have looked at predictor variables for CBT effectiveness in older individuals (Hundt et al., 2014; Wetherell et al., 2005), and of those, only one conducted by our team explored a GSH intervention (Gunther et al., 2022). Previous research conducted by Hundt et al. (2014) on traditional CBT effectiveness for late-life GAD found that initial anxiety and worry severity, depression severity, credibility of the therapy, and adherence (homework completion and sessions completed) predicted better 6-month anxiety outcome. Additionally, Wetherell et al. (2005) demonstrated that baseline severity of GAD symptoms and tendency to worry, and adherence predicted change at 6-month follow-up in a CBT for late-life GAD. Therefore, these variables were considered as outcome predictors in this study. Although Wetherell et al. (2005) found that homework adherence was the most consistent predictor of change at 6 months, they explain that this could have been related to the participant's motivation to complete the homework. This has also been suggested by Wagner et al. (2015), who recommends that motivation to change should be a primary therapeutic target, as they found that higher motivation predicted outcome in a GSH for bulimia nervosa in young adults. Higher motivation has also been found to be a predictor of long-term outcome in a study on CBT for youth with anxiety disorders (Kodal et al., 2018). The motivation of older adults to begin treatment was thus also included in this study, as it may help explain who benefits in the long-term. Additionally, links between social support and treatment outcome have also been demonstrated in previous research on ICBT for anxiety in youths, with greater support being associated with greater

reductions in anxiety (Spence et al., 2019). However, studies have yet to look at this factor in seniors, thus it was included in this study as a possible predictor of long-term treatment outcome. Lastly, a study looking at group CBT for adults with GAD also found that intolerance of uncertainty significantly predicted GAD symptom improvement at post-treatment (Torbit & Laposa, 2016). Therefore, this construct was also included as an outcome predictor in this study. The choice of predictors for this study were also based on predictor variables found to be significant in previous research conducted by our team utilizing this GSH-CBT. The data for this study originates from a randomized clinical trial exploring the efficacy of a GSH-CBT guided by lay providers for the treatment of GAD in older adults (Landreville et al., 2021). Using this data, we found that the main factors predicting acute post-treatment success in this new GSH-CBT included initial anxiety and worry severity, as well as initial intolerance of uncertainty scores, whereas lower initial anxiety, worry, and intolerance of uncertainty predicted better outcome post-treatment (Gunther et al., 2022). Similar to previous research with older adults, greater motivation for starting the treatment, higher outcome expectations and confidence in the treatment, and greater perceived credibility of the therapy each also individually predicted better post-treatment anxiety outcomes (Gunther et al., 2022). However, as the factors predicting outcome immediately after treatment do not necessarily predict long-term treatment outcome, further research into the long-term outcome predictors of CBT treatments for older adults is needed. Therefore, the current study will fill a gap in the literature and determine if the above factors previously identified as important also predict the long-term efficacy of GSH-CBT for generalized anxiety disorder (GAD) in older adults.

The objective of this study was to identify the factors that predicted the long-term outcome of the intervention, which was measured by GAD severity, worry intensity, and level of intolerance of

uncertainty at 6- and 12-months post-treatment. The GAD-7, which has been shown to be valid at detecting GAD in older adults (Wild et al., 2014), was used to measure the severity of GAD symptoms at 6- and 12-months post-treatment. The PSWQ was used to measure worry severity, as had been done by previous authors studying predictor variables for CBT effectiveness in older individuals (Hundt et al., 2014; Wetherell et al., 2005). Intolerance of uncertainty, a critical construct underlying GAD, has also been suggested to be a key mechanism maintaining this disorder (Landreville et al., 2016; Dugas et al., 1998). Considering the GSH-CBT used in this study also targeted intolerance of uncertainty, measuring it as an outcome at post-treatment was important in order to determine if the treatment was indeed effective at reducing intolerance of uncertainty. The outcome predictors included sociodemographic data (age, sex, and level of education), baseline clinical symptoms (anxiety, depression, worry, and intolerance of uncertainty), treatment credibility, participant motivation, treatment adherence, and social support. Based on the results of previous studies with younger and older adults, we hypothesized that lower initial anxiety and depression symptom severity, positive views of treatment credibility, greater motivation for beginning treatment, higher adherence to the treatment modules, and greater social support would lead to greater reductions in GAD severity, worry intensity, and level of intolerance of uncertainty at 6 and 12 months after treatment (Gunther et al., 2022; Hundt et al., 2014; Wetherell et al., 2005; Spence et al., 2019; Kodal et al., 2018; El Alaoui, Hedman, et al., 2015; Karyotaki et al., 2015; Ritterband et al., 2010; Alfonsson et al., 2017; Keeley et al., 2008; Nordgreen et al., 2011).

Methodology

Recruitment and assessment procedure

The current research is part of a larger multisite randomized controlled trial (RCT) designed to determine if a GSH-CBT guided by lay providers is effective in treating older adults with GAD. This manual-based GSH-CBT treatment lasted 15 weeks and participants (n = 150) received weekly 15-to-20-minute telephone sessions with lay providers who provided support throughout the treatment (for further details about the treatment protocol, see Landreville et al., 2021). Eligibility was based on the following inclusion criteria: 1) be at least 60 years of age, 2) meet at least the criteria for subthreshold GAD based on the Worry and Anxiety Questionnaire (WAQ) (Dugas et al., 2001) or meet the DSM-5 criteria for generalized anxiety, diagnosed using the *Anxiety and Related Disorders Interview Schedule for DSM-5* (ADIS-5), a semi-structured interview to diagnose anxiety, mood, obsessive-compulsive, trauma, and other related disorders (Brown & Barlow, 2014), 3) be able to read and speak French and use a telephone without difficulty, and 4) be willing, if an anxiety medication is used, to commit to maintaining the type of medication and dose starting eight weeks prior to the treatment and during the treatment program. Participants who had a comorbid anxiety or mood disorder were eligible only if their primary difficulties were associated with GAD and not another disorder. The exclusion criteria were the following: 1) a disabling physical disorder that was not adequately controlled (e.g., an acute heart disease or a recent stroke), 2) the presence of a substance use disorder, 3) the presence of bipolar disorder or symptoms of a psychotic disorder, 4) significant cognitive impairment (determined by a score inferior to 22 on the Telephone version of the Mini-Mental State Examination (TMMSE) (Newkirk et al., 2004), and 5) receiving or having received psychotherapy for GAD over the last six months. Eligible participants took part in four assessments (pre- and post-treatment, and at 6- and 12-months post-treatment), which included a telephone clinical psychological assessment using the ADIS-5 (Brown & Barlow, 2014), and a series of self-

administered questionnaires pertaining to outcome measures and potential outcome predictors (questionnaires used in the current study are described below). Data used in this research was collected at pre-treatment and at 6- and 12-months post-treatment. Each participant received $20 in financial compensation for each of the post-treatment and follow-up assessments to encourage participation. The main study was financed by the Canadian Institutes of Health Research (CIHR) and was accepted by the *Comité d'éthique de la recherche vieillissement-neuroimagerie du CIUSSS du Centre-Sud-de-l'île-de-Montréal* (# CER VN 18-19-11).

Participants

Data used in the current study were collected at pre-treatment and at 6- and 12-months post-treatment in the original study, which included 73 participants who were followed up to 12-months post-treatment. The remaining participants were further reduced, as some dropped out, and some did not answer all the questionnaires measuring our variables of interest (such as the TMQ and CEQ described below). Therefore, the final sample included 26 participants at 6 months post-treatment and 25 participants at 12 months post-treatment. This smaller sample significantly reduces the power for the analyses, which will be addressed in the statistical analyses section. A flowchart presenting study enrollment and exclusion criteria is shown in Figure 1.

Outcome measures

GAD symptom severity

A French version of the GAD-7 (Spitzer et al., 2006; Micoulaud-Franchi et al., 2016) was used to evaluate GAD severity. It is a self-reported 7-item questionnaire that assesses the severity of anxiety symptoms present in the past two weeks. Each item is scored on a 4-point Likert scale according to the following criteria: "Not at all" (0 points); "Several days" (1); "More than half the days" (2); "Nearly every day" (3), with a larger score indicating greater severity. The GAD-7 has

been validated for use with older adults (Wild et al., 2014) and shows good internal consistency with a Cronbach's alpha of 0.82, as well as good specificity (0.9) and reasonable sensitivity (0.63) for detecting GAD in older adults (Wild et al., 2014). The French version of the GAD-7 has been shown to have good psychometric properties, with a Cronbach's alpha of 0.898, indicating satisfactory internal consistency, and a sensitivity and specificity of 95.9% and 76% respectively (Micoulaud-Franchi et al., 2016).

Intensity of worries

A French version of the 16-item Penn State Worry Questionnaire (PSWQ) was used to assess the intensity of worries (Meyer et al., 1990; Gana et al., 2002). The items are rated on a Likert scale ranging from 1 to 5, with higher scores indicating a larger tendency to worry. The PSWQ has been shown to have adequate psychometric properties with older adults (Beck et al., 1995; Wuthrich et al., 2014). The French version of the PSWQ has also been shown to have good psychometric properties, with an excellent internal consistency (α= 0.90) and good test-retest reliability three weeks later (Gana et al., 2002).

Intolerance of uncertainty

A shortened (27-item) French version of the 45-item Intolerance of Uncertainty Inventory (IUI) was used to assess participants' intolerance of uncertainty (Gosselin et al., 2008). The items are rated on a Likert scale ranging from 1 to 5, with higher scores indicating a higher intolerance of uncertainty. The French version of the IUI has been shown to possess excellent psychometric qualities with adults and an excellent internal consistency and reliability, with a Cronbach's alpha of .92 for part A and .96 for part B. Its temporal stability is also adequate after a 5-week interval (Gosselin et al., 2008).

Potential predictors of long-term GSH-CBT outcome

Sociodemographic data

Information regarding sociodemographic data (i.e., age, sex, and level of education) was gathered during the pre-treatment assessment. Education was defined as having university education or not.

Depression symptoms severity

A French version of the 30-item Geriatric Depression Scale (GDS) was used to assess participants' depressive symptoms (Yesavage et al., 1983). Items are answered using a 'yes/no' format, with a higher total score being indicative of greater severity of symptoms. The GDS was specifically designed for an older population and its validity and reliability is well established (Yesavage et al., 1983). The French version of the GDS has also been shown to have good psychometric properties with French-speaking older adults, with an excellent internal consistency ($\alpha = 0.89$) and good test-retest reliability four weeks later (Bourque & Blanchard, 1990).

Treatment credibility

Treatment credibility was measured using the French version of the Credibility/Expectancy Questionnaire (CEQ) which measures how each participant views the logic of the treatment (credibility) and the possible improvements that can be achieved (expectancy) from the treatment (Devilly & Borkovec, 2000). This was gathered at pre-treatment after a screening interview where the GSH-CBT was explained to participants. The French version of the scale, adapted by Coste et al. (2019), includes four items on a 9-point Likert scale, with a higher score indicating more trust in the treatment, and two items asking participants to rate on a percentage from 0% to 100% their expected level of symptom reduction at the end of the treatment. As has been done by Cohen et al. (2015), the expectancy subscale scores were standardized into z scores before calculating the total scores to account for different scales. This questionnaire was deemed useful for French-speaking

adult populations with a strong internal consistency, test-retest reliability, and discriminant validity, and a Cronbach's alpha of 0.97 and 0.95 for both credibility and expectancy respectively (Coste et al., 2019).

Participant motivation

Participant motivation to enter treatment was measured at pre-treatment using the Treatment Motivation Questionnaire (TMQ), which is a 26-item scale that measures the dimensions of an individual's motivation for entering treatment based on the self-determination theory (Ryan et al., 1995). The items are listed on a 7-point Likert scale ranging from 1 (not at all true) to 7 (very true). Specifically, it contains subscales measuring external and internal motivation, as well as confidence in treatment outcome and help-seeking behaviors. These domains have been confirmed using principal component analysis and Ryan et al. (1995) established that the TMQ has good internal consistency, with Cronbach's alphas ranging from .70 to .98. The French version of the TMQ that was used in this study was translated and validated by Csillik et al. (2007), who showed that the scale had good internal consistency with a Cronbach's alpha of .78, demonstrating its usefulness with French-speaking adult populations. Although the TMQ was initially developed in the context of alcohol abuse, it has since been used in in studies on motivation, substance abuse, health psychology, borderline personality disorder, and severe mental illness, and was thus adapted in this study to suit the context of a guided self-help psychotherapy (Ryan et al., 1995; Webb & McMurran, 2009; Millere et al., 2014; Ferron, 2007; Khakwani et al., 2017).

Treatment adherence

Treatment adherence was operationalised as the number of modules completed by participants at 15 weeks, as has been done in previous studies (Pihlaja et al., 2018; El Alaoui, Ljótsson, et al.,

2015; Hilvert-Bruce et al., 2012). As the treatment consisted of 8 such modules, this variable ranged from 0 (no modules completed) to 8 (completion of the entire treatment).

Social Support

A French version of the 6-item Social Support Questionnaire (SSQ-6) was used to measure satisfaction with social support (Sarason et al., 1987). Although this questionnaire has two subscales (availability and satisfaction), only the satisfaction subscale was analyzed in this study. The items are rated on a Likert scale ranging from 1 to 6, with higher scores indicating a higher satisfaction with the social support that participants receive. The French version of the SSQ-6 has been shown to have adequate psychometric properties with French-speaking adult populations, with a test-retest reliability and an internal consistency for the satisfaction subscale of 0.84 and 0.87 respectively (Bruchon-Schweitzer et al., 2003).

Statistical analyses

Six separate multiple regressions were carried out to assess the association between the outcome variables (GAD-7, PSWQ, and IUI) at 6- and 12-months post-intervention and the following predictors (independent variables measured at baseline): age, sex, education level, initial intensity of clinical symptoms (measured by the GAD-7, PSWQ, and IUI), treatment credibility, motivation, depression symptom severity, social support, and adherence. Individual regressions (not adjusted) were first carried out. For each outcome variable, individual regressions were then adjusted for the baseline measure of each outcome variable. Finally, for each outcome variable, a multiple regression model was constructed by including all independent variables presenting a $p \leq 0.25$ in non-adjusted models, as has been done in previous research studying CBT outcome predictors for GAD (Hundt et al., 2014). Considering that our sample is comprised of only 26 participants,

reducing its statistical power, a significance level of $p \leq 0.15$ is used in these exploratory analyses to guide the discussion.

Results

The baseline demographic and clinical characteristics of participants are presented in Table 1.

The results of the individual linear regression analyses with GAD-7 as the dependent variable revealed that lower initial GAD-7 severity predicted lower GAD-7 scores at 6- ($b = 0.711$, $p < 0.001$) and at 12-months post-treatment ($b = 0.423$, $p = 0.001$). The results also show that higher internal ($b = -1.299$, $p = 0.133$) and external motivation ($b = -1.483$, $p = 0.064$), higher initial GDS severity ($b = -0.631$, $p = 0.022$), and lower initial PSWQ severity ($b = 0.180$, $p = 0.066$) predicted lower GAD-7 scores at 6-months post-treatment when controlling for baseline GAD-7. Multiple linear regressions with all significant predictors ($p < 0.25$) indicated that initial GAD-7 severity ($b = 0.611$, $p = 0.005$), initial PSWQ severity ($b = 0.187$, $p = 0.127$), and external motivation ($b = -1.255$, $p = 0.134$) remained significant at 6-months post-treatment and only initial GAD-7 severity remained significant at 12-months post-treatment ($b = 0.353$, $p = 0.052$) when all predictors were included in the same model (Tables 2 and 3). These models explain 48.8% and 29.2% of the total variance respectively.

The results of the individual linear regression analyses with PSWQ as the dependent variable revealed that lower initial PSWQ severity predicted lower PSWQ scores at 6- ($b = 0.682$, $p < 0.001$) and at 12-months post-treatment ($b = 0.424$, $p = 0.017$). The results also show that lower initial GAD-7 severity ($b = 0.677$, $p = 0.028$) predicted lower PSWQ scores at 6-months post-treatment and lower initial GAD-7 severity ($b = 0.791$, $p = 0.039$), higher IUI ($b = -0.209$, $p = 0.087$), and higher social support satisfaction ($b = -0.241$, $p = 0.137$,) predicted lower PSWQ

scores at 12-months post-treatment when controlling for baseline PSWQ. Multiple linear regressions with all significant predictors ($p < 0.25$) indicated that initial PSWQ severity ($b = 0.630$, $p = 0.002$) and GAD-7 severity ($b = 0.827$, $p = 0.014$) remained significant at 6-months post-treatment and only initial GAD-7 severity remained significant at 12-months post-treatment ($b = 0.766$, $p = 0.045$) when all predictors were included in the same model (Tables 4 and 5). These models explain 53.6% and 31.4% of the total variance respectively.

The results of the individual linear regression analyses with IUI as the dependent variable revealed that lower initial IUI severity predicted lower IUI scores at 6- ($b = 0.627$, $p < 0.001$) and at 12-months post-treatment ($b = 0.518$, $p = 0.001$). The results also show that lower initial PSWQ severity ($b = 1.133$, $p = 0.024$) and greater internal ($b = -6.448$, $p = 0.115$) and external motivation ($b = -7.986$, $p = 0.024$) predicted lower IUI scores at 6-months post-treatment and lower initial GAD-7 severity ($b = 1.198$, $p = 0.097$) and greater internal motivation ($b = -5.160$, $p = 0.140$) predicted lower IUI scores at 12-months post-treatment when controlling for baseline IUI. Multiple linear regressions with all significant predictors ($p < 0.25$) indicated that lower IUI scores ($b = 0.357$, $p = 0.140$), lower initial PSWQ severity ($b = 0.795$, $p = 0.121$), and greater external motivation ($b = -6.121$, $p = 0.082$) remained significant at 6-months post-treatment and only social support satisfaction ($b = -0.464$, $p = 0.151$) remained significant at 12-months post-treatment when all predictors were included in the same model (Tables 6 and 7). These models explain 47.9% and 38.7% of the total variance respectively.

Discussion

The aim of the present study was to identify the factors that predicted outcome in the long-term in a new GSH-CBT guided by lay providers aimed at reducing GAD symptomatology in older adults by measuring the severity of these symptoms at 6- and 12-months post-treatment (measured by the

GAD-7, PSWQ, and IUI). The results indicated that, in the multivariate analyses, lower initial anxiety, worry, and intolerance of uncertainty severity, as well as greater motivation and social support predicted treatment outcome up to 12-months post-treatment. Our hypothesis was partially confirmed, as we had also initially predicted that lower initial depression symptom severity, positive views of treatment credibility, and higher adherence to the treatment modules would predict lower GAD symptomology at 6- and 12-months post-treatment.

GAD-7, PSWQ, and IUI as predictors of outcome

These findings support previous research conducted by our team on the post-treatment outcome predictors of this GSH-CBT and expands on prior research exploring the predictors of CBT for GAD in older adults which generally found that that lower initial anxiety predicted symptom reductions up to 6 months after treatment (Gunther et al., 2022; Hundt et al., 2014). The current research extends these findings with lower initial GAD severity significantly predicting treatment outcome on both the GAD-7 and PSWQ up to 12 months post-treatment in older adults with GAD. It also predicted outcome on the IUI at 12 months post-treatment in the individual regressions adjusted for baseline. This indicates that initial GAD severity may be one of the most important factors predicting outcome in this treatment, not only at post-treatment but in the medium and long-term as well. These results contrast one previous study conducted by Wetherell et al. (2005) which found that greater initial GAD severity predicted greater symptom reductions at 6 months post-treatment when pooling data from 3 studies on group CBT for GAD in older adults. However, the authors explain that their results were indeed inconsistent with previous research on younger adults with anxiety and suggest that a regression to the mean effect, in which patients with more severe symptoms at baseline had greater reductions in anxiety than those with less severe initial symptoms, might have occurred in their study (Wetherell et al., 2005). In the current study, initial

worry severity also predicted lower worry, anxiety, and intolerance of uncertainty at 6 months post-treatment in the multivariate analyses, indicating that worry severity may also be an important factor to consider in addition to GAD severity when trying to determine who benefits from this GSH-CBT in the long-term. These results are consistent with what has been found in older adults by Hundt et al. (2014), suggesting that initial anxiety and worry severity may be important long-term predictors of outcome in GSH-CBT. Lastly, initial intolerance of uncertainty severity also predicted lower IUI at 6 months post-treatment in the multivariate analyses and lower worry at 12 months post-treatment in the individual regressions adjusted for baseline. This data is consisted with previous research where intolerance of uncertainty, a psychological process variable that plays a central role in GAD etiology, predicted post-treatment outcome in GSH-CBT guided by lay providers for GAD in older adults (Gunther et al., 2022) and in group CBT for GAD in adults (Torbit & Laposa, 2016). It had yet to be studied as a potential predictor of long-term outcome in GSH-CBT, but, in this study, there are indications that it can be an important long-term predictor of outcome as well. Given its importance in promoting symptom improvement and enhancing outcome during treatment, initial intolerance of uncertainty severity should be considered with anxiety and worry severity as predictors of long-term outcome in GSH-CBT guided by lay providers for GAD in older adults (Torbit & Laposa, 2016).

Other Significant Predictors

Some of the results obtained in individual regression analyses adjusted for baseline scores also merit attention because they may be useful in designing future studies focusing on long-term predictors of GSH-CBT. Greater motivation was associated with lower anxiety at 6 months post-treatment and lower intolerance of uncertainty scores at both 6- and 12-months post-treatment. Developing a tolerance for uncertainty requires a lot of work and effort and maintaining it over the

long term is even more difficult. Therefore, it is possible that only the most motivated individuals were able to maintain their tolerance of uncertainty up to 12 months after completing the intervention. Further studies are needed to better understand the association between the level of motivation and tolerance of uncertainty. These results are also consistent with our prior research exploring the predictors of GSH-CBT for GAD in older adults, which indicates that some degree of motivation to begin the treatment can be important to consider or cultivate when providing this treatment to older adults with GAD (Gunther et al., 2022).

Although its effect was not significant when all predictors were included in the same model, we found that higher depression was associated with lower GAD scores on the GAD-7 at 6-months post-treatment in the adjusted regression model. A possible explanation for these findings may be found in an article by Wetherell et al. (2005), who found that having a comorbid diagnosis was associated with better treatment outcome. Since depression and anxiety are often clinically related, older adults in our study may have benefited from reductions in their depressive symptoms as a secondary effect of working on their anxiety. Higher distress may have also led some older individuals to seek therapy. This has been suggested in earlier research on outcome predictors of CBT with older adults (Wetherell et al., 2005). As noted by Wetherell et al. (2005), it is possible that older adults with comorbid diagnoses may also have been more motivated for treatment, which would be promising for future clinicians wanting to apply this treatment with more severely anxious or depressed older adults with GAD.

As has been suggested by previous research, different factors can predict long-term treatment outcome versus acute post-treatment outcome results (Wetherell et al., 2005). When looking at the factors that predict outcome only at one year after treatment completion, additional predictors become important. For IUI and PSWQ, social support satisfaction became significant only at 12

months post-treatment, indicating that high social support satisfaction can help patients maintain or make further therapeutic gains well after their treatment is completed. Social support may thus be a protective factor for long-term treatment success in older adults with GAD. Social support has been shown in previous research on anxiety disorders to be a predictor of treatment success at post-treatment, but it has yet to be associated with long term outcome (Lindfors et al., 2014; Spence et al., 2019). In this study, the benefits of social support satisfaction seem to only become significant change factors at 12 months, but not at 6 months for worry and intolerance of uncertainty. It may be that, with older adults, acute post-treatment gains are better explained by other factors such as anxiety, worry, and depression severity, or treatment linked factors such as perceived credibility of treatment and motivation to being the treatment (Gunther et al., 2022). Other factors like social support may play a more important role after treatment completion for older adults. As noted by Lindfors et al. (2014), social support may help individuals put change into practice after treatment, as a facilitating environment can foster the utilisation of new ways of coping. This may explain the extended benefits of greater social support on long-term therapeutic outcomes found in this study. However, as social support was only significant for worry and intolerance of uncertainty severity, a key mechanism behind GAD, older adults who were more satisfied with their relationships may have had access to individuals around them who were available to comfort them consistently, which may have had a consequential effect of reducing worry and uncertainty. They may have thus had less worried and become more tolerant due to artificially reduced uncertainty generated from seeking comfort frequently from their social circle. Further research into the association between social support, worry, and intolerance of uncertainty is needed to better understand this interaction.

Other Non-significant Predictors

Although it was found in in previous research that positive views of treatment credibility and higher adherence to the treatment modules could predict post-treatment outcome in this GSH-CBT (Hundt et al., 2015, Wetherell et al., 2005), these factors became less important in the long-term for the GSH-CBT used in the current study. It has been shown in previous research that different factors can indeed predict long-term treatment outcome (Wetherell et al., 2005). This has also been shown in the current study, where factors such as initial anxiety, worry, intolerance of uncertainty, and depression severity, as well as motivation and social support seem to be more important predictors of long-term treatment success in older adults with GAD than treatment-bound factors like credibility perception and module adherence. This highlights the importance of gathering longitudinal data when it comes to implementing a new treatment. This is especially useful for an understudied population like older adults, for which a paucity of longitudinal research exists for GSH treatments. These results help guide future treatment application that seeks to encourage the maintenance of therapeutic gains after treatment.

Limitations and Strengths

The current study's findings are subject to certain limitations. As the TMQ and CEQ questionnaires were added after the study had begun, this led to a large part of participants not completing these additional questionnaires. For the analyses, the final sample size was thus reduced to include only the participants who answered all the questionnaires at baseline and at 6- and 12-months post-treatment. This was done to maximize the number of predictors included in the model and to not lose pertinent clinical information with regards to who exactly benefits from this treatment in the long term. However, care was taken to make sure that the remaining data were appropriate for analysis. We compared our chosen sub-sample to the total sample and found that

there were not any significant clinical differences on all measures. This indicates that we would likely have had similar results if the total sample was included in the analyses. This study was also subject to strict inclusion and exclusion criteria, thus the results from this sample can only be generalizable to a French older population similar to the one used in this study. Future research is needed to confirm the generalizability of the results to older populations in other parts of the world.

Although the study has limitations, it has several strengths. Despite the small sample size, this is the only study to have looked at the long-term outcome predictors of GSH-CBT guided by lay providers for GAD in older adults up to 12 months post-treatment. This study therefore provides a significant contribution in a research area (predictors of long-term outcomes for this type of problem and in this population) where knowledge is very limited. In addition to following participants over a period of 12 months, several potential outcome predictors that were identified in previous studies were included. As the factors that predict acute post-treatment success may differ from those predicting long-term outcome, it is necessary to explore which factors are more important for therapeutic outcome in the long-term. The benefit of this extended viewpoint is that it permitted us to determine which variables were potentially the strongest predictors of long-term treatment success, thus providing new pertinent clinical information to guide future treatment application to older adults who are more likely to benefit in the long-term.

Future Research Directions

Future research into GSH-CBT for GAD in older adults could investigate the evolution of GAD symptoms of those having completed the treatment in order to develop a clinical profile of who maintains therapeutic gains and who relapses after the treatment is completed. Previous research has shown that factors such as residual depression symptoms post-treatment can lead to relapse (Ali et al., 2017). As some participants may be more prone to rebounds than others, future research

with a larger sample size focusing on examining which individuals are more at risk of relapse and those who continue to make therapeutic gains can shed more light on the long-term clinical evolution of older adults with GAD who complete a GSH-CBT.

Conclusion

The goal of the present study was to explore factors associated with long-term treatment response to a GSH-CBT guided by lay providers designed to treat older adults with GAD. Several variables were studied to determine which factors predicted clinical outcomes at 6- and 12-months post-treatment. Several factors were identified as having significant associations with outcome scores in multivariate analyses up to 12 months post-treatment. Lower initial anxiety, worry, intolerance of uncertainty, as well as greater motivation and social support satisfaction was associated with larger decreases in GAD symptomatology at 6 and 12-months post-treatment controlling for all other variables. These results suggest that this treatment may be more beneficial in the long-term to older individuals with mild to moderate anxiety, worry, and intolerance of uncertainty, who are motivated to do the treatment and who have greater social support satisfaction. Given these encouraging results and the exploratory nature of these analyses, further studies on the outcome predictors of GSH-CBT treatments for older adults should include a larger sample in order to confirm the representability of the results.

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Table 1

Baseline sociodemographic and clinical characteristics of participants

Participant characteristics	Participants who completed all questionnaires (n = 26)
Age, mean (SD)	68.00 (5.22)
Sex, n (%)	
Female	25 (96.15)
Male	1 (3.85)
Education, n (%)	
University	10 (38.46)
Non-University	16 (61.54)
Assessment scores, mean (SD)	
GAD-7	10.63 (4.79)
PSWQ	57.35 (8.86)
IUI	83.81 (20.15)
TMQ	
External Motivation	2.09 (0.95)
Internal Motivation	4.88 (0.90)
Confidence in Treatment	4.55 (0.76)
CEQ	
Treatment Credibility	20.73 (5.36)
Treatment Expectancy	0.30 (3.13)
GDS	15.71 (3.03)
SSQ-6	22.92 (9.22)
Treatment adherence, mean of completed modules at 15 weeks (%)	7.42/8 (92.77)

Note: GAD-7 = General Anxiety Disorder-7 Questionnaire; PSWQ = Penn State Worry Questionnaire; IUI = Intolerance of Uncertainty Inventory; TMQ = Treatment Motivation Questionnaire; CEQ = Credibility/Expectancy Questionnaire; Treatment Expectancy scores were standardized; GDS = Geriatric Depression Scale; SSQ-6 = Social Support Questionnaire.

Table 2

Variables predicting GAD-7 scores at 6 months post-treatment (n = 26)

	Individual regressions					Individual regressions adjusted for baseline GAD-7				Multiple regression			
	b	SE(b)	t	P	p < 0.25	b	SE(b)	t	P	b	SE(b)	t	P
Baseline GAD-7	0.711	0.160	4.43	<0.001	Y					0.611	0.194	3.14	0.005
Baseline PSWQ	0.322	0.096	3.34	0.002	Y	0.180	0.093	1.93	0.066	0.187	0.118	1.59	0.127
Baseline IUI	0.107	0.046	2.31	0.029	Y	0.015	0.047	0.33	0.746	-0.020	0.055	-0.36	0.721
Age	-0.241	0.192	-1.25	0.222	Y	-0.053	0.157	-0.34	0.738	0.027	0.151	0.18	0.858
Sex	4.440	5.208	0.85	0.402		1.053	4.079	0.26	0.798				
Education	2.000	2.049	0.98	0.338		1.583	1.551	1.02	0.317				
GDS	0.002	0.342	0.01	0.995		-0.631	0.258	-2.44	0.022				
SSQ-6	0.009	0.112	0.09	0.932		0.063	0.085	0.75	0.461				
External Motivation	-1.356	1.051	-1.29	0.209	Y	-1.483	0.763	-1.94	0.064	-1.255	0.804	-1.56	0.134
Internal Motivation	-0.902	1.138	-0.79	0.435		-1.299	0.835	-1.56	0.133				
Confidence in Treatment	0.622	1.362	0.46	0.652		0.808	1.023	0.79	0.437				
Treatment Credibility	-0.033	0.193	-0.17	0.863		-0.150	0.145	-1.03	0.312				
Treatment Expectancy	0.148	0.330	0.45	0.656		-0.051	0.255	-0.20	0.840				
Adherence	-1.319	1.337	-0.99	0.333		0.184	1.094	0.17	0.867				

Note: GAD-7 = General Anxiety Disorder-7 Questionnaire; PSWQ = Penn State Worry Questionnaire; IUI = Intolerance of Uncertainty Inventory; Y = variables included in the multiple regression; GDS = Geriatric Depression Scale; SSQ-6 = Social Support Questionnaire.

Table 3

Variables predicting GAD-7 scores at 12 months post-treatment (n = 25)

	Individual regressions					Individual regressions adjusted for baseline GAD-7				Multiple regression			
	b	SE(b)	t	P	p < 0.25	b	SE(b)	t	P	b	SE(b)	t	P
Baseline GAD-7	0.423	0.116	3.63	0.001	Y					0.353	0.171	2.06	0.052
Baseline PSWQ	0.139	0.071	1.96	0.062	Y	0.013	0.077	0.17	0.865	0.013	0.084	0.15	0.879
Baseline IUI	0.036	0.034	1.06	0.301		-0.023	0.033	-0.72	0.477				
Age	-0.094	0.127	-0.74	0.465		0.041	0.111	0.37	0.713				
Sex	5.010	3.238	1.55	0.135	Y	3.216	2.744	1.17	0.253	2.979	2.940	1.01	0.323
Education	0.816	1.350	0.60	0.551		0.355	1.115	0.32	0.752				
GDS	0.107	0.224	0.48	0.636		-0.193	0.197	-0.98	0.339				
SSQ-6	-0.028	0.074	-0.38	0.707		-0.012	0.060	-0.21	0.837				
External Motivation	0.127	0.765	0.17	0.868		0.371	0.623	0.60	0.557				
Internal Motivation	-0.092	0.793	-0.12	0.908		-0.064	0.647	-0.10	0.921				
Confidence in Treatment	-0.416	0.889	-0.47	0.644		-0.153	0.732	-0.21	0.836				
Treatment Credibility	-0.047	0.127	-0.37	0.712		-0.089	0.103	-0.86	0.396				
Treatment Expectancy	-0.065	0.219	-0.30	0.767		-0.141	0.177	-0.80	0.435				
Adherence	-1.454	0.834	-1.74	0.094	Y	-0.495	0.785	-0.63	0.534	-0.457	0.852	-0.54	0.597

Note: GAD-7 = General Anxiety Disorder-7 Questionnaire; PSWQ = Penn State Worry Questionnaire; IUI = Intolerance of Uncertainty Inventory; Y = variables included in the multiple regression; GDS = Geriatric Depression Scale; SSQ-6 = Social Support Questionnaire.

Table 4

Variables predicting PSWQ scores at 6 months post-treatment (n = 26)

	Individual regressions					Individual regressions adjusted for baseline PSWQ				Multiple regression			
	b	SE(b)	t	P	p < 0.25	b	SE(b)	t	P	b	SE(b)	t	P
Baseline PSWQ	0.682	0.150	4.54	<0.001	Y					0.630	0.185	3.40	0.002
Baseline GAD-7	1.125	0.301	3.73	0.001	Y	0.677	0.290	2.33	0.028	0.827	0.312	2.64	0.014
Baseline IUI	0.190	0.081	2.34	0.027	Y	-0.015	0.090	-0.17	0.862	-0.106	0.087	-1.22	0.236
Age	-0.321	0.342	-0.94	0.356		-0.012	0.271	-0.05	0.964				
Sex	8.242	9.114	0.90	0.374		0.951	7.149	0.13	0.895				
Education	3.533	3.592	0.98	0.335		1.520	2.767	0.55	0.588				
GDS	-0.372	0.595	-0.63	0.537		-0.008	0.457	-0.02	0.984				
SSQ-6	-0.132	0.195	-0.68	0.504		-0.209	0.142	-1.48	0.153				
External Motivation	-1.760	1.871	-0.94	0.356		-1.214	1.411	-0.86	0.398				
Internal Motivation	-1.373	2.001	-0.69	0.499		-1.991	1.463	-1.36	0.186				
Confidence in Treatment	1.014	2.390	0.42	0.675		-0.943	1.841	-0.51	0.613				
Treatment Credibility	-0.035	0.339	-0.10	0.918		-0.158	0.253	-0.62	0.539				
Treatment Expectancy	0.045	0.580	0.08	0.938		-0.104	0.436	-0.24	0.812				
Adherence	-0.202	2.391	-0.08	0.933		0.124	1.794	0.07	0.945				

Note: PSWQ = Penn State Worry Questionnaire; GAD-7 = General Anxiety Disorder-7 Questionnaire; IUI = Intolerance of Uncertainty Inventory; Y = variables included in the multiple regression; GDS = Geriatric Depression Scale; SSQ-6 = Social Support Questionnaire.

Table 5

Variables predicting PSWQ scores at 12 months post-treatment (n = 25)

	Individual regressions					Individual regressions adjusted for baseline PSWQ				Multiple regression			
	b	SE(b)	t	P	p < 0.25	b	SE(b)	t	P	b	SE(b)	t	P
Baseline PSWQ	0.424	0.166	2.55	0.017	Y					0.140	0.191	0.73	0.472
Baseline GAD-7	0.992	0.292	3.39	0.002	Y	0.791	0.362	2.18	0.039	0.766	0.359	2.13	0.045
Baseline IUI	0.073	0.083	0.87	0.393		-0.209	0.117	-1.79	0.087				
Age	-0.166	0.313	-0.53	0.600		0.011	0.293	0.04	0.969				
Sex	13.333	7.846	1.70	0.102	Y	9.182	7.517	1.22	0.234	8.304	6.989	1.19	0.248
Education	2.333	3.293	0.71	0.485		1.312	3.023	0.43	0.668				
GDS	-0.102	0.551	-0.19	0.854		0.074	0.503	0.15	0.883				
SSQ-6	-0.213	0.176	-1.21	0.238		-0.241	0.156	-1.54	0.137				
External Motivation	-0.340	1.873	-0.18	0.857		-0.342	1.690	-0.20	0.841				
Internal Motivation	-0.351	1.941	-0.18	0.857		-1.189	1.765	-0.67	0.507				
Confidence in Treatment	1.282	2.170	0.59	0.560		-0.141	2.060	-0.07	0.946				
Treatment Credibility	-0.082	0.313	-0.26	0.795		-0.206	0.283	-0.73	0.475				
Treatment Expectancy	0.085	0.536	0.16	0.875		-0.081	0.489	-0.17	0.869				
Adherence	-0.285	2.172	-0.13	0.896		-0.247	1.961	-0.13	0.900				

Note: PSWQ = Penn State Worry Questionnaire; GAD-7 = General Anxiety Disorder-7 Questionnaire; IUI = Intolerance of Uncertainty Inventory; Y = variables included in the multiple regression; GDS = Geriatric Depression Scale; SSQ-6 = Social Support Questionnaire.

Table 6

Variables predicting IUI scores at 6 months post-treatment (n = 26)

	Individual regressions					Individual regressions adjusted for baseline IUI				Multiple regression			
	b	SE(b)	t	P	p < 0.25	b	SE(b)	t	P	b	SE(b)	t	P
Baseline IUI	0.627	0.169	3.71	<0.001	Y					0.357	0.232	1.53	0.140
Baseline GAD-7	2.190	0.773	2.83	0.009	Y	1.005	0.864	1.16	0.256	0.597	0.810	0.74	0.469
Baseline PSWQ	1.581	0.359	4.40	<0.001	Y	1.133	0.470	2.41	0.024	0.795	0.491	1.62	0.121
Age	-0.998	0.795	-1.25	0.221	Y	-0.772	0.652	-1.18	0.248	-0.220	0.629	-0.35	0.729
Sex	13.674	21.654	0.63	0.533		1.443	18.116	0.08	0.937				
Education	5.933	8.545	0.69	0.494		6.869	6.888	1.00	0.329				
GDS	-0.149	1.413	-0.11	0.916		-0.956	1.154	-0.83	0.415				
SSQ-6	-0.174	0.462	-0.38	0.709		0.074	0.384	0.20	0.847				
External Motivation	-5.525	4.345	-1.27	0.215	Y	-7.986	3.315	-2.41	0.024	-6.121	3.351	-1.83	0.082
Internal Motivation	-0.432	4.761	-0.09	0.928		-6.448	3.945	-1.63	0.115				
Confidence in Treatment	5.165	5.553	0.93	0.361		2.183	4.661	0.47	0.643				
Treatment Credibility	0.630	0.789	0.80	0.431		-0.084	0.682	-0.12	0.903				
Treatment Expectancy	1.172	1.347	0.87	0.392		0.157	1.151	0.14	0.892				
Adherence	-2.954	5.603	-0.53	0.602		-4.150	4.520	-0.92	0.368				

Note: IUI = Intolerance of Uncertainty Inventory; GAD-7 = General Anxiety Disorder-7 Questionnaire; PSWQ = Penn State Worry Questionnaire; Y = variables included in the multiple regression; GDS = Geriatric Depression Scale; SSQ-6 = Social Support Questionnaire.

Table 7

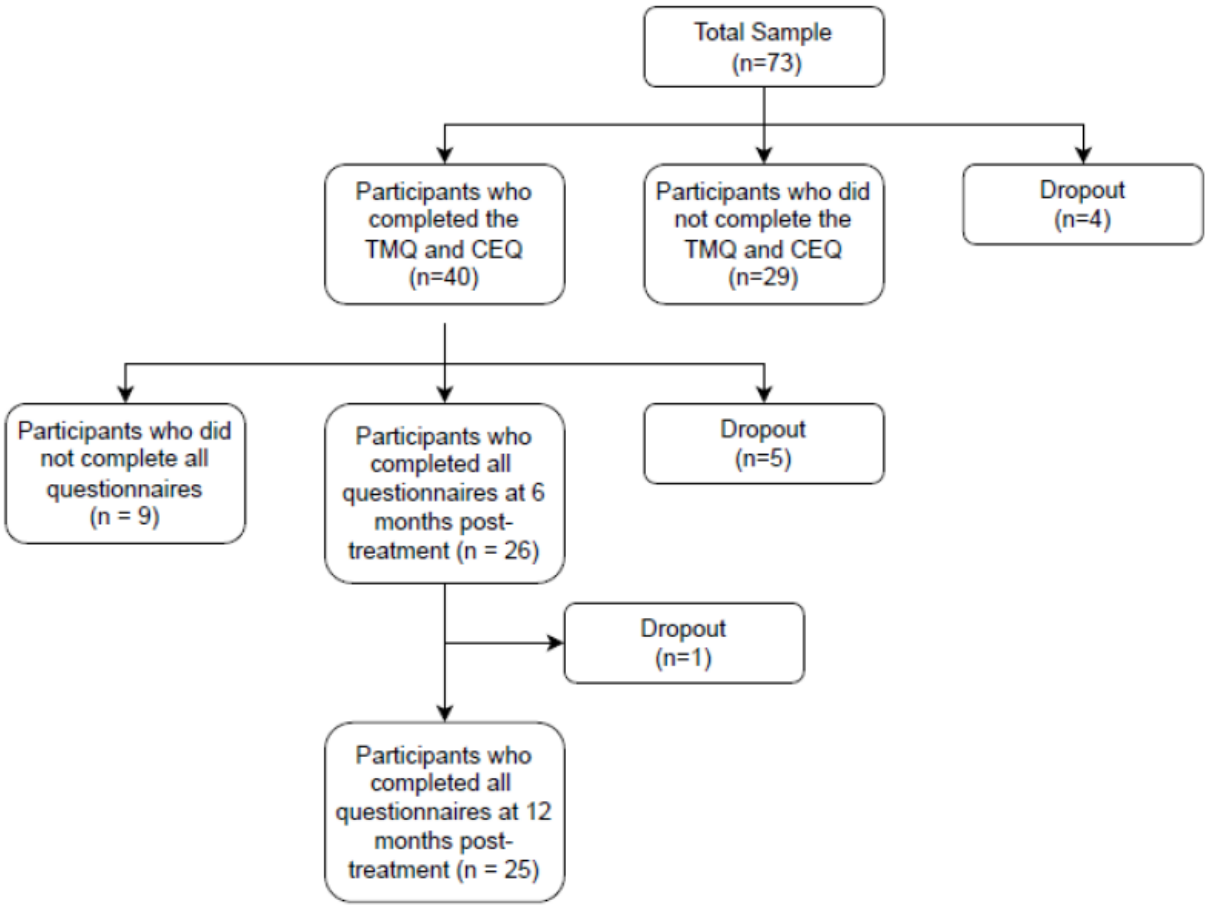
Variables predicting IUI scores at 12 months post-treatment (n = 25)

	Individual regressions					Individual regressions adjusted for baseline IUI				Multiple regression			
	b	SE(b)	t	P	p < 0.25	b	SE(b)	t	P	b	SE(b)	t	P
Baseline IUI	0.518	0.146	3.55	0.001	Y					0.239	0.237	1.01	0.323
Baseline GAD-7	2.015	0.637	3.16	0.004	Y	1.198	0.693	1.73	0.097	1.025	0.733	1.40	0.177
Baseline PSWQ	1.055	0.336	3.14	0.004	Y	0.397	0.532	0.75	0.463	0.350	0.552	0.63	0.532
Age	-0.700	0.655	-1.07	0.296		-0.438	0.549	-0.80	0.432				
Sex	19.729	17.259	1.14	0.264		10.612	14.671	0.72	0.477				
Education	1.600	7.089	0.23	0.823		1.306	5.826	0.22	0.824				
GDS	0.403	1.174	0.34	0.734		-0.015	0.975	-0.02	0.987				
SSQ-6	-0.538	0.372	-1.45	0.161	Y	-0.418	0.308	-1.36	0.189	-0.464	0.311	-1.49	0.151
External Motivation	-2.666	3.956	-0.67	0.507		-3.189	3.215	-0.99	0.332				
Internal Motivation	-1.364	4.130	-0.33	0.744		-5.160	3.376	-1.53	0.140				
Confidence in Treatment	0.732	4.658	0.16	0.876		-1.108	3.859	-0.29	0.776				
Treatment Credibility	0.202	0.667	0.30	0.764		-0.277	0.563	-0.49	0.626				
Treatment Expectancy	0.407	1.141	0.36	0.724		-0.229	0.957	-0.24	0.812				
Adherence	-2.340	4.606	-0.51	0.616		-2.645	3.765	-0.70	0.489				

Note: IUI = Intolerance of Uncertainty Inventory; GAD-7 = General Anxiety Disorder-7 Questionnaire; PSWQ = Penn State Worry Questionnaire; Y = variables included in the multiple regression; GDS = Geriatric Depression Scale; SSQ-6 = Social Support Questionnaire.

Figure 1

Flowchart of participants



General discussion

1. Summary of the thesis objectives and overview of the two articles

Generalized anxiety disorder (GAD), one of the most common anxiety disorders in older adults, remains undertreated despite the availability of effective pharmacological and psychological treatments because there is a lack of access to therapy for seniors who often live in rural areas of have mobility difficulties (Grenier et al., 2019; Zhang et al., 2015; Wolitzky-Taylor et al., 2010; Gonçalves & Byrne, 2012; Karlin et al., 2008; Gum et al., 2010). Guided self-help treatments where the person learns autonomously from home have been developed to increase accessibility to psychological treatment and have been demonstrated to be effective in the treatment of GAD in seniors (Jones et al., 2016; Miloyan et al., 2015; Cuijpers et al., 2010). However, research exploring who exactly benefits from guided self-help based on the principles of cognitive-behavioral therapy (GSH-CBT) remains in its infancy, with a need for research investigating the factors associated with therapeutic success and completion in older adults. The characteristics of individuals benefiting from this treatment were important to determine to facilitate future clinical applications and more effectively target individuals who would benefit the most from GSH-CBT (Coull & Morris, 2011; Lovell et al., 2008). Therefore, the purpose of this thesis was to address these gaps in the literature by investigating which factors predict treatment outcome and dropout in a GSH-CBT guided by lay providers designed to treat older adults with GAD in the short term, and which factors predict long term treatment outcome. The thesis is based on a larger data set from a randomized controlled trial (RCT) aimed at determining the efficacy of a new GSH-CBT treatment for GAD in older adults. Article 1 explored the factors (i.e., demographics, motivation, GAD symptomology, adherence, treatment expectations and credibility, and working alliance) associated with post-treatment outcome and treatment dropout within a sample of 106 older adults.

Article 2 followed this sample over time to determine if different factors predicted long-term outcome up to 12 months after treatment completion. The results from the two articles included within this thesis provide important insights into the associations between several factors and how they are related to outcome. This comprehensive discussion will provide a synthesis of the research findings across the two included studies while identifying the overarching limitations and implications for future research and clinical intervention.

2. Review of key findings from both articles

2.1 First article

Objective and hypotheses

Article 1 aimed to investigate which of a comprehensive range of factors, including sociodemographic data (age, sex, and level of education), baseline clinical symptom severity (anxiety, worry, and intolerance of uncertainty), treatment credibility, participant motivation, treatment adherence, and working alliance predicted post-treatment clinical outcomes and treatment dropout in a new GSH-CBT treatment guided by lay providers for late-life GAD. The outcome predictors included in this article were identified as important in previous research, but three significant gaps were noted within this area of research: 1) a paucity of studies investigating outcome predictors for GSH-CBT in older adults, 2) no studies having investigated the short and long-term predictors for the particular GSH-CBT used in this study, and 3) few studies having investigated the use of GSH-CBT to treat late-life GAD, despite evidence that GAD remains prevalent in older adults, who often have difficulties with accessing psychotherapy (Gonçalves & Byrne, 2012; Karlin et al., 2008; Gum et al., 2010). The aim of the first article was to fill in these gaps and identify the factors that predicted the efficacy of a GSH-CBT guided by lay providers in reducing GAD symptomatology in older adults by measuring the severity of these symptoms at

post-treatment (measured by the GAD-7, PSWQ, and IUI). We hypothesized (H1) that positive views of treatment credibility, greater motivation for beginning treatment, a positive experience shared between lay providers and participants, and higher adherence to the treatment modules would predict lower GAD symptomology at post-treatment, and (H2) that the above-mentioned predictors would predict dropout rates during treatment, except for the working alliance, as it was measured at post-test.

Overview of main results

Results from Article 1 indicated that lower initial symptom severity predicted better post-treatment outcome, thus indicating that the GSH-CBT treatment may be more beneficial to older individuals with mild to moderate anxiety. The hypothesis that positive views of treatment credibility and greater motivation for beginning treatment was also supported by the results: At post-treatment, these factors significantly predicted outcome on the GAD-7, PSWQ, and IUI in the individual regression analyses adjusted for baseline scores, suggesting that the motivation of participants to undertake the treatment and how credible they perceive a GSH-CBT can be important factors to consider when recommending this type of treatment. Contrary to what was expected, a positive experience shared between lay providers and participants and higher adherence to the treatment modules did not significantly predict post-treatment reductions in symptoms. The second hypothesis was also not supported, as none of the factors studied were associated with greater treatment dropout. This information is relevant when considering which older adults are more likely to respond to this new treatment. Taken together, the evidence from Article 1 points towards the importance of taking into account several factors, most notably initial GAD symptom severity, when prescribing this GSH-CBT for older adults with GAD.

2.2 Second article

Objective and hypotheses

Article 2 aimed to investigate which of a comprehensive range of factors, including sociodemographic data (age, sex, and level of education), baseline clinical symptom severity (anxiety, worry, intolerance of uncertainty, and depression), treatment credibility, participant motivation, treatment adherence, and social support satisfaction predicted long-term treatment outcome in a GSH-CBT for GAD in older adults. The aim of this study was to identify the factors that predicted the long-term outcome of a new GSH-CBT guided by lay providers in reducing GAD symptomatology in older adults by measuring the severity of these symptoms at 6- and 12-months post-treatment (measured by the GAD-7, PSWQ, and IUI). We hypothesized that lower initial anxiety and depression symptom severity, positive views of treatment credibility, greater motivation for beginning treatment, higher adherence to the treatment modules, and greater social support would lead to greater reductions in GAD severity, worry intensity, and level of intolerance of uncertainty at 6 and 12 months after treatment.

Overview of main results

Our hypothesis was mostly confirmed, as the results from Article 2 indicated that lower initial anxiety, worry, and intolerance of uncertainty severity, as well as greater motivation and social support predicted better treatment outcome up to 12-months post-treatment. Contrary to what was expected, adherence and credibility were not associated with outcome, and higher depression was associated with lower scores on the GAD-7 at 6-months post-treatment only. Consistent with Article 1, less severe initial anxiety, worry, and intolerance of uncertainty were found to be predictors of outcome at 6- and 12-months post-treatment as well. In the long term however, additional variables like social support and motivation also became potentially important

predictors of outcome. The results obtained from the second article are consistent with those of previous studies that have showed links between social support and treatment outcome in ICBT for anxiety in youths (Spence et al., 2019) and higher motivation as a predictor of long-term outcome in a study on CBT for youths with anxiety disorders (Kodal et al., 2018). The results from Article 2 suggest that this treatment may be more beneficial in the long-term to older individuals with mild to moderate anxiety, worry, and intolerance of uncertainty, who are motivated to do the treatment and who have greater social support satisfaction. This extended viewpoint is relevant when considering which older adults are more likely to respond in the long term to this new treatment. It allows us to determine which variables are potentially the strongest predictors of long-term treatment success, thus providing new pertinent clinical information to guide future treatment application to older adults who are more likely to benefit from this GSH-CBT well after treatment is completed. Taken together, evidence from both articles would point towards the importance of taking into account several factors, most notably initial symptom severity, motivation, and social support satisfaction, when prescribing this GSH-CBT for older adults with GAD.

3. The impact of predictors on short- and long-term treatment response

The results of the thesis highlight the importance of considering different factors that may influence outcome in GSH-CBT not only at post-treatment, but in the longer term up to 12 months after treatment. These factors and their implication with regards to treatment response will now be discussed in detail.

3.1 Initial severity of symptoms

Significant associations were found between lower initial GAD-7 severity and all three outcome predictors (GAD-7, PSWQ, and IUI) across both articles. These results contrast one previous study on group CBT for GAD in older adults conducted by Wetherell et al. (2005) which found that

greater initial GAD severity predicted symptom reductions at 6 months post-treatment when pooling data from three studies. However, the authors explain that their results were indeed inconsistent with previous research on younger adults with anxiety and suggest that a regression to the mean effect, in which patients with more severe symptoms at baseline had greater reductions in anxiety than those with less severe initial symptoms, might have occurred in their study (Wetherell et al., 2005). Our findings are however consistent with a recent systematic review on the predictors of treatment outcomes for older adults with late-life anxiety conducted by Kyriacou et al. (2023), which found that lower baseline anxiety symptoms in older adults with GAD consistently predicted better outcomes at both post-treatment and at follow-up. Our findings are also supported by a recent study on GSH-CBT in younger adults which also found that lower initial symptom severity predicted better outcomes (Salomonsson et al., 2020). In addition, our results are consistent with prior research exploring the predictors of CBT for GAD in older adults, which found that lower initial anxiety predicted symptom reductions up to 6 months after treatment (Hundt et al., 2014). Our results further expand upon these findings, with lower initial GAD severity significantly predicting treatment outcome on the GAD-7, PSWQ, and IUI up to 12 months post-treatment in older adults with GAD. Based on our findings in both articles and previous research, initial GAD symptom severity seems to be one of the most important predictors of outcome in older adults, and it seems to remain important well after treatment is completed.

Lower initial worry severity measured by the PSWQ also predicted lower worry, anxiety, and intolerance of uncertainty up to 6 months post-treatment in the multivariate analyses. These results are consistent with what has been found in older adults by Hundt et al. (2014). For example, Hundt et al. (2014) looked at predictors of traditional CBT in older adults with GAD and found that lower worry severity, measured by the PSWQ, also predicted positive 6-month treatment outcome on

both worry and anxiety. This is further supported in a systematic review by Kyriacou et al. (2023), which also found that lower baseline worry severity in older adults with GAD predicted better outcomes at post-treatment and follow-up. Our results thus indicate that worry severity may also be an important factor to consider in addition to GAD severity when trying to determine who benefits from this GSH-CBT in the long-term.

Lastly, lower initial intolerance of uncertainty predicted lower IUI up to 6 months post-treatment in the multivariate analyses and lower worry at 12 months post-treatment in the individual regressions adjusted for baseline. The results demonstrate that intolerance of uncertainty predicts both short-and long-term post-treatment outcomes in GSH-CBT guided by lay providers for late-life GAD. Our results are consistent with those of another study testing the efficacy of a group CBT in the treatment of GAD in adults which found that a better tolerance of uncertainty was significantly associated with decreases in worry (Torbit & Laposa, 2016). It had yet to be studied as a potential predictor of long-term outcome in GSH-CBT, but, in article 2, there are indications that it can be an important long-term predictor of both worry and intolerance of uncertainty. Given its importance in promoting symptom improvement and enhancing outcome during treatment (Torbit & Laposa, 2016), initial intolerance of uncertainty severity should be considered in addition to anxiety and worry severity as predictors of long-term outcome in GSH-CBT guided by lay providers for late-life GAD.

3.2 Other predictors

Additional factors that were significant in predicting outcome merit attention because they may be useful in designing future studies focusing on long-term predictors of GSH-CBT and provide additional information for clinicians to consider other than symptom severity when implementing this treatment.

Motivation

In line with our hypotheses, higher motivation to begin the treatment predicted outcome at post-treatment, and at 6- and 12-months post-treatment. As this is a self-guided therapy where individuals work through the modules more or less independently at home, initial motivation levels of older adults beginning the therapy is an important factor influencing treatment outcome. This notion was supported in a review conducted by Newman et al. (2003) exploring predictors of outcome in self-help therapies, which concluded that these treatments are more effective for more motivated individuals. In Article 1, external motivation significantly predicted lower post-treatment intolerance of uncertainty. This has been shown in previous research on GSH for psychological distress in cancer patients, where individuals often started therapy for extrinsic reasons, such as recommendations from a healthcare professional (Krebber et al., 2017). Although therapeutic changes that arise from extrinsic motivation are less likely to be maintained once these motivators are removed, they are beneficial in the short term, as they motivate the individual to begin therapy (Mohr et al., 2011). The therapist can then cultivate more persistent change by substituting extrinsic motivation over time by intrinsic motivation. Although it has been shown that individuals with greater intrinsic motivation attending face-to-face psychotherapy tend to show more positive outcomes, GSH comes with its own set of challenges (Michalak et al., 2004). It has been suggested that only a small minority of individuals pursuing these types of treatment have enough intrinsic motivation to be able to successfully implement and maintain the use of self-guided material (Mohr et al., 2011). Therefore, for most individuals, at least some extrinsic motivation is required for GSH. Wetherell et al. (2005) also suggest that a participant's motivation could influence homework completion and treatment adherence. The results of our study seem to reflect this notion, as the weekly calls made by lay providers may have fostered enough external

motivation in participants to facilitate treatment completion. This is seen in the high adherence rates encountered in our study, as above 90% of participants completed all treatment modules in 15 weeks. The positive effects of motivation were not limited to post-treatment reductions in intolerance of uncertainty, but continued to be associated with outcome well after treatment completion. Greater motivation was associated with lower anxiety at 6 months post-treatment and lower intolerance of uncertainty scores at both 6- and 12-months post-treatment. These results support previous research conducted by Kodal et al. (2018) who also found that higher motivation predicted long-term outcome in a study on CBT for youth with anxiety disorders. Wagner et al. (2015) also recommend that motivation to change should be a primary therapeutic target, as they found that higher motivation predicted outcome in a GSH for bulimia nervosa in young adults. This can thus indicate that only the most motivated participants were more tolerant to uncertainty after 12 months in our study, as developing a tolerance for uncertainty requires a lot of work and effort. Maintaining it over the long term is even more difficult, thus it is possible that the most motivated individuals were able to decrease their intolerance of uncertainty up to 12 months after completing the intervention. This notion is supported by Kodal et al. (2018), who suggest that more motivated individuals tend to participate more actively in therapy and are likely to continue to apply learned skills well after treatment completion. The importance of cultivating motivation and substituting extrinsic motivation over time by intrinsic motivation to generate more persistent change in a difficult to master a mechanism like intolerance of uncertainty is reflected in the fact that only internal motivation to complete the treatment was associated with lower intolerance of uncertainty at 12 months in our study. As intolerance of uncertainty is a key mechanism behind GAD (Dugas et al., 1998), the benefits of internal motivation in decreasing intolerance of uncertainty in the long run are many and can help patients with relapse prevention. Future clinical

application of this GSH-CBT should foster or evaluate the motivation of older adults with GAD wishing to embark on this treatment to maximise the potential benefits that they can gain from it. Strategies that clinicians can use to increase motivation in anxious older people will be discussed in the clinical implications section.

Credibility

The perceived credibility of a GSH-CBT was also shown to be an important predictor of treatment outcome in this thesis. As hypothesized, in Article 1, greater confidence in the treatment, as well as higher perceived treatment credibility and treatment expectancy, variables generally associated with greater engagement, were associated with more favorable treatment outcomes. These results support previous research on traditional CBT effectiveness for late-life GAD conducted by Hundt et al. (2014) and more recent research on predictors of outcome for GSH-CBT in primary care conducted by Salomonsson et al. (2020) who found that credibility predicted better outcome. As self-guided treatments may be perceived differently than traditional face-to-face treatments, the results suggest that an individual's perception with regards to this new treatment and their treatment expectations are important factors to consider when suggesting this type of therapy. This highlights the importance of exploring the view of future patients with regards to how they perceive such a therapy, as older adults may not perceive it as credible as a traditional face-to-face therapy. These findings also emphasize the need to think outside the box when it comes to treatment recommendations and application, as initial symptom severity may not be the only factor contributing to treatment effectiveness when it comes to GSH-CBT. In light of this, our results suggest that the clinical implication of perceived credibility seems to be limited to the treatment itself, with little benefit post-treatment. Although it was found in Article 1 that positive views of treatment credibility could predict post-treatment outcome in this GSH-CBT, contrary to our

expectations, these factors became less important in the long-term in Article 2. It may be that treatment-bound factors like credibility perception are less important in helping patients maintain gains post-treatment, thus highlighting the importance of gathering longitudinal data when it comes to implementing a new treatment. This is especially useful for an understudied population like older adults, for which a paucity of longitudinal research exists for GSH treatments.

Adherence

In contrast to our expectations and to prior studies with older adults that showed that greater adherence to the treatment modules predicted outcome (Hundt et al., 2014; Wetherell et al., 2005), adherence was not associated with outcome in this thesis. However, this result may be due to the restricted range of data for this variable, as the vast majority of participants in the current study completed all of the treatment modules at 15 weeks. This suggests that engagement was high, which has been repeatedly shown to be beneficial to treatment outcome (Mausbach et al., 2010; Donkin et al., 2011). The large adherence to the modules within the allotted time for treatment is promising, as it indicates that the length of the GSH-CBT treatment is well adapted to older adults with GAD, and they can complete the entirety of the treatment within 15 weeks. The high completion rate in this study could also be associated with the motivation of participants to complete the treatment. This association is supported by Wetherell et al. (2005), who suggest that motivation may have been responsible for homework adherence and overall improvement in their study. Despite not having measured motivation, they recommend that future CBT protocols for older adults include a motivational interviewing piece to highlight the importance of engaging in practice exercises and encourage participants to complete homework assignments (Wetherell et al., 2005). As stated earlier, the findings of this thesis show that there is a relationship between motivation and outcome at both post-treatment and up to 12 months after treatment. This is

encouraging for future clinical application, as the data shows that high module adherence and motivation for completing the treatment in combination hold promise for successful treatment completion and benefit.

Social support

When looking at the factors that predict outcome only at one year after treatment completion in article 2, additional predictors become important. Of interesting note was the apparition of social support satisfaction as an additional predictor of worry and intolerance of uncertainty outcome only at 12 months post-treatment, indicating that high social support satisfaction can play an important role in therapeutic gains well after treatment completion. It may be that, for worry and intolerance of uncertainty, social support is a protective factor for continued benefits in the long-term in older adults with GAD. Social support has been shown in previous research on anxiety disorders to be a predictor of treatment success at post-treatment, but it had yet to be associated with long term outcome (Lindfors et al., 2014; Spence et al., 2019). Interestingly, in this thesis, the benefits of social support satisfaction seem to significantly predict outcome at 12 months post-treatment. It has been shown in previous research that additional factors can indeed predict long-term treatment outcome (Wetherell et al., 2005). This has also been shown in the current study, highlighting the importance of gathering longitudinal data. As noted by Lindfors et al. (2014), social support may help individuals put change into practice after treatment, as a facilitating environment can foster the utilisation of new ways of coping. This may explain the extended benefits of greater social support found in this study on long-term therapeutic outcomes on both worry and intolerance of uncertainty. As the maintenance of gains is an important predictor of treatment utility in CBT (Covin et al., 2008), identifying the potential factors contributing to these gains in the long term provides important insight into future treatment development for an

understudied population like older adults. Further research into the association between social support, worry, and intolerance of uncertainty is needed to better understand this interaction.

Working alliance

The working alliance between lay providers and participants was only included in Article 1, as the participants no longer had regular interactions with lay providers after treatment completion. Although it was initially hypothesized that the therapeutic alliance between lay providers and participants may play an important role in the treatment because participants were guided weekly throughout their self-help intervention, the working alliance did not significantly predict outcome in this thesis. It was thought that the quality of the relationship that participants have with their lay providers would be a factor predicting outcome because several researchers have suggested that support in therapy, and more specifically the working alliance between participants and lay providers may play an important role in therapeutic outcome (Nordgren et al., 2013; Boettcher et al., 2013; Alfonsson et al., 2016). For example, Alfonsson et al. (2016) demonstrated that treatment outcome was positively predicted by the working alliance in a study examining the outcome predictors for an ICBT relaxation program in younger adults. However, Andersson et al. (2012) found nonsignificant change scores on primary outcome measures when examining the effect of the working alliance in an ICBT for depression, generalized anxiety disorder, and social anxiety disorder in younger adults. A review conducted by Berger (2017) on the importance of therapeutic alliance in different ICBT treatment modalities (including GSH) revealed that the evidence is currently mixed on whether or not the working alliance plays an important role in GSH treatments. The lack of association found in this thesis may be because GSH treatments differ from traditional CBT in that there is only brief contact with each participant per week, thus the working alliance may be a less important factor for treatment success than it is for traditional therapy where the

participant has more extensive contact with the therapist. In GSH, the guide also has a different role than a therapist with regards to the therapy. Since the guide's role consists primarily of a supportive or facilitative nature, other factors not related to the working alliance may more strongly influence treatment outcome in GSH. The lack of significant associations between working alliance and outcome found in this thesis highlights the need for further research into the effects of the working alliance in GSH-CBT with older populations suffering from different disorders.

Sociodemographic characteristics

Demographic variables were also not associated with treatment outcome in this thesis. These variables were not expected to influence outcome in any specific way, as previous research was inconclusive in whether or not these factors influenced treatment outcome for GSH-CBT in older adults. Few studies have looked at demographic predictor variables for CBT effectiveness in older individuals, and of those, none of them explored GSH interventions. For example, Hundt et al. (2014) examined demographic predictors of outcome with seniors in a traditional CBT for late-life GAD, but found no significant correlations. Wetherell et al. (2005) also studied predictors for CBT for late-life GAD and also determined that demographic variables did not predict posttreatment symptom reduction. Despite the paucity of research focusing on older populations, the results of this thesis support these previous findings, suggesting that age, sex, and education seem not to be associated with treatment outcome in seniors for this GSH-CBT.

3.3 Summary of overall findings

Taken together, evidence from both articles would point towards the importance of taking into account several factors when prescribing this GSH-CBT for older adults with GAD. With older adults, acute post-treatment gains may be better explained by initial symptom severity or treatment linked factors such as perceived credibility of treatment and motivation to being the treatment.

Other factors may play a more important role well after treatment completion for older adults. The results of this thesis suggest that factors such as initial symptom severity, as well as motivation and social support seem to be more important predictors of long-term GSH-CBT treatment success in older adults with GAD than treatment-bound factors like credibility perception and module adherence. Additionally, significant variables such as motivation and credibility may have contributed to greater engagement with the GSH-CBT treatment, thus explaining why little variability with regards to module completion was detected. Lastly, other predictors like demographic variables and working alliance seem to be not important compared to the other factors studied in this thesis with regards to GSH-CBT outcome.

4. Main contributions of the thesis

4.1 Research contributions

Although previous research studying the predictors of CBT in the treatment of anxiety found that age, sex, education, severity of clinical symptoms, treatment credibility, motivation, working alliance, and adherence predicted outcome (El Alaoui et al., 2015; Karyotaki et al., 2015; Ritterband et al., 2010; Alfonsson et al., 2017; Keeley et al., 2008; Nordgreen et al., 2011), only two studies had looked at predictor variables for CBT effectiveness specifically in older individuals (Hundt et al., 2014; Wetherell et al., 2005), and of those, none of them explored GSH interventions. It was thus not known if the predictors identified in these two previous studies applied specifically to a GSH-CBT. This is thus the first research to study predictors of outcome of a GSH-CBT for GAD specifically in older adults and over a 12-month post-treatment period. As the factors that predict acute post-treatment success may differ from those predicting long-term therapeutic outcome, it was necessary to explore which factors were more important in the long-term as well. There is a limited body of research regarding the treatment outcome predictors of

GSH-CBT, with no studies having looked at them up to 12 months in older adults, so the extended viewpoint contributes to a lack of literature on the long-term outcome predictors in this population. We also included a large variety of different predictors that could influence outcome in GSH-CBT in older adults, which allowed us to determine which variables were potentially the strongest predictors of long-term treatment success up to 12 months post-treatment. This was done to bolster the limited body of knowledge and provide new pertinent future research avenues and clinical information to guide future treatment application to older adults who are more likely to benefit in the long-term. It was interesting to note that there were different factors that became important for outcome in the long term. This can be important to keep in mind when conducting future research on outcome predictors and highlights the importance of gathering longer term data for this type of treatment. Combined together, this thesis contributes to the literature by providing a better understanding of the role of various factors in predicting response to a GSH-CBT for GAD in older adults up to 12 months after treatment completion.

4.2 Clinical contributions

The present thesis provides a better understanding of who exactly benefits from the GSH-CBT treatment, thus facilitating clinical application. It enhances comprehension of which factors are important to consider by clinicians when suggesting this treatment to older adults with GAD in order to maximize the chance of success. Furthermore, the results of article 2 also help guide future treatment application that seeks to encourage the maintenance of therapeutic gains after treatment by providing information regarding the factors that most importantly predict outcome up to 12 months post-treatment.

First of all, the results indicate that it may be useful to evaluate and cultivate the motivation of older individuals beginning this GSH-CBT in future clinical applications. As shown in this thesis,

motivation has significant impacts on outcome not only at post-treatment, but up to 12 months after treatment as well. Therefore, it could be useful for clinicians to utilize motivational interviewing to foster motivation in older adults beginning this therapy. To break taboos regarding mental health in this population, psychoeducation on anxiety could also be given amongst seniors in community organizations by emphasizing that older adults are not protected from mental health problems such as anxiety. Knowing that there are effective therapies available might increase their motivation to seek or engage in therapy.

The results of this thesis also showed that it can be beneficial to evaluate how credible the patient perceives this treatment. As self-guided treatments may be perceived differently than traditional face-to-face treatments, the results suggest that older adults' perceptions with regards to this treatment and their treatment expectations are important factors to consider when suggesting this type of therapy. Researchers have argued that program credibility may be especially relevant for self-help treatment outcomes because these treatments may not hold the same credibility as face-to-face therapy amongst patients (Ritterband et al., 2010; Geraghty et al., 2010; Nordgreen et al., 2011). Studies emphasize that a patient's views regarding the credibility of a treatment might influence their willingness to engage in treatment and treatment outcome (Ritterband et al, 2010; Salomonsson et al., 2020; Hedman et al., 2012). Efforts should thus be made in future clinical use to carefully explain the usefulness and legitimacy of this new type of treatment to older adults by putting emphasis on it being a standardized evidence-based manual, and that the outcomes of these types of therapy are comparable with face-to-face therapy (Miloyan et al., 2015; Cuijpers et al., 2010) in order to foster greater engagement. Greater engagement could then spur greater motivation as well, both of which have been shown to predict more favorable outcomes in this thesis.

This thesis also indicates that it can be important to evaluate and cultivate social support during treatment to ensure that patients continue to make progress after treatment completion. Since social support seems to be important in predicting long-term outcome on intolerance of uncertainty, a key mechanism of GAD, the incorporation of a loved one or a caregiver by implicating them more actively in the treatment may help older adults continue to make progress on this mechanism well after treatment completion. Previous research has shown that both initial pretreatment satisfaction and changes in social support satisfaction during treatment in parallel to CBT increases quality of life and moderates outcome (LaRocca & Scogin, 2015). Therefore, as a first step, clinicians could examine the person's entourage to see if there is someone close to them who might be able to help. Coaching could then be given to the loved one by the therapist to ensure that they provide support to participants and avoid constantly providing reassurance, as this may maintain their anxiety. In the event where the older adult is alone, coaching could be provided to support the person in finding new relationships (giving them strategies on how to meet new people, volunteer work, etc.), so that they have more tools to increase their social support network and avoid being alone. A module on social support incorporating self-assertion training which encourages older adults to participate in group activities in the community could also be added to the treatment. Further research implementing this strategy would be interesting, as it may increase post-treatment progress.

This treatment has the potential to increase the accessibility to therapy for older adults, but, as mentioned above, it may not be useful for everyone. The main results suggest that this treatment is more effective for older adults who have mild to moderate GAD symptomology. The treatment thus seems to be effective regardless of the presence of clinical or subclinical GAD. As individuals with subthreshold GAD can have anxiety symptoms similar to mild or moderate GAD, they can

also benefit from the GSH-CBT, thus increasing its clinical reach potential. If an older adult's GAD is more severe, other avenues like traditional CBT or medication can be beneficial on their own or in combination with the GSH-CBT. It may be possible to utilize the GSH-CBT treatment manual in combination with traditional CBT as additional readings or homework in between sessions with older adults with more severe GAD. This hybrid approach could especially benefit older adults with severe GAD living in remote areas, as they could see a psychologist weekly for remote therapy in combination with the manualized GSH-CBT to complete in between sessions. It could also be useful to incorporate medication in combination with the GSH-CBT therapy for more severe cases. A study conducted by Wetherell et al. (2013) has shown that CBT in combination with medication for GAD in older adults can lead to worry reduction and relapse prevention. Further research is needed to determine the effectiveness of these strategies.

To summarize, clinicians planning to implement this treatment with an older patient with GAD must assure that the patient is motivated to complete a GSH-CBT, perceives the treatment as credible, is satisfied with his social support, and, most importantly, has low or moderate anxiety symptoms. A checklist incorporating these factors could be developed and provided to first-line providers to ensure that the treatment is right for the patient. If certain factors are missing, some of the strategies outlined above could be used to maximize the chance of treatment success.

5. Limitations and strengths

This thesis' findings are subject to certain limitations. The lack of males in both studies makes it impossible to generalize the results to older men. The lack of males in the sample may be because generalized anxiety is generally more present in females, with women aged 65 years and older having six times the likelihood of developing this disorder compared to men (Grenier et al., 2019; Wittchen & Hoyer, 2001). More female interest in the study may also have occurred because men

generally tend to engage less in help-seeking behaviors (O'Brien et al., 2005). Lastly, males in general tend to have shorter life expectancies than women, and anxiety disorders have been shown to significantly increase mortality risk, thus decreasing the availability of males in an older GAD population (Meier, 2016). Our sample is consistent with the findings of a systematic review examining the predictors of treatment outcome in late-life anxiety, which also found that the samples in the thirteen studies included were mainly comprised of females (Kyriacou et al., 2023). While this may help to explain why the sample was mostly comprised of older female participants, there may also be interest for this type of treatment from older males. Future studies should include a large sample of older males to determine if the outcome predictors remain the same or if different characteristics in males effect treatment outcome. To attain a larger sample, several strategies could be utilized. A recent systematic review on recruitment strategies for men aged 50 years and older for RCTs found that the best approaches for recruiting older men were referrals through affiliated health service providers, media coverage (radio, television, newspapers, online advertising, etc.), and mass mailings (Bracken et al., 2019). Therefore, these strategies could be used in future studies to increase male participation in the study and maximize the number of older men in the sample. The sample used in this thesis was also comprised mainly of an older French population that were subject to strict inclusion and exclusion criteria. Therefore, care must be taken when generalizing the results outside of this population. Future research is needed to confirm the generalizability of the results to older populations in other parts of the world.

Additionally, as the TMQ and CEQ questionnaires were added after the original RCT had begun, this led to a large portion of participants not completing these additional questionnaires. For the analyses of both articles, the final sample size was reduced to include only the participants who answered all the questionnaires at baseline, at post-treatment, and at 6- and 12-months post-

treatment. This was done to maximize the number of predictors included in the model and to not lose pertinent clinical information with regards to who exactly benefits from this treatment in the long term. However, care was taken to make sure that the remaining data were appropriate for analysis. We compared our chosen sub-sample to the total sample and found that there were not any significant clinical differences on all measures. This indicates that we would likely have had similar results if the total sample was included in the analyses.

Another limitation is that the alliance measure was only administered at post-test due to the unfeasibility of including additional measurement points after the study began. The data could have been influenced by clinical gains, thus previous authors suggest assessing it at various time points (Nordgren et al., 2013; Andersson et al., 2012). Further studies with a larger sample size accounting for the limitations mentioned above are needed to confirm and advance our findings with regards to the factors that predict treatment outcome.

Despite these limits, there are several strengths. It is the first thesis to examine the outcome predictors of a guided self-help treatment guided by lay providers for GAD in older adults up to 12 months post-treatment. The benefit of this extended viewpoint is that it permitted us to determine which variables were potentially the strongest predictors of long-term treatment success, thus providing new pertinent clinical information to guide future treatment application to older adults who are more likely to benefit in the long-term. Additionally, a wide variety of outcome predictors that were identified in previous studies were included to perform in-depth analysis of which factors may influence treatment outcome and treatment dropout in older adults. Despite COVID having occurred during treatment implementation, no major effects on implementation were encountered. The benefit of a treatment like the GSH-CBT used in this thesis was that it was

designed to be completed at home, suggesting that this type of treatment could be a useful option to continue providing care when facing pandemic-type situations.

6. Paths for further inquiry

Future research into GSH-CBT for GAD in older adults could investigate the evolution of GAD symptoms of individuals having completed the treatment in order to develop a clinical profile of who maintains therapeutic gains and who relapses after the treatment is completed. Previous research on the durability of low intensity versions of CBT like GSH-CBT has shown that factors such as residual depression symptoms post-treatment can lead to relapse (Ali et al., 2017). As some participants may be more prone to rebounds than others, future research with a larger sample size focusing on examining which individuals are more at risk of relapse and those who continue to make therapeutic gains can shed more light on the long-term clinical evolution of older adults with GAD who complete a GSH-CBT.

The results of this thesis indicate that it would be important to follow participants for at least 12 months post-treatment, as different factors seem to become important in predicting outcome in the longer term. Therefore, in future research implementing a treatment, it would be important to continue following-up with participants well after treatment, as useful information regarding the maintenance of gains well after therapy ends may be lost if limiting analysis to post-treatment effectiveness. The inclusion of booster sessions in future research several months after the end of treatment could be useful in promoting/maintaining progress as well.

This treatment has the potential to increase the accessibility to therapy for older adults, but, as mentioned above, it may not be useful for everyone. As most of our sample was comprised of

women, different predictors may be present in men. Additionally, different factors may be important for outcome in even older adults or older adults with mobility issues. The purpose of the GSH-CBT was to expand access to older adults in rural areas or who have mobility issues and have difficulty accessing therapy. However, our sample was comprised mainly of younger older adults who might have had less difficulty accessing therapy. This highlights an opportunity for future research to expand and conduct an in-depth analysis to further understand the influence of these factors. In line with this, future research could specifically study a more at-risk older adult population that might benefit greatly from this type of treatment (e.g., older adults living in rural areas, with lower income, and with less means of paying for a psychologist).

Furthermore, this treatment was tested with lay providers as weekly guides, but it may be also possible to use psychologists as the guides. The working alliance may thus become more important in this case, as previous research has shown that good working alliance between patients and their therapists predict outcome (Stiles-Shields et al., 2014). A comparative study could be conducted in this case to see if the importance of working alliance is similar between both groups (lay providers versus psychologists as guides). If working alliance is shown to affect outcome similarly, it could support the use of lay providers in future GSH-CBT applications. The use of lay providers increases accessibility to treatment and increases the productivity of psychological care through resource expansion. Considering the goal is to enlarge access to treatment, peer support groups comprised of other older adults who also had anxiety or other mental health issues in the past could also be used. Older adults in community organizations could be trained as additional resources to guide other older adults through the self-help treatment.

With the goal being to offer the best treatment possible to individuals seeking therapy, implementation studies incorporating this treatment in the community could also further

knowledge on who might benefit the most from this treatment. Since the idea is to increase accessibility, testing this self-help treatment in a larger community setting using a pragmatic RCT approach would allow researchers to generalize the results to different settings. Implementing this treatment in community organizations also increases reach potential, as it would permit researchers to include older adults with more disability residing in these organizations.

There is also a paucity of studies implementing GSH-CBT with older adults in North America. This presents a good opportunity for future research on this subject, as accessibility to therapy and increased healthcare costs are becoming growing issues, especially with an aging population (Ortman et al., 2014; Weaver & Himle, 2017). Late-life anxiety has been shown to be associated with significant healthcare costs in Quebec. For example, a study conducted by Vasiliadis et al. (2013) demonstrated that GAD in seniors was associated with millions of dollars in annual healthcare costs. With difficulties accessing therapy on the rise, incorporating GSH-CBT within a stepped care model where patients are treated with low intensity versions of CBT, like GSH-CBT, before being stepped up to more advanced care could improve accessibility to treatment. This model has shown to be both effective and feasible in a recent review of stepped-care treatment of anxiety and depression in older adults (Meuldijk & Wuthrich, 2019). It has already been incorporated in England, where a recent meta-analysis conducted by Wakefield et al. (2021) found large pre-post treatment effect sizes for reductions in depression and anxiety in younger adults. Additional research by Clark (2011) determined that many people who would not have had access to treatment benefited from this approach. As has been done in England, GSH-CBT could be incorporated in the Quebec medical system via the proposed "Quebec Program for Mental Disorders" (PQPTM) to increase access to care for individuals who have mild to moderate GAD,

potentially reducing costs associated with medical usage by older adults with anxiety and increasing access to care (Quebec Ministry of Health and Social Services, 2023).

7. Conclusion

This thesis provided a better understanding of the factors associated with long-term treatment response to a GSH-CBT guided by lay providers designed to treat older adults with GAD. More specifically, lower initial anxiety, worry, intolerance of uncertainty, as well as greater motivation and social support satisfaction were associated with larger decreases in GAD symptomatology at 6 and 12-months post-treatment controlling for all other variables. These results suggest that this treatment may be more beneficial in the long-term to older individuals with mild to moderate anxiety, worry, and intolerance of uncertainty, who are motivated to do the treatment and who have greater social support satisfaction. Considering the aging population, with an increasing number of older adults and higher demand for mental health services, it is important to develop new treatment modalities, like GSH-CBT, to meet this new demand and increase accessibility to care. The GSH-CBT utilized in this thesis is a possible solution to this problem and larger community studies implementing this treatment could help alleviate the medical system and provide additional care to this vulnerable population.

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Annex A

Guided self-help based on the principles of cognitive-behavioral therapy (GSH-CBT) Treatment Modules

Module	Semaine	Contenu	Exercice
1. Objectifs de la thérapie et éléments de base de l'anxiété	1	• Les objectifs de la thérapie • Les caractéristiques de la thérapie • L'élément essentiel pour la réussite • Éléments de base de l'anxiété • Les deux types d'inquiétude	Noter et catégoriser les inquiétudes quotidiennement
2. Relaxer	1	• La respiration profonde • La relaxation musculaire progressive (RAMPE) • La visualisation	Appliquer une technique de relaxation quotidiennement
3. Tolérer l'incertitude	1	Prenez conscience de votre intolérance à l'incertitude et de vos réactions personnelles d'intolérance	Observez vos réactions personnelles face à l'incertitude
	2	Questionner votre besoin de certitude et développer une vision réaliste de l'utilité des réactions personnelles d'intolérance	Questionner vos réactions automatiques lorsque vous avez envie d'éviter l'incertitude
	3	Diminuer ses réactions personnelles d'intolérance à l'incertitude et affronter les situations incertaines	Contrer une de vos réactions personnelles d'intolérance ou de vous exposer à une situation nouvelle comportant une part d'incertitude.
4. Se faire plaisir	1	• La relation TAG-dépression • Ce que je fais influence comment je me sens • Quelles activités peuvent m'aider?	• Exercice 1 : compléter la grille horaire • Exercice 2 : Votre Top 10 (établir la liste des activités agréables)
	2	• Planifiez et accomplissez vos activités agréables	À vous de jouer! (planifier et réaliser des activités agréables)
5. Corriger les fausses croyances	1	• Différentes croyances • Quand les croyances font partie du problème	Corriger ses croyances par rapport à une

Module	Semaine	Contenu	Exercice
		• Corriger ses croyances (technique du JUGE)	inquiétude en utilisant la technique du JUGE
6. Résoudre les problèmes efficacement	1	• Aborder ses problèmes à l'aide des 5 étapes de résolution de problèmes • Prendre conscience du rôle possible de votre attitude négative face aux problèmes	• Exercice 1 : Identifier les problèmes ou tracas quotidiens présents dans votre vie • Exercice 2 : Identifiez ce que vous pensez par rapport à ces problèmes, vos habiletés et vos chances de le résoudre.
	2	• Utiliser le contenu de la semaine 1	Exécuter chacune des étapes de résolution de problèmes afin d'essayer d'en résoudre un.
	3	• Utiliser le contenu de la semaine 1	Exécuter chacune des étapes de résolution de problèmes afin d'essayer d'en résoudre un.
7. S'exposer…dans sa tête	1	3 premières étapes de l'exposition : 1. Identifiez les inquiétudes de type 2 qui vous préoccupent et choisissez-en une 2. En pensant à votre inquiétude, énumérez sur une feuille les conséquences appréhendées 3. À partir des pires conséquences identifiées, composez <u>par écrit</u> un court scénario qui décrit l'éventualité que vous ne voulez pas voir se produire	Réaliser les étapes 1 à 3
	2	4. Exposez-vous à votre scénario	Pratique de l'exposition
	3	Au besoin, choisir une nouvelle inquiétude dérangeante	Pratique de l'exposition

Module	Semaine	Contenu	Exercice
8. Prévenir une rechute	1	• Récapitulation des principaux éléments du traitement • Comment gérer vos inquiétudes par rapport au maintien des effets du traitement • Comment devenir votre propre thérapeute et gérer les fluctuations normales de vos inquiétudes et votre anxiété.	• Exercice 1 : Poursuivre l'exposition au scénario • Exercice 2 : fixer des objectifs personnels pour les prochaines semaines

Annex B

Measures and Questionnaires

Penn State Worry Questionnaire

General Anxiety Disorder-7 Questionnaire

Intolerance of Uncertainty Inventory

Geriatric Depression Scale

Treatment Motivation Questionnaire

Credibility/Expectancy Questionnaire

Working Alliance Inventory – Short Form Guide Version

Working Alliance Inventory – Short Form Participant Version

Social Support Questionnaire

TENDANCE À S'INQUIÉTER (PSWQ/QIPS)

Veuillez s'il vous plait lire chacun des énoncés suivants. Entourez le chiffre qui identifie le mieux jusqu'à quel point chaque énoncé vous correspond.

1	2	3	4	5
Pas du tout correspondant	Un peu correspondant	Assez correspondant	Très correspondant	Extrêmement correspondant

1. Si je n'ai pas assez de temps pour tout faire, je ne m'inquiète pas.	1	2	3	4	5
2. Mes inquiétudes me submergent.	1	2	3	4	5
3. Je n'ai pas tendance à m'inquiéter à propos des choses.	1	2	3	4	5
4. Plusieurs situations m'amènent à m'inquiéter.	1	2	3	4	5
5. Je sais que je ne devrais pas m'inquiéter mais je n'y peux rien.	1	2	3	4	5
6. Quand je suis sous pression, je m'inquiète beaucoup.	1	2	3	4	5
7. Je m'inquiète continuellement à propos de tout.	1	2	3	4	5
8. Il m'est facile de me débarrasser de pensées inquiétantes.	1	2	3	4	5
9. Aussitôt que j'ai fini une tâche, je commence immédiatement à m'inquiéter au sujet de toutes les autres choses que j'ai encore à faire.	1	2	3	4	5
10. Je ne m'inquiète jamais.	1	2	3	4	5
11. Quand je n'ai plus rien à faire au sujet d'un tracas, je ne m'en inquiète plus.	1	2	3	4	5
12. J'ai été inquiet tout au long de ma vie.	1	2	3	4	5
13. Je remarque que je m'inquiète pour certains sujets.	1	2	3	4	5
14. Quand je commence à m'inquiéter, je ne peux pas m'arrêter.	1	2	3	4	5

15. Je m’inquiète tout le temps.	1	2	3	4	5
16. Je m’inquiète au sujet de mes projets jusqu’à ce qu’ils soient complétés.	1	2	3	4	5

L'anxiété (GAD-7)

Au cours des deux dernières semaines, à quelle fréquence avez-vous été dérangé(e) par les problèmes suivants?

	Pas du tout	Quelques jours	Plus de la moitié des jours	Presque chaque jour
1. Se sentir nerveux, anxieux ou à bout	0	1	2	3
2. Être incapable d'arrêter ou de contrôler l'inquiétude	0	1	2	3
3. S'inquiéter trop par rapport à différentes choses	0	1	2	3
4. Avoir de la difficulté à relaxer	0	1	2	3
5. Être si agité(e) qu'il est difficile de rester assis(e)	0	1	2	3
6. Devenir facilement contrarié(e) ou irritable	0	1	2	3
7. Avoir peur, comme si quelque chose de terrible allait arriver	0	1	2	3

Si vous avez encerclé un ou plusieurs problème(s), précisez à quel point celui-ci ou ceux-ci ont rendu difficile :

	Aucunement difficile	Légèrement difficile	Très difficile	Extrêmement difficile
a) la réalisation de votre travail?	0	1	2	3
b) la réalisation de vos tâches à la maison?	0	1	2	3
c) vos relations avec les autres?	0	1	2	3

Les incertitudes (IUI) – Partie A

Les gens perçoivent de différentes façons les incertitudes de la vie. Veuillez utiliser l'échelle ci-dessous pour exprimer jusqu'à quel point chacun des énoncés suivants correspond à vous. S'il vous plaît, encerclez le numéro correspondant.

1 Pas du tout correspondant	**2** Un peu correspondant	**3** Assez correspondant	**4** Très correspondant	**5** Extrêmement correspondant

1.	J'accepte difficilement que l'avenir soit incertain.	1	2	3	4	5
2.	Je trouve insupportable de ne pas avoir de garanties dans la vie.	1	2	3	4	5
3.	Les autres semblent mieux tolérer l'incertitude que moi.	1	2	3	4	5
4.	Je trouve intolérable que certaines facettes de la vie ne soient pas déterminées à l'avance.	1	2	3	4	5
5.	Je supporte mal la possibilité qu'il puisse m'arriver un événement négatif.	1	2	3	4	5
6.	Lorsque j'attends une nouvelle importante, je supporte mal de rester dans l'incertitude.	1	2	3	4	5
7.	Je trouve intolérable d'avoir à faire face à des situations imprévisibles.	1	2	3	4	5
8.	Je supporte peu les situations dans lesquelles je ne sais pas ce qui va se passer.	1	2	3	4	5
9.	Le fait de ne pas savoir à l'avance ce qui arrivera est souvent inacceptable pour moi.	1	2	3	4	5
10.	Les délais d'attente sont insoutenables pour moi quand je ne sais pas ce qui va se passer.	1	2	3	4	5
11.	Je tolère difficilement les incertitudes de la vie.	1	2	3	4	5
12.	Lorsque je pense que quelque chose de négatif peut se produire, j'accepte difficilement de demeurer dans l'incertitude.	1	2	3	4	5
13.	J'aimerais mieux savoir tout et tout de suite plutôt que de rester dans l'incertitude.	1	2	3	4	5
14.	J'ai de la difficulté à supporter la possibilité qu'un imprévu puisse survenir.	1	2	3	4	5

15. J'ai besoin de certitudes dans ce que j'entreprends.	1	2	3	4	5

Les incertitudes (IUI) – Partie B abrégée

Les gens perçoivent de différentes façons les incertitudes de la vie. Veuillez utiliser l'échelle ci-dessous pour exprimer jusqu'à quel point chacun des énoncés suivants correspond à vous. S'il vous plaît, encerclez le numéro correspondant.

1 Pas du tout correspondant	**2** Un peu correspondant	**3** Assez correspondant	**4** Très correspondant	**5** Extrêmement correspondant

1.	Lorsque je me retrouve dans une situation incertaine, j'ai tendance à douter de ce que je fais.	1	2	3	4	5
2.	J'ai tendance à vouloir diriger les autres pour ne pas qu'un imprévu leur arrive.	1	2	3	4	5
3.	J'ai souvent recours aux autres pour me rassurer lorsque je ne sais pas ce qui va se passer.	1	2	3	4	5
4.	Lorsque je suis incertain(e), j'ai besoin d'être rassuré(e) par les autres.	1	2	3	4	5
5.	J'évite les situations qui sont susceptibles de présenter des imprévus.	1	2	3	4	5
6.	Lorsqu'un événement négatif est possible, je surestime souvent les probabilités qu'il se produise.	1	2	3	4	5
7.	J'ai tendance à m'inquiéter lorsque je suis incertain(e) de ce qui va se passer.	1	2	3	4	5
8.	Les situations incertaines m'inquiètent.	1	2	3	4	5
9.	Lorsque je suis incertain(e) de ce qui va se passer, j'essaie de tout contrôler.	1	2	3	4	5
10.	J'ai tendance à ne pas m'engager dans les activités qui comportent une part d'incertitude.	1	2	3	4	5
11.	En situation d'incertitude, j'ai tendance à exagérer les chances que les choses se déroulent mal.	1	2	3	4	5
12.	J'ai souvent tendance à remettre mes choix en question lorsque je suis incertain(e) de ce qui va se passer.	1	2	3	4	5

Échelle de dépression gériatrique (GDS)

Encerclez la réponse (Oui ou Non) décrivant le mieux comment vous êtes senti au cours de la dernière semaine jusqu'à aujourd'hui.

1. Êtes-vous fondamentalement satisfait(e) de la vie que vous menez?	Oui	Non
2. Avez-vous abandonné un grand nombre d'activités et d'intérêts?	Oui	Non
3. Est-ce que vous sentez un vide dans votre vie?	Oui	Non
4. Vous ennuyez-vous souvent?	Oui	Non
5. Êtes-vous optimiste quand vous pensez à l'avenir?	Oui	Non
6. Êtes-vous préoccupé(e) par des pensées dont vous n'arrivez pas à vous défaire ?	Oui	Non
7. Avez-vous la plupart du temps un bon moral?	Oui	Non
8. Craignez-vous qu'il vous arrive quelque chose de grave?	Oui	Non
9. Êtes-vous heureux(se) la plupart du temps?	Oui	Non
10. Éprouvez-vous souvent un sentiment d'impuissance?	Oui	Non
11. Vous arrive-t-il souvent de ne pas tenir en place, de vous impatienter?	Oui	Non
12. Préférez-vous rester chez vous au lieu de sortir pour faire de nouvelles activités?	Oui	Non
13. Êtes-vous souvent inquiet(ète) au sujet de l'avenir?	Oui	Non
14. Avez-vous l'impression d'avoir plus de problèmes de mémoire que la majorité des gens ?	Oui	Non
15. Pensez-vous qu'il est merveilleux de vivre à l'époque actuelle?	Oui	Non
16. Vous sentez-vous souvent triste et déprimé(e)?	Oui	Non

17. Vous sentez-vous plutôt inutile dans votre état actuel?	Oui	Non
18. Le passé vous préoccupe-t-il beaucoup?	Oui	Non
19. Trouvez-vous la vie très excitante?	Oui	Non
20. Avez-vous de la difficulté à entreprendre de nouveaux projets?	Oui	Non
21. Vous sentez-vous plein(e) d'énergie?	Oui	Non
22. Avez-vous l'impression que votre situation est désespérée?	Oui	Non
23. Pensez-vous que la plupart des gens vivent mieux que vous?	Oui	Non
24. Vous mettez-vous souvent en colère pour des riens?	Oui	Non
25. Avez-vous souvent envie de pleurer?	Oui	Non
26. Avez-vous de la difficulté à vous concentrer?	Oui	Non
27. Êtes-vous heureux/heureuse de vous lever le matin?	Oui	Non
28. Préférez-vous éviter les rencontres sociales?	Oui	Non
29. Prenez-vous facilement des décisions?	Oui	Non
30. Vos pensées sont-elles aussi claires que par le passé?	Oui	Non

Les motivations à suivre un traitement (TMQ)

Ce questionnaire concerne les raisons qui motivent les personnes à entrer en traitement et leurs impressions concernant ce dernier. Indiquez pour chaque affirmation dans quelle mesure elle est vraie pour vous, en employant l'échelle suivante :

1	2	3	4	5	6	7
Ne correspond pas du tout	Correspond très peu	Correspond un peu	Correspond moyennement	Correspond assez	Correspond beaucoup	Correspond exactement

A. J'ai décidé de participer à l'étude et de suivre un autotraitement parce que :							
13. Je veux vraiment faire des changements dans ma vie.	1	2	3	4	5	6	7
14. Je ne serai pas content(e) de moi si on ne m'aide pas.	1	2	3	4	5	6	7
15. J'ai été obligé(e) d'y participer par le système juridique.	1	2	3	4	5	6	7
16. Je me sens tellement coupable de mon problème que je dois faire quelque chose.	1	2	3	4	5	6	7
17. C'est important pour moi de personnellement résoudre mes problèmes.	1	2	3	4	5	6	7
B. Si je continue à suivre cet autotraitement cela sera probablement parce que :							
18. J'aurai des problèmes si je ne le fais pas.	1	2	3	4	5	6	7
19. Je serai très mécontent(e) de moi si je ne le fais pas.	1	2	3	4	5	6	7
20. Cela me paraîtra un échec personnel si je ne le fais pas.	1	2	3	4	5	6	7
21. J'ai le sentiment que c'est la meilleure façon de m'aider.	1	2	3	4	5	6	7
22. Je ne crois pas vraiment avoir d'autre choix que de suivre cet autotraitement.	1	2	3	4	5	6	7
23. J'estime qu'il est de mon meilleur intérêt de suivre cet autotraitement jusqu'à la fin.	1	2	3	4	5	6	7

1	2	3	4	5	6	7
Ne correspond pas du tout	Correspond très peu	Correspond un peu	Correspond moyennement	Correspond assez	Correspond beaucoup	Correspond exactement

C. Évaluez chacune des affirmations suivantes en examinant dans quelle mesure elles sont vraies pour vous :							
24. Je participe à cet autotraitement aujourd'hui parce que j'ai subi une pression pour y participer.	1	2	3	4	5	6	7
25. Je ne suis pas certain(e) que ce programme sera efficace pour moi.	1	2	3	4	5	6	7
26. Je suis confiant quant au fait que ce programme sera efficace pour moi.	1	2	3	4	5	6	7
27. J'ai décidé de participer à cet autotraitement parce que j'ai été intéressé(e) par le fait d'obtenir de l'aide.	1	2	3	4	5	6	7
28. Je ne suis pas convaincu(e) que cet autotraitement m'aidera à mieux gérer mon anxiété ou mes inquiétudes.	1	2	3	4	5	6	7
29. Je suis responsable du choix de cet autotraitement.	1	2	3	4	5	6	7
30. Je doute de l'efficacité de ce programme.	1	2	3	4	5	6	7
31. J'ai choisi cet autotraitement parce que je pense que c'est une occasion pour changer.	1	2	3	4	5	6	7
32. Je ne suis pas très sûr(e) que j'obtiendrai des résultats suite à l'autotraitement cette fois-ci.	1	2	3	4	5	6	7

La crédibilité du traitement (CEQ)

Grâce au questionnaire ci-dessous, nous cherchons à savoir si, en ce moment, vous croyez que l'autotraitement que vous allez suivre va aider à réduire vos symptômes d'anxiété. Quand on «croit» quelque chose, cela a généralement deux aspects :

1) **On peut penser que quelque chose va arriver;**
2) **On peut avoir le sentiment que quelque chose va arriver.**

Parfois, ces deux aspects se rejoignent, mais parfois ils sont différents. Il y a deux séries de questions: dans la première, répondez selon ce que vous pensez. Dans la seconde, répondez selon ce que vous ressentez au fond de vous-même. Vos réponses resteront confidentielles. Entourez le chiffre qui correspond le mieux à votre réponse.

SÉRIE 1

33. À ce stade de votre autotraitement, pensez-vous qu'il soit adapté?

Pas du tout adapté				Plutôt adapté			Plutôt bien adapté	
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**

34. À ce stade de votre autotraitement, pensez-vous qu'il sera efficace pour réduire vos symptômes?

Pas du tout efficace				Plutôt efficace			Très efficace	
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**

35. Seriez-vous prêt(e) à recommander cet autotraitement à un(e) ami(e) ayant les mêmes problèmes que vous?

Pas du tout prêt(e)				Plutôt prêt(e)			Tout à fait prêt(e)	
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**

36. D'ici la fin de votre autotraitement, quel pourcentage d'amélioration de vos symptômes pensez-vous obtenir?

0%	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**	**90%**	**100%**

SÉRIE 2

Avant de répondre aux questions suivantes, fermez les yeux quelques instants et demandez-vous ce que vous ressentez au fond de vous-même, par rapport à votre autotraitement et ses chances de réussite.

37. À ce stade de votre autotraitement, ressentez-vous au fond de vous-même qu'il aidera à réduire vos symptômes?

Pas du tout				Plutôt			Tout à fait	
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**

38. D’ici à la fin de votre auto-traitement, selon votre sentiment profond, quel pourcentage d’amélioration de vos symptômes allez-vous obtenir?

0%	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**	**90%**	**100%**

WAI-G

Dans ce questionnaire, il y a des énoncés qui décrivent différentes façons qu'une personne pourrait penser et se sentir à propos d'un participant. Lorsque vous lirez les énoncés, insérer mentalement le nom de votre participant à la place du _____. Si l'énoncé décrit <u>toujours</u> la façon dont vous pensez ou vous vous sentez, svp encerclez le nombre 7. Si cela ne s'applique <u>jamais</u> à vous, encerclez le nombre 1. Vous pouvez aussi encercler un des nombres entre ces deux extrêmes pour indiquer les variations.

1	2	3	4	5	6	7
Jamais	Rarement	Occasionnellement	Parfois	Souvent	Très souvent	Toujours

39. _____ et moi nous nous entendons sur les étapes à suivre pour améliorer sa situation.	1	2	3	4	5	6	7
40. _____ et moi avons tous deux confiance en l'utilité de nos activités en cours.	1	2	3	4	5	6	7
41. Je crois que _____ m'aime bien.	1	2	3	4	5	6	7
42. J'ai des doutes à propos de ce que nous essayons d'accomplir lors de nos entretiens téléphoniques.	1	2	3	4	5	6	7
43. J'ai confiance en mes capacités pour aider _____.	1	2	3	4	5	6	7
44. Nous travaillons à l'atteinte de buts sur lesquels nous nous sommes entendus.	1	2	3	4	5	6	7
45. J'apprécie _____ en tant que personne.	1	2	3	4	5	6	7
46. Nous nous entendons sur ce qui est important à travailler.	1	2	3	4	5	6	7
47. _____ et moi avons développé une confiance mutuelle.	1	2	3	4	5	6	7
48. _____ et moi avons des idées différentes sur ce que sont ses vrais problèmes.	1	2	3	4	5	6	7
49. Nous avons établi une bonne compréhension mutuelle quant aux types de changements qui seraient bons pour _____.	1	2	3	4	5	6	7
50. _____ croit que ce que nous faisons pour régler son problème est correct.	1	2	3	4	5	6	7

Date : ____ /____ /____ _____
Jour Mois Année Signature de l'accompagnateur

WAI-P

Dans ce questionnaire, il y a des énoncés qui décrivent différentes façons qu'une personne pourrait penser et se sentir à propos de son accompagnateur(trice). Si l'énoncé décrit toujours la façon dont vous pensez ou vous vous sentez, svp encerclez le nombre 7. Si cela ne s'applique jamais à vous, encerclez le nombre 1. Vous pouvez aussi encercler un des nombres entre ces deux extrêmes pour indiquer les variations.

	1	2	3	4	5	6	7
	Jamais	Rarement	Occasionnellement	Parfois	Souvent	Très souvent	Toujours
1.	Mon accompagnateur(trice) et moi nous nous entendons sur les étapes à suivre pour améliorer ma situation.	1	2	3	4	5	6	7
2.	Mon accompagnateur(trice) et moi avons tous deux confiance en l'utilité de nos activités en cours.	1	2	3	4	5	6	7
3.	Je crois que mon accompagnateur(trice) m'aime bien.	1	2	3	4	5	6	7
4.	J'ai des doutes à propos de ce que nous essayons d'accomplir lors de nos entretiens téléphoniques.	1	2	3	4	5	6	7
5.	J'ai confiance que mon accompagnateur(trice) est capable de m'aider.	1	2	3	4	5	6	7
6.	Nous travaillons à l'atteinte de buts sur lesquels nous nous sommes entendus.	1	2	3	4	5	6	7
7.	Je sens que mon accompagnateur(trice) m'apprécie.	1	2	3	4	5	6	7
8.	Nous nous entendons sur ce qui est important à travailler.	1	2	3	4	5	6	7
9.	Mon accompagnateur(trice) et moi avons développé une confiance mutuelle.	1	2	3	4	5	6	7
10.	Mon accompagnateur(trice) et moi avons des idées différentes sur ce que sont mes vrais problèmes.	1	2	3	4	5	6	7
11.	Nous avons établi une bonne compréhension mutuelle quant aux types de changements qui seraient bons pour moi.	1	2	3	4	5	6	7
12.	Je crois que ce que nous faisons pour régler mon problème est correct.	1	2	3	4	5	6	7

Le soutien social (SSQ-6)

Directives :

Les questions suivantes concernent les personnes de votre environnement qui vous procurent une aide ou un soutien. Chaque question est en deux parties :

Dans un premier temps, énumérez toutes les personnes (à l'exception de vous-même) en qui vous pouvez compter pour une aide ou un soutien dans la situation décrite. Donnez les initiales de la personne et **le lien** que vous avez avec elle (voir exemple*). Chaque numéro doit correspondre à une seule personne.

Dans un second temps, entourez la réponse correspondant à votre degré de satisfaction par rapport au soutien obtenu. Si pour une question, vous ne recevez pas de soutien, utilisez le terme "aucune personne" mais évaluez tout de même votre degré de satisfaction. Ne citez pas plus de neuf personnes par question.

Merci de répondre de votre mieux à toutes les questions. Vos réponses resteront confidentielles.

* Exemple :

1) H.B. (fils)
2) S.C. (ami)
3) M.T (médecin)

1. a) Quelles sont les personnes disponibles en qui vous pouvez réellement compter quand vous avez besoin d'aide? (N1)

☐ Aucune personne 1) _____ 4) _____ 7) _____

2) _____ 5) _____ 8) _____

3) _____ 6) _____ 9) _____

1. b) Quel est votre degré de satisfaction par rapport au soutien obtenu? (S2)

☐ Très insatisfait (1)
☐ Insatisfait (2)
☐ Plutôt insatisfait (3)
☐ Plutôt satisfait (4)
☐ Satisfait (5)
☐ Très satisfait (6)

2. a) En qui pouvez-vous réellement compter pour vous aider à vous sentir plus détendu lorsque vous êtes sous pression ou crispé? (N2)

☐ Aucune personne 1) _____ 4) _____ 7) _____

2) _____ 5) _____ 8) _____

3) _____ 6) _____ 9) _____

2. b) Quel est votre degré de satisfaction par rapport au soutien obtenu? (S2)

☐ Très insatisfait (1)
☐ Insatisfait (2)
☐ Plutôt insatisfait (3)
☐ Plutôt satisfait (4)
☐ Satisfait (5)
☐ Très satisfait (6)

1. a) Qui vous accepte tel que vous êtes, c'est-à-dire avec vos bons et mauvais côtés? (N3)

☐ Aucune personne 1) _____ 4) _____ 7) _____
2) _____ 5) _____ 8) _____
3) _____ 6) _____ 9) _____

3. b) Quel est votre degré de satisfaction par rapport au soutien obtenu? (S3)

☐ Très insatisfait (1)
☐ Insatisfait (2)
☐ Plutôt insatisfait (3)
☐ Plutôt satisfait (4)
☐ Satisfait (5)
☐ Très satisfait (6)

4. a) En qui pouvez-vous réellement compter pour s'occuper de vous quoiqu'il arrive? (N4)

☐ Aucune personne 1) _____ 4) _____ 7) _____
2) _____ 5) _____ 8) _____
3) _____ 6) _____ 9) _____

2. b) Quel est votre degré de satisfaction par rapport au soutien obtenu? (S4)

☐ Très insatisfait (1)
☐ Insatisfait (2)
☐ Plutôt insatisfait (3)
☐ Plutôt satisfait (4)
☐ Satisfait (5)
☐ Très satisfait (6)

5. a) En qui pouvez-vous réellement compter pour vous aider à vous sentir mieux quand il vous arrive de broyer du noir? (N5)

☐ Aucune personne 1) _____ 4) _____ 7) _____
2) _____ 5) _____ 8) _____
3) _____ 6) _____ 9) _____

5. b) Quel est votre degré de satisfaction par rapport au soutien obtenu? (S5)

☐ Très insatisfait (1)
☐ Insatisfait (2)
☐ Plutôt insatisfait (3)
☐ Plutôt satisfait (4)
☐ Satisfait (5)
☐ Très satisfait (6)

6. a) En qui pouvez-vous réellement compter pour vous consoler quand vous êtes bouleversé? (N6)

☐ Aucune personne 1) _____ 4) _____ 7) _____

2) _____ 5) _____ 8) _____

3) _____ 6) _____ 9) _____

6. b) Quel est votre degré de satisfaction par rapport au soutien obtenu? (S6)

- ☐ Très insatisfait (1)
- ☐ Insatisfait (2)
- ☐ Plutôt insatisfait (3)
- ☐ Plutôt satisfait (4)
- ☐ Satisfait (5)
- ☐ Très satisfait (6)