

Université de Montréal

**Rêves dysphoriques et rêves récurrents chez les enfants et
les adolescents: corrélats psychosociaux et implications
cliniques.**

par
Aline Gauchat

Département de psychologie
Faculté des arts et des sciences

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Résumé

Cette thèse vise à étudier les liens entre les rêves dysphoriques (p. ex. : cauchemars et mauvais rêves), les rêves récurrents et l'ajustement psychosocial chez les enfants et les adolescents. Elle comporte un article présentant une recension des écrits ainsi que quatre articles empiriques.

Le premier article présente une recension des études ayant investigué les rêves dysphoriques chez les enfants et les adolescents, avec une attention particulière portée sur leur prévalence, leurs corrélats ainsi que les options de traitement. Cette revue de la littérature permet de constater que plus de la moitié des jeunes rapportent des rêves dysphoriques. Même s'ils touchent beaucoup de jeunes, les rêves dysphoriques ne sont pas pour autant insignifiants. En effet, les enfants et les adolescents ayant des rêves dysphoriques ont aussi plus de problèmes reliés au sommeil et plus de problèmes au niveau de leur ajustement psychosocial. Finalement, l'article relève quelques recherches sur les traitements des rêves dysphoriques chez les jeunes qui offrent des résultats prometteurs.

Le deuxième article vise à examiner les liens entre les rêves dysphoriques et diverses variables d'ajustement psychosocial en prenant en compte certaines limites méthodologiques d'études précédentes dans le domaine (et mises de l'avant dans l'article 1). De plus, il examine le possible lien modérateur de l'émotivité négative (traduction libre de « emotional negativity ») entre les rêves dysphoriques et l'ajustement psychosocial. Les résultats de cette étude montrent que les rêves dysphoriques sont liés à certains troubles intériorisés et que l'émotivité négative modère le lien entre les rêves dysphoriques et les troubles extériorisés.

Le troisième article s'attarde aux rêves récurrents chez les enfants et les adolescents, phénomène très peu étudié à ce jour. Plus précisément, la prévalence et la fréquence des rêves récurrents chez les jeunes âgés entre 11 et 14 ans sont répertoriées et leur contenu, thématiques et tonalité émotionnelle sont examinés. Cet article démontre que les rêves récurrents touchent environ un tiers des jeunes et que leur contenu est principalement négatif.

Le quatrième article vise à déterminer si, comme chez les adultes, les rêves récurrents chez les enfants sont associés à un déficit dans l'ajustement psychosocial. Les résultats montrent que les rêves récurrents sont liés à l'agressivité réactive chez les garçons, mais qu'ils ne sont pas liés à des variables d'ajustement psychosocial chez les filles.

Le cinquième et dernier article a comme but de déterminer si, comme démontré chez les adultes, les rêves dysphoriques sont associés aux idéations suicidaires chez les préadolescents et d'explorer la possibilité que les rêves récurrents soient eux aussi liés aux idéations suicidaires. Les résultats démontrent que les rêves dysphoriques ainsi que les rêves récurrents sont liés aux pensées suicidaires chez des préadolescents de 12 et 13 ans.

Suite à ces cinq articles, les résultats ainsi que les conclusions qui en découlent sont intégrés à la littérature existante sur les rêves, leurs significations au plan théorique et clinique sont explorées, et des études futures sont proposées.

Mots clés : Rêves dysphoriques, rêves récurrents, ajustement psychosocial, idéations suicidaires.

Abstract

The aim of this thesis was to investigate the associations between dysphoric dreams (e.g., bad dreams and nightmares), recurrent dreams, and psychosocial adjustment in a population of children and young adolescents. It is comprised of one review article and four empirical articles.

The first article is a literature review of studies having investigated dysphoric dreams in children and adolescents, with a focus on their prevalence, correlates and treatments. This review shows that more than half of children and adolescents experience dysphoric dreams. Even if having such negative dreams is common in these populations, dysphoric dreams are not without significance. In fact children with dysphoric dreams have more sleep problems, and more psychosocial difficulties than those who do not report dysphoric dreams. Finally, this article shows that there exist promising treatment options for disturbing dreams.

The second article aimed to investigate the relationship between dysphoric dreams and a range of variables measuring psychosocial adjustment while taking into account key methodological shortcomings of previous studies in the field (and highlighted in the first article). In addition, the study examined the possible moderator role of emotional negativity in the relation between dysphoric dreams and psychosocial adjustment. Results show that the presence of dysphoric dreams is associated with internalizing difficulties and that emotional negativity moderates the relation between dysphoric dreams and externalizing difficulties.

The third article examines the content of recurrent dreams reported by children and young adolescents, a largely neglected question to date. Specifically, the study reports on the prevalence, thematic content and emotional valence of recurrent dreams reported by children

between 11 and 15 years old. This article shows that approximately one third of children report having had a recurrent dreams in the past year and that the majority of these dreams are negatively toned.

The fourth article aimed to determine if, as shown in adult populations, the presence of recurrent dreams in children is associated to impoverished psychosocial adjustment. Results show that recurrent dreams are associated to reactive aggression in boys but that they show no evident relation to indices of psychosocial adjustment among girls.

The fifth and final article examines the question of whether or not the presence of dysphoric and recurrent dreams in children is associated to suicidal ideation, as shown to be the case in recent studies of adult populations. This study reveals that the occurrence of recurrent as well as dysphoric dreams shows an association with suicidal ideation in 12 and 13 year old children.

Following these five articles, the results and conclusions drawn from this body of work are integrated into the existing literature, their theoretical as well as clinical implications explored, and future studies proposed.

Keywords: Dysphoric dreams, recurrent dreams, psychosocial adjustment, suicidal ideation.

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1. Introduction générale

Étant donné qu'une forte comorbidité existe entre les troubles du sommeil et la psychopathologie, on s'intéresse depuis longtemps aux liens entre ces deux manifestations cliniques ainsi qu'à leurs corrélats (Alfano & Gamble, 2009; Alfano, Ginsburg, & Kingery, 2007; Aronen, Paavonen, Fjallberg, Soininen, & Torronen, 2000). Les rêves dysphoriques et les rêves récurrents sont des types spécifiques de rêve. Il n'existe actuellement pas de consensus sur une définition du rêve, la définition utilisée dépendant beaucoup du champ de recherche et de l'intérêt spécifique des auteurs (activité mentale, sommeil, contenus etc.) (Pagel et al. 2001). De plus, le rêve peut être conceptualiser comme faisant référence à trois choses: l'expérience onirique qui a lieu au cours du sommeil, l'expérience onirique dont on se souvient à la suite d'un réveil et l'expérience onirique telle qu'enregistré dans un journal de rêve ou rapportée verbalement a des amis, des cliniciens ou chercheurs (Zadra & Domhoff, 2011).

Les rêves dysphoriques, qui sont composés principalement des mauvais rêves et des cauchemars, sont un des troubles du sommeil qui a été mis en lien avec différentes difficultés d'ajustement psychosocial chez les adultes telles que l'anxiété, le névrotisme, les échelles globales de symptômes de santé mentale, les troubles du spectre schizophrénique, les comportements suicidaires, et les autres troubles du sommeil (Levin & Nielsen, 2007). Mais, il existe beaucoup moins d'études portant sur ces relations chez les enfants, et leurs résultats sont difficiles à comparer en raison de différences méthodologiques importantes. Les rêves récurrents (rêves dont le contenu se répète dans son entièreté) sont une autre manifestation

onirique associée à des difficultés psychologiques chez des populations adultes, mais presque aucune étude n'a porté sur les corrélats des rêves récurrents chez les enfants.

La présence des rêves dysphoriques ainsi que des rêves récurrents chez les adultes semble donc être associée à des difficultés d'ajustement psychosocial, et leur présence chez les enfants pourrait être un signe clinique d'une détresse sous-jacente. Toutefois, il existe plusieurs lacunes dans notre compréhension actuelle de ces deux troubles oniriques chez les enfants, et cette thèse visera à combler certaines de ces failles. Les principales lacunes concernent la nature des corrélats des rêves récurrents chez les enfants, le possible rôle modérateur de l'émotivité négative dans les liens entre les rêves dysphoriques et l'ajustement psychosocial, les liens entre les rêves récurrents, les rêves dysphoriques et les troubles d'ajustement plus sévères tels que les pensées suicidaires et, finalement, le contenu même des récits des rêves récurrents rapportés par les enfants.

La présente thèse propose d'abord une brève introduction des trois variables centrales qui seront étudiées, soit l'ajustement psychosocial, les rêves dysphoriques et les rêves récurrents. L'introduction portant sur les rêves dysphoriques repose largement sur le premier article de la thèse qui consiste en une recension des écrits. Seules les conclusions de cet article seront reprises dans l'introduction qui suit, ainsi que dans la transition entre les articles 1 et 2.

1.1 L'ajustement psychosocial chez les jeunes

Les troubles intériorisés ou extériorisés touchent près de 20 % des enfants (Essex et al., 2009). Il est particulièrement important de dépister les enfants à risque de psychopathologie le plus tôt possible, car les difficultés extériorisées et intériorisées de

l'enfance mènent souvent à la psychopathologie à l'adolescence et à l'âge adulte (Fanti & Henrich, 2010). Malheureusement, seulement 20 % des enfants ayant besoin de services vont effectivement en recevoir et ceci, entre autres, à cause de la difficulté à dépister ces troubles (Essex, et al., 2009). Outre les troubles envahissants du développement, les psychopathologies des enfants et des adolescents sont généralement divisées en deux grandes catégories : les troubles intériorisés et les troubles extériorisés. Ces deux catégories de troubles ont des composantes comportementales, émotionnelles et cognitives (Zahn-Waxler, Klimes-Dougan, & Slattery, 2000).

1.1.1 Les troubles intériorisés et extériorisés

Les troubles intériorisés comprennent principalement la dépression et l'anxiété qui sont caractérisés respectivement par des émotions de tristesse et d'inquiétude (Wilkinson, 2009). Lorsque l'on parle de troubles intériorisés, il y a bien sûr la dépression et les troubles anxieux tels que vus par le Diagnostic and Statistical Manual (DSM; Manuel diagnostique et statistique des troubles mentaux) (American Psychiatric Association, 2013), mais de plus en plus, les évidences s'accroissent pour voir ces troubles sur un continuum plutôt que de façon catégorielle (Wilkinson, 2009).

En plus de démontrer une forte comorbidité, les troubles anxieux et dépressifs partagent une génétique commune (Kendler, Gardner, Gatz, & Pedersen, 2007) qui pourrait amener à penser qu'ils proviennent du même substrat. La dépression touche peu d'enfants en bas âge, mais augmente à l'adolescence, atteignant des prévalences semblables à celles des populations adultes (prévalence de 15 à 20% chez les 15-18 ans; Zahn-Waxler, et al., 2000).

Les troubles anxieux touchent pour leur part entre 6 et 18% des enfants. Les grandes différences de prévalence d'une étude à l'autre sont entre autre dues au fait que les différents troubles d'anxiété touchent différents groupes d'âge d'enfants. Par exemple, l'anxiété de séparation touche principalement les enfants en bas âge, alors que les phobies spécifiques apparaissent au cours de l'enfance et que l'anxiété généralisée augmente à la fin de l'enfance et au début de l'adolescence (Zahn-Waxler, et al., 2000).

Les troubles extériorisés, même s'ils ont des impacts sur l'environnement extérieur, traduisent un mal-être et une détresse interne chez les enfants et les adolescents (Séguin & Tremblay, 2013). Ils incluent le trouble d'opposition, le trouble des conduites et souvent, le trouble d'attention avec hyperactivité (Séguin & Tremblay, 2013; Tremblay, 2010). Ces troubles comprennent des symptômes tels que l'agression physique, les bris de règle, les vols, le vandalisme et l'impulsivité. Quoique pas directement incluse dans un des troubles, l'agressivité indirecte peut aussi être vue comme un élément des troubles extériorisés (Séguin & Tremblay, 2013). Il est maintenant reconnu que les sommets d'agressivité physique chez les enfants se situent aux alentours de 2 ans et qu'ils apprennent pour la plupart ensuite à s'autoréguler (Séguin & Tremblay, 2013). C'est l'agressivité physique qui est la composante des troubles extériorisés qui a été le plus étudiée et dont les conséquences sont les plus importantes (Tremblay, 2010).

Bien que partageant des facteurs de risque communs (par exemple, le niveau socioéconomique) et étant souvent comorbides (Copeland, Shanahan, Costello, & Angold, 2009; Loeber, Burke, & Pardini, 2009), les troubles extériorisés et intériorisés semblent avoir différentes trajectoires de développement. Ainsi, entre la petite et la moyenne enfance, les

troubles intériorisés tendent à augmenter alors que, à l'inverse, les troubles extériorisés diminuent (Gilliom & Shaw, 2004). La nature des liens qui les unit semble encore floue. Certaines études démontrent par exemple un rôle protecteur des troubles intériorisés dans l'apparition des troubles extériorisés, alors que d'autres études montrent que, chez les enfants, les troubles extériorisés pourraient être les précurseurs des troubles intériorisés comme la dépression ou l'anxiété (Burke, Loeber, Lahey, & Rathouz, 2005; Gilliom & Shaw, 2004; Zahn-Waxler, et al., 2000).

1.1.2 Le suicide et les idéations suicidaires

Le suicide est l'acte intentionnel de s'enlever la vie, et se distingue des idéations suicidaires qui réfèrent au fait de penser à s'enlever la vie (Nock et al., 2008). Le suicide est un problème de santé publique majeur (Gould & Kramer, 2001; Perou, 2013). Chaque jour au Québec, 3 personnes s'enlèvent la vie, et parmi les 15 à 24 ans, 2,4 % des filles et 3,3 % des garçons ont eu des idées suicidaires sérieuses au cours des 12 derniers mois (Fortin, 2012). Les comportements suicidaires augmentent au cours de l'adolescence pour atteindre un sommet aux alentours de 16 ans, et demeurent élevés jusqu'au début de la vingtaine (Nock, et al., 2008). Il pourrait être particulièrement important de faire de la prévention auprès des jeunes pensant au suicide puisque lorsqu'il y a transition entre pensées suicidaires et tentatives suicidaires, elle va généralement se faire au cours de l'année suivant les premières idéations (Nock, et al., 2008). Selon les prévalences à vie, 34 % des gens ayant des pensées suicidaires vont planifier un suicide, et de ceux-ci, 72 % vont commettre une tentative suicidaire (Nock, et al., 2008). Cependant, les jeunes sont réticents à parler de leurs pensées suicidaires, et ceci d'autant plus si la confidentialité ne leur est pas assurée. Il est donc

particulièrement pertinent de trouver des corrélats des pensées suicidaires afin de cibler les jeunes à risque (Lothen-Kline, Howard, Hamburger, Worrell, & Boekeloo, 2003). Les corrélats de risques psychologiques comprennent des composantes intériorisées comme la dépression, mais aussi des composantes extériorisées comme l'impulsivité, les troubles de conduite ou l'abus de substance (Brezo et al., 2008; Gould, Greenberg, Velting, & Shaffer, 2003; Nock, et al., 2008).

1.1.3. Liens entre troubles du sommeil et ajustement psychosocial

Les liens bidirectionnels entre l'ajustement psychosocial et le sommeil tendent à démontrer que le bon sommeil et le développement sain sont liés chez l'enfant et l'adolescent, et à l'inverse, les problèmes de sommeil sont liés à divers problèmes d'ajustement psychosocial (Alfano & Gamble, 2009). En effet, il semble que les problèmes de sommeil expliquent une proportion significative de la variance des problèmes extériorisés et intériorisés des enfants et adolescents lorsque les autres facteurs de risque sont pris en compte (Reid, Hong, & Wade, 2009). Ces liens s'illustrent bien avec l'anxiété, une des classes de troubles les plus prévalents durant l'enfance. En effet, parmi les enfants souffrant d'un trouble anxieux, des problèmes de sommeil plus sévères sont liés à un niveau d'anxiété plus élevé (Alfano, et al., 2007). Il semble aussi que différents troubles du sommeil soient associés à différents types de troubles anxieux. Ainsi, les enfants souffrant d'anxiété de séparation auraient plus de cauchemars, d'insomnie et seraient plus enclins à refuser d'aller se coucher que les enfants n'ayant pas d'anxiété de séparation, alors que les enfants souffrant d'anxiété généralisée se différencient des enfants n'en souffrant pas seulement par leur plus haut taux d'insomnie (Alfano, et al., 2007). Les désordres du sommeil sont aussi liés aux troubles

extériorisés tels que les comportements délinquants ou agressifs (Aronen, et al., 2000; Gregory et al., 2005; Gregory, Caspi, Moffitt, & Poulton, 2009; Gregory & Eley, 2005; Gregory & O'Connor, 2002; Touchette et al., 2007). Une catégorie de désordres du sommeil souvent négligée dans la littérature, mais qui touche beaucoup d'enfants, sont les troubles oniriques. C'est sur ces troubles-ci, qui font par ailleurs partie des parasomnies (phénomènes indésirables qui surviennent au cours du sommeil) que portera cette thèse.

1.2 Rêves dysphoriques

Il n'y a pas de consensus au sein de la communauté scientifique sur une définition précise des cauchemars, tant au niveau clinique qu'en recherche. Les termes cauchemars, mauvais rêves, rêves effrayants et rêves anxieux sont souvent utilisés de manière interchangeable (Levin & Nielsen, 2007). Généralement, les cauchemars se distinguent des mauvais rêves par le réveil qu'ils entraînent (American Academy of Sleep Medicine, 2014; American Psychiatric Association, 2013; Levin & Nielsen, 2009; Robert & Zadra, 2014; Zadra & Donderi, 2000). Ils sont donc considérés comme une forme extrême de mauvais rêves. Toutefois, il n'est pas certain que les enfants soient capables de différencier ces deux types de rêves dysphoriques. Dans cette thèse, le terme « rêves dysphoriques » sera utilisé afin de référer à la fois aux cauchemars et aux mauvais rêves (American Psychiatric Association, 2013; Levin & Nielsen, 2007).

Sur le plan théorique, certains modèles théoriques sur les rêves qui postulent que la production de ceux-ci tient d'une activation neuronale aléatoire durant le sommeil ont été très populaires pendant une époque (Hobson, Pace-Schott & Stickgold, 2000). Toutefois, les

données actuelles poussent à un retour à une vision différente des rêves, plus proche des théories cliniques et cognitives, comme étant liés d'une façon ou d'une autre à la vie du rêveur (Domhoff, 2003; Zadra & Domhoff, 2011). Les rêves n'auraient peut-être pas un sens, mais ils auraient du moins une certaine fonction psychologique. Pour plusieurs de ces modèles, les rêves joueraient un rôle dans la régulation émotionnelle (Cartwright, 1991; Hartmann, 1998; Kramer, 2007) et les rêves dysphoriques seraient ainsi dus à un échec de cette régulation. Un des modèles les plus récents qui tente d'organiser l'état des recherches actuelles pour présenter un modèle explicatif s'inscrit dans cette tradition.

Dans le modèle proposé par Levin et Nielsen (2007, 2009), la régulation émotionnelle se ferait par le biais d'un processus d'extinction des souvenirs de peur, et les rêves dysphoriques seraient l'échec de ce processus. La charge affective (« *affect load* » : l'état émotionnel occasionné par les facteurs de stress quotidiens), et la détresse affective (« *affect distress* » : la propension d'un individu à réagir à différents événements avec un haut degré de détresse) seraient deux éléments clés dans la production des rêves dysphoriques.

La charge affective est donc l'influence des événements stressants et émotionnellement négatifs sur la capacité du rêveur à réguler de manière efficace ces éléments. Ces éléments stressants ou émotionnellement négatifs augmentent la charge affective tant à l'état d'éveil qu'à l'état de sommeil. Cette charge affective est une condition ponctuelle (« *state* »), ce qui la différencie de la détresse affective qui pour sa part est un trait (« *trait* »). Les auteurs voient ceci comme un « *trait* » en raison de la stabilité de cette disposition à faire l'expérience de niveaux plus élevés de détresse et d'affects négatifs, et à exprimer cette détresse plus fréquemment et plus intensément. Les auteurs proposent par ailleurs que ce trait puisse être un

type d'expression du tempérament, une proposition sur laquelle nous reviendrons plus tard dans l'introduction.

1.2.1 Rêves dysphoriques et ajustement psychosocial

Une grande proportion de la population générale rapporte faire des rêves dysphoriques, et la fréquence des rêves dysphoriques chez les adultes est liée à d'autres troubles du sommeil et à diverses psychopathologies, et ce tant dans des populations cliniques que non cliniques (voir Levin & Nielsen, 2007 pour une revue de la littérature). Bien que de nombreuses études existent sur les rêves dysphoriques chez les adultes, la littérature portant sur les rêves dysphoriques chez les enfants est beaucoup plus pauvre, même si on reconnaît que les rêves dysphoriques sont plus communs chez les jeunes que chez les adultes (Gauchat & Zadra, 2014; Levin & Nielsen, 2007).

Qui plus est, il est difficile de comparer les résultats obtenus parmi les études portant sur les rêves dysphoriques chez les enfants en raison d'importantes différences méthodologiques. Dans le but de développer une meilleure vue d'ensemble des rêves dysphoriques chez les enfants, le premier article de cette thèse présente une revue de la littérature abordant la prévalence, les corrélats et les traitements des rêves dysphoriques. Afin d'éviter les répétitions, seules les conclusions de cette revue seront présentées ici.

La revue de la littérature permet d'abord de remarquer que plus de la moitié des enfants et des adolescents entre 5 mois et 18 ans font des rêves dysphoriques, et ceux-ci sont liés à diverses problématiques telles que les troubles de comportement, l'anxiété et d'autres troubles du sommeil. Des différences de sexe dans la fréquence des rêves dysphoriques apparaissent entre l'âge de 10 et 15 ans, alors que les filles rapportent plus de rêves

dysphoriques que les garçons. Cette recension des écrits permet aussi de conclure que les rêves dysphoriques des enfants et des adolescents sont plus fortement liés à leurs états internes qu'à des événements de vie stressants. De plus, même s'il semble évident que les rêves dysphoriques soient liés aux pensées suicidaires chez les adultes, les résultats chez les jeunes sont peu nombreux et peu concluants. Il est aussi à noter qu'étant donné que le choix des corrélats investigués dans ces études sont inspirés des résultats obtenus chez les adultes, peu de ces travaux ont porté sur les troubles extériorisés. Les études qui s'y sont attardées ont souvent regroupé plusieurs troubles dans une échelle globale de troubles de comportement, sans distinction entre les divers troubles extériorisés. Cette revue de la littérature met aussi de l'avant certains aspects méthodologiques importants à prendre en considération dans l'investigation des rêves dysphoriques chez les enfants. Par exemple, les parents semblent sous-estimer la fréquence des rêves dysphoriques de leurs enfants. Il est donc important de questionner les enfants directement. Il est aussi important de prendre en compte les facteurs de risque communs aux rêves dysphoriques et à l'ajustement psychosocial, ou encore d'utiliser plusieurs répondants pour les mesures d'ajustement. Le deuxième article de cette thèse portera ainsi sur le lien entre les rêves dysphoriques et l'ajustement psychosocial, mais en incluant une variété de troubles extériorisés et en questionnant directement les enfants sur la fréquence de leurs rêves dysphoriques.

1.2.2 La détresse liée aux rêves dysphoriques, détresse affective et émotivité négative

Ce n'est que récemment qu'on a commencé à s'intéresser à d'autres variables que la fréquence des rêves dysphoriques. C'est le cas par exemple de la détresse liée aux rêves dysphoriques. Le concept de détresse liée aux rêves dysphoriques réfère à l'étendue des

impacts négatifs qu'entraînent les rêves dysphoriques dans la vie d'un individu, et est d'ailleurs considérée comme un symptôme clinique plus important que la fréquence des rêves dysphoriques (Belicki, 1992a, 1992b; Blagrove, Farmer, & Williams, 2004; Levin & Nielsen, 2007, 2009; Schredl & Hofmann, 2003; Schredl, Landgraf, & Zeiler, 2003). Alors qu'on s'attendrait à des corrélations importantes entre la fréquence et la détresse liée aux rêves dysphoriques, les études empiriques ont démontré que ces corrélations sont modérées ($r=0,29$ à $0,45$) (Belicki, 1992b; Blagrove, et al., 2004).

Cette détresse liée aux rêves dysphoriques serait la manifestation d'un concept plus général nommé « affect distress » proposé par les auteurs Levin et Nielsen (2007). Dans leur modèle intégratif de la production des rêves dysphoriques, ils définissent la détresse affective (« affect distress ») comme une prédisposition à vivre des niveaux plus élevés de détresse et d'affects négatifs, et à exprimer cette détresse plus fréquemment et plus intensément (Levin & Nielsen, 2007). La détresse affective prédit par ailleurs la détresse liée aux rêves dysphoriques (Levin, Fireman, Spendlove, & Pope, 2011) et pourrait être l'expression d'un sous-type de tempérament (Levin & Nielsen, 2007). En faisant le pont avec la littérature sur le tempérament chez les enfants, ce sous-type serait probablement un tempérament qui se traduit par une grande réactivité émotionnelle, marquée principalement par des émotions négatives, nommé émotivité négative (traduction libre de « emotional negativity ») (Rothbart, Ahadi, Hersey, & Fisher, 2001; Rothbart & Jones, 1998; Sanson, Hemphill, & Smart, 2004). Ainsi, il est possible d'émettre l'hypothèse que les liens entre les rêves dysphoriques et l'ajustement psychosocial pourrait varier en fonction de l'émotivité négative. Cette hypothèse sera testée dans le deuxième article de cette thèse.

1.3 Rêves récurrents

Bien qu'ils ne soient pas toujours clairement définis, les rêves récurrents se caractérisent par leur répétition dans leur entièreté (pas seulement une répétition du thème, mais bien de leur contenu) (Brown & Donderi, 1986; Domhoff, 1993; Heaton, Hill, Hess, Leotta, & Hoffman, 1998; Zadra, Desjardins, & Marcotte, 2006; Zadra, Pilon, & Donderi, 2006). La majorité des rêves récurrents sont de nature déplaisante (Cartwright, 1979; Robbins & Houshi, 1983; Zadra, 1996; Zadra, Desjardins, & Marcotte, 2006). Plusieurs chercheurs et théoriciens ont proposé que la présence de rêves récurrents chez les adultes serait associée à une difficulté chez le rêveur à résoudre les conflits dans sa vie ou encore, qu'elle serait le reflet d'une période de stagnation dans le développement de la personnalité (e.g., (Cartwright, 1986, 1991; Cartwright, Lloyd, Knight, & Trenholme, 1984; Kramer, 1993; Kramer, Whitman, Baldrige, & Lansky, 1964). Les rêves récurrents illustreraient donc de façon métaphorique des soucis, des conflits et des facteurs de stress qui persistent dans le temps.

Tel que mentionné précédemment, plusieurs théoriciens et chercheurs soutiennent que les rêves auraient une fonction ou une signification psychologique. Si tel est le cas, les rêves récurrents, de par leur répétition, pourraient avoir un sens ou une signification particulière. Peu étudié chez les adultes, les rêves récurrents sont presque méconnus chez les enfants. On sait toutefois de par l'étude des rêves normaux que l'expérience onirique tend à différer entre les adultes et les enfants.

Une récente revue de la littérature portant sur le développement onirique des enfants (Sándora, Szakadáta & Bódizs, 2014) indique que la fréquence de rappel et le contenu des rêves diffère selon la méthode de collecte utilisée. Par exemple, les capacités mnésiques de

l'enfant influencent plus les résultats lorsque les données sont obtenues à l'aide d'un questionnaire rétrospectif que lorsqu'elles sont obtenues en interrogeant l'enfant directement à son réveil. De plus les données obtenues en réveillant l'enfant en laboratoire peuvent être différentes de celles obtenues en interrogeant les parents.

Les recherches suggèrent que les enfants d'âge préscolaire seraient déjà en mesure de comprendre la nature privée et interne des rêves. Cette compréhension serait donc plus précoce que ce que proposait Piaget (Sándora, et al., 2014). Pour les enfants en dessous de 3 ans les études sur le contenu sont presque inexistantes même s'il semble y avoir quelques évidences qu'ils rêvent.

Entre 3 et 5 ans il y a des différences importantes dans la fréquence de rappel de rêves entre les études en laboratoire (17%) et à la maison (entre 56% et 75%) (Sándora, et al., 2014). Mais dans les deux cas les récits obtenus sont courts et simples. Les rapports recueillis à la maison et à l'école contiennent plus de rêves impliquant le « soi actif » que ceux obtenus en laboratoire. Entre 5 et 9 ans, les récits deviennent plus complexes, plus longs et les différences de contenus retrouvées dans les populations adultes entre les hommes et les femmes commencent à apparaître. Le contenu du rêve devient de plus en plus semblable à celui des adultes et les rêves des adolescents sont d'ailleurs semblables à ceux des adultes en ce qui a trait à la longueur des récits, le contenu général et les liens entre le contenu et la personnalité. Nous ne savons pas ce qu'il en est des rêves récurrents, mais cette revue de littérature nous indique que nous ne pouvons pas simplement appliquer les résultats des études sur les rêves récurrents des adultes à celles des enfants, tant pour ce qui est de la fréquence que pour ce qui est du contenu.

La troisième étude de cette thèse portera sur les rêves récurrents des enfants et des jeunes adolescents en s'attardant de manière exploratoire à la prévalence, au contenu et à la valence émotionnelle des rêves récurrents chez les enfants entre 11 et 15 ans.

1.3.1 Rêves récurrents et ajustement psychosocial

Quelques études ont mis en lien la présence des rêves récurrents et l'ajustement psychosocial chez les adultes. Dans une étude portant sur des étudiants universitaires, il a été démontré que les personnes rapportant des rêves récurrents étaient plus déprimées que les personnes n'ayant pas de rêves récurrents (Robbins & Houshi, 1983). Les étudiants ayant des rêves récurrents rapportaient aussi plus de conflits dans leur vie de tous les jours.

Brown et Donderi (1986) ont comparé le bien-être psychologique (la dépression, le névrotisme, l'anxiété, les événements de vie stressants et l'ajustement psychosocial) des personnes ayant des rêves récurrents (rêveurs récurrents actuels), ayant déjà eu des rêves récurrents mais n'en ayant plus (ex-rêveurs récurrents), et n'ayant jamais eu de rêves récurrents (non-rêveurs récurrents). Les participants qui faisaient partie du groupe d'ex-rêveurs récurrents et les rêveurs récurrents actuels avaient tous expérimenté au moins un rêve récurrent pendant au moins 6 mois. Toutefois, en contraste avec les rêveurs récurrents actuels qui avaient un rêve récurrent au moment de l'étude, les ex-rêveurs récurrents n'avaient plus de rêves récurrents depuis au moins un an. Les rêveurs récurrents ont rapporté un bien-être significativement plus faible que les autres groupes. Pour leur part, les ex-rêveurs récurrents ont rapporté un bien-être significativement plus élevé que les participants n'ayant pas de rêves récurrents, suggérant ainsi que la cessation maintenue des rêves récurrents refléterait une augmentation du niveau de bien-être.

Ces résultats ont été répliqués avec un échantillon d'adultes plus jeunes (Zadra, O'Brien, & Donderi, 1997). Les résultats de cette dernière étude démontrent également que les personnes qui ont des rêves récurrents rapportent des niveaux plus élevés d'événements de vie stressants, d'anxiété, de dépression et d'autres symptômes psychopathologiques, et sont moins bien ajustées personnellement que les participants n'ayant pas de rêves récurrents. La seule différence entre cette étude et celle de Brown et Donderi (1986) est qu'ici, les ex-rêveurs récurrents ne se différencient pas des non-rêveurs récurrents. Les auteurs ont alors proposé que la cessation d'un rêve récurrent durant l'enfance pourrait ne pas avoir d'effets bénéfiques encore perceptibles à l'âge adulte, en raison du nombre relativement plus élevé d'événements pouvant modifier les mesures de bien-être durant l'adolescence.

Au moment de débiter cette thèse, il n'existait pas de données sur les corrélats des rêves récurrents chez les enfants. Ainsi, on ne savait pas si, comme chez les adultes, l'occurrence de ce type de rêve était liée à des mesures d'ajustement psychosocial. C'est cette hypothèse qui sera évaluée dans le cadre du quatrième article de cette thèse. Cet examen sera également étendu aux pensées suicidaires. Tel que mentionné plus haut les rêves dysphoriques sont liés à des difficultés d'ajustement psychosocial chez les adultes dont les pensées suicidaires. Puisque les rêves récurrents sont eux aussi liés à l'ajustement psychosocial chez les adultes, il est nécessaire de déterminer s'ils sont également liés aux idéations suicidaires chez les jeunes. Pour explorer cette possibilité, les rêves récurrents seront investigués dans le cinquième article de cette thèse afin de voir s'ils sont associés à la présence d'idéations suicidaires dès l'adolescence.

1.4. Problématiques et objectifs spécifiques

Ainsi, à la suite de cette brève introduction additionnée à la recension des écrits qui constitue le premier article de cette thèse, les quatre autres articles de cette thèse proposent de clarifier des questions et hypothèses spécifiques. Les hypothèses du second article sont : 1) La fréquence des rêves dysphoriques sera positivement associée à une variété de problèmes intériorisés et extériorisés; 2) L'émotivité négative sera un modérateur de la relation entre problèmes intériorisés, extériorisés et fréquence des rêves dysphoriques. Le troisième article, de type exploratoire, a comme but de répondre à la question suivante : quelle est la prévalence et le contenu des rêves récurrents chez les enfants? L'hypothèse du quatrième article est : les rêves récurrents seront associés aux problèmes d'ajustement. Finalement, les hypothèses du cinquième article sont : 1) Les pensées suicidaires seront liées 1) aux rêves dysphoriques et 2) aux rêves récurrents.

2. Méthodologie et résultats

Articles de recherche

2.1 Premier article

Prevalence and correlates of disturbed dreaming in children.

A. Gauchat,¹ J. R. Séguin,^{2,3} A. Zadra¹

¹Department of Psychology, Université de Montréal C.P. 6128, succ. Centre-ville
Montréal, Québec, CANADA H3C 3J7;

²Ste-Justine Hospital Research Center 317 chemin Côte Ste-Catherine Montréal, Québec,
CANADA, H3T 1C5;

³Department of Psychiatry, Université de Montréal C.P. 6128, succ. Centre-ville Montréal,
Québec, CANADA H3C 3J7

Objectifs spécifiques de cet article: Faire une revue de la littérature sur les rêves dysphoriques chez les enfants pour tirer des conclusions sur leur prévalence, leurs corrélats et leurs traitements.

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Contribution des auteurs

Aline Gauchat : Recension des écrits, rédaction des différentes sections de l'article et préparation des tableaux et graphiques.

Jean Séguin : Organisation, supervision, correction du manuscrit et aide à la révision de l'article.

Antonio Zadra : Organisation, supervision. Soutien à l'analyse des données et à l'interprétation des résultats, correction du manuscrit et aide à la révision de l'article.

Summary

Relatively little is known about nightmares and other forms of disturbed dreaming in children. This article reviews the literature on the prevalence and correlates of nightmares in children and highlights key methodological issues in the field. Results show that regardless of how they are defined and measured, nightmares affect a significant proportion of children of all ages and there is some evidence to suggest that nightmare frequency may peak around the age of 10. Gender differences in nightmare frequency, with girls reporting more nightmares than do boys, tend to appear between the ages of 10 and 15. Although nightmares are associated with a range of psychosocial difficulties (e.g., stress, behavioural problems), elevated anxiety and concomitant sleep-related disorders (e.g., sleepwalking) are among the most robust correlates of nightmares. Very few studies have examined nightmare treatment in children, but promising results have been obtained with imagery rehearsal therapy. Overall, research in the field has been hampered by inconsistent definitions for nightmares, by extensive variability in questionnaire items used to measure nightmare frequency, and by a lack of awareness of how using parents versus children as respondents may impact results. Longitudinal studies are needed to better understand how nightmares and their correlates evolve during childhood and adolescence, to delineate their clinical significance, and to develop effective and age-appropriate treatment strategies.

Key words: bad dreams; nightmares; children; anxiety; treatment

Résumé

Peu d'études se sont intéressées aux cauchemars chez les enfants. Nous proposons ici une recension de ces dernières afin d'en évaluer la prévalence et les corrélats chez l'enfant, tout en répertoriant les principaux problèmes méthodologiques. Les résultats démontrent que peu importe comment ils sont définis et mesurés, les cauchemars affectent une proportion significative d'enfants de tout âge, avec un pic de fréquence qui pourrait se situer autour de 10 ans. Des différences de genre dans la fréquence des cauchemars apparaissent entre l'âge de 10 et 15 ans, alors que les filles rapportent plus de cauchemars que les garçons. Bien que les cauchemars soient associés à des difficultés psychologiques variées (e.g., stress, problèmes de comportement), une anxiété élevée et des troubles du sommeil concomitants (e.g., somnambulisme) font partie des corrélats les plus robustes des cauchemars. Bien que peu de travaux aient porté sur le traitement des cauchemars chez l'enfant, quelques résultats prometteurs ont été obtenus en utilisant un traitement par répétition de l'imagerie mentale. La recherche dans ce domaine a toutefois été ralentie par l'utilisation de définitions inconsistantes du cauchemar, par une grande variabilité des composantes des questionnaires utilisés pour en mesurer leur fréquence et par la méconnaissance de l'impact que peut avoir sur les résultats le fait d'utiliser un parent ou l'enfant lui-même comme répondant. Des études longitudinales seront nécessaires afin de mieux comprendre comment les cauchemars et leurs corrélats évoluent durant l'enfance et l'adolescence, pour préciser leur signification clinique ainsi que pour développer des approches thérapeutiques efficaces et appropriées à l'âge.

Mots-clés : mauvais rêves, cauchemars, enfants, anxiété, traitement

Introduction

Disturbing dreams, including nightmares and bad dreams, involve vivid dreams marked by upsetting imagery, intense negative emotions and typically involve themes centered around physical or psychological threats (1-3). Although considerable progress has been made in the clinical conceptualization and treatment of nightmares in adults (3-5), there remains a paucity of information on nightmares and other forms of disturbed dreaming in children. This review examines the prevalence, correlates and treatment of nightmares in children while highlighting key methodological issues in the field.

The literature on nightmares, especially when it involves the study of children, often makes use of a variety of terms which are used interchangeably including nightmares, bad dreams, scary dreams and anxious dreams. Nightmares can be distinguished from bad dreams by the awakening they incur (3, 6, 7). However, although some investigators and clinicians distinguish emotionally dysphoric dreams that awaken the individual from sleep (nightmares) from negatively toned dreams that do not awaken the dreamer (bad dreams) (7, 8), the term disturbed dreaming has been used to include both forms negatively-tones dream experiences (e.g., 9, 10, 11). Given the lack of consistency in how such terms are use and defined in the literature, studies relating to broader terms such as bad dreams and anxious dreams were included in the present review. However, it is important to keep in mind that these phenomena may represent variations on what clinicians and researchers consider to be nightmares and that they may have a differential impact on the child's quality of life, as well as on the perception parents may have of the magnitude of the problem.

Overall prevalence of disturbing dreams

Table 1 presents a summary of studies having focused on the prevalence of nightmares in children. As can be seen from the table, there exists significant variability in results obtained across studies. To better understand the studies' prevalence estimates, we grouped them according to the time window over which nightmare frequency was investigated (e.g., last week, month or year) and according to the age of the groups investigated.

When children come from comparable age groups and when the time period examined is kept consistent across studies, relatively equivalent prevalence rates are obtained. According to frequency estimates provided by children's parents, the lifetime prevalence for children aged four to nine years old is 49% (12). When prevalence rates are based on information provided by the children themselves, they increase to 75% to 81% between the ages of 4 and 12 (13, 14) and 6% to 2% between the ages of 9 and 11 (15).

When studies assess the prevalence of nightmares in young children over the preceding six months of their lives, approximately 50% of children between the ages of three and eight are found to have nightmares (16-19), with percentages varying from 21% (17) to 61% (18).

For children that are a bit older, frequency rates for the past six months of their lives are more variable, ranging from 15% in children nine to 11 years old (17), to 44% in children seven to ten years old (19), and to 72% for bad dreams (a broader term than nightmares) in children eight and a half to 11 years of age (20). These differences in nightmare frequency remain noticeable in older groups. Prevalence is at 23% in children aged 11-12 years old (19), 6% in children 12-14 years old (17), and oscillates around 67% in adolescents between the

ages of 11 and 19 (20-22). Part of the observed discrepancies may be due to the fact that estimates came from parents in some studies and from the children themselves in others.

Studies having examined self-reported frequency of nightmares over shorter time windows (e.g., past few weeks or past month) in children aged 9 to 18 reveal prevalence rates ranging between 30 to 60% (23-27).

Finally, several investigations focused on the proportion of children reporting "frequent nightmares" (as opposed to general prevalence estimates) with the term typically referring to more than one nightmare per month (ordinal scales) or having nightmares "often" or "very often" (nominal scales). These studies show that frequent nightmares are reported by 6% of 18 year old boys (20), 44% of children aged 10 to 12 (26), 37% of 13 year old girls (28), and 34% of adolescents between the ages of 12 and 18 (22). If instances of children reporting more than one nightmare per week are taken as reflecting very frequent nightmares, we find prevalence rates for very frequent nightmares of 1.7% in children aged between five to 18 years (17), 3% in children five to seven years old (18), and 19% in children between the ages of nine to 11 (25).

Table 1. Nightmare prevalence in children

Studies	N	Age (years)	Respondents	Time period examined	% having nightmares Boys (M) and girls (F)	% with high nightmare frequency	Difference Boys/girls
Simonds and Parraga., 1982 (17)	309	5 to 18	mothers	Past 6 months	17%	1.7% (one episode per week)	No
Salzarulo and Chevalier, 1983 (37)	208	2 to 15	parents	N/A	28%	N/A	N/A
Velabueno et al., 1985 (36)	487	6 to 12	parents	Past year	22%	N/A	Yes (more in boys but NS)
Fisher and Wilson, 1987 (31)	1695	5 to 18	parents	Current	55%	16% (one or more per month)	no
Fisher et al., 1989 (20)	870	6 to 13	parents	Past 6 months	Between 6 and 8.5 y: 65%; between 8.5 et 11.5 y: 72% older than 11.5: 65%	≤12% (often and very often)	yes : between 8.5 and 11.5 y
Hawkins and Williams, 1992 (16)	163	3 to 5	mothers	Past 6 months	33%	14% (minimum one per month)	N/A
Schredl et al., 1996 (15)	624	10 to 16	children	Lifetime prevalence	62%	11% (many during the past week)	N/A
Smedje et al., 1998 (75)	378	5 to 6	parents	Past 6 months	62%	3% (more than one per week)	N/A
Smedje et al., 1999 (18)	1844	5 to 7	parents	Past 6 months	62%	3% (more than one per week)	Yes for frequent NMs
Muris et al., 2000 (14)	190	4 to 12	children	N/A	81%	N/A	N/A

Table 1 (part 2)

Studies	N	Age (years)	Respondents	Time period examined	% having nightmares boys (M) and girls (F)	% with high nightmare frequency	Difference Boys/Girls
Nielsen et al., 2000 (28)	610	13 to 16	children	Past year	13 y: 79% M, 90% F 16 y: 73% M, 90% F	13 y.o. : 25% M, 37% F 16 y.o.: 40% M, 20% F (sometimes and often)	yes
Schredl et al., 2000 (30)	300	6.5 to 11.5	children	N/A	40%	5% (one or more per week)	yes
Smedje et al., 2001 (38)	635	6 to 8	parents	Past 6 months	61%	5,4% (more than one per week)	N/A
Stein et al., 2001 (19)	472	4 to 12	parents	Past 6 months	4 to 6 y: 38% 7 to 10: 43% 11 to 12: 22%	6 % (more than one per week)	No
Mindell and Barrett, 2002 (39)	60	5 to 11	parents and children	Lifetime prevalence	Lifetime according to children : 75% Current according to parents : 49%	According to children : 28% According to parents: 17% (one nightmare per month)	no
Bailly et al., 2004 (21)	652	13 to 19	children	Past 5 months	57%	6% (often practically every night)	yes
Lui, 2004 (22)	1362	12 to 18	children	Past month	49%	7% (often)	yes
Abdel-Khalek, 2006 (23)	6767	10 to 18	children	Last few months	10 y: 46% M, 38% F 13 y: 53% M, 49% F 18 y: 51% M, 51% F	10 y: 9% M, 12% F 13 y: 18% M, 15% F 18 y: 6% M, 18% F (very much and very very much)	yes : around 15 y
Shang et al., 2006 (12)	1319	4 to 9	parents	Past few weeks and lifetime	Past month : 8% lifetime: 49%	N/A	No

Table 1 (part 3)

Studies	N	Age (years)	Respondents	Time period examined	% having nightmares boys (M) and girls (F)	% with high nightmare frequency	Difference Boys/Grils
Schredl et al., 2008a (24)	252	9 to 13	Children	Past few months	54%	N/A	Yes
Schredl et al., 2008b (25)	95	9 to 11	Children	Past few weeks	61%	19% (one or more per week)	No
Simard et al., 2008 (32)	971	0.5 to 5	parents	N/A	70%	N/A	No
Schredl et al., 2009a (26)	4531	8 to 11	Children and parents	N/A	According to parents: 29% According to children : 44%	According to children : 2.3% According to parents : 3.5% (often)	Yes
Schredl et al., 2009b (27)	808	8 and 13	Children and parents	N/A	According to children: 8 to 11 y.: 47% 9 to 12 y: 37% 10 to 13 y: 30% According to parents: 8 to 11 y: 32% 9 to 12 y: 26% 10 to 13y: 22%	According to children : 8 to 11y: 3.3% 9 to 12 y:1,1% 10 to 13 y: 0.6% According to parents: 8 to 11 y: 1.3% 9 to 12 y: 0.9% 10 to 13 y:0.4%	Yes

Differences in nightmare prevalence as a function of gender and age

While gender-related differences in nightmare frequency are well-established in adult populations (3, 29), the age at which this difference first becomes evident remains unclear. Several studies have found a significant gender effect with girls reporting more nightmares than boys (15, 20-23, 26-28, 30), but this difference may not manifest until adolescence (20, 23). Gender-related differences in nightmare prevalence have been attributed to higher dream recall frequency in women and girls by some researchers (15) but others (28) have argued this gender difference may reflect women's greater vulnerability to stress and depression, two variables closely associated to nightmares. In addition, it should be noted that several studies of children did not find significant gender differences in nightmare frequency (12, 13, 17, 19, 24, 31, 32). Thus, although the presence of a clinically significant gender difference in adults is well documented (33-35), the age at which this difference first manifests itself and its developmental course in young children and adolescents remains unclear.

While some studies report a significant decrease in nightmares with age, others do not find such marked decreases (17, 36) or note them only in boys (20, 28), or point to an increase in girls (23, 28). Taken together, studies indicate that nightmare frequency reaches its peak between the ages of six and ten (26, 31, 37) with notable decreases (from 46 % to 30 %) occurring between the ages of 10 and 12 (26).

Taken as a whole, the aforementioned literature allows us to draw certain conclusions with respect to nightmare prevalence in children. First, nightmares appear to be common in children with approximately half experiencing some form of disturbed dreaming at least on occasion and with up to 40 % of children reporting frequent nightmares. Second, although not

consistently observed across studies, the frequency of nightmares tends to peak around the ages of 10-12 and then decreases during adolescence. . However, the idea that nightmare prevalence peaks during childhood remains controversial. For instance, even if such a time point existed and represented a true variation in nightmare frequency as a function of age, it could be attributable to an increased facility for children to share their experiences with parents (especially for parent-based indices), followed by a decrease in their willingness to talk about such matters during adolescence. It is also possible that children, and boys in particular, experience growing embarrassment in admitting that they have nightmares as they get older. Finally, while gender differences in nightmare frequency are well established in adults, girls may not report significantly more nightmares than do boys until they are 10 to 15 years old.

Psychosocial correlates of nightmares in children

Studies of psychosocial correlates of nightmares in children have been largely inspired by results derived from adult populations. As shown in Table 2, variables having attracted the most interest include behavioural problems, anxiety, stress, as well as external causes such as exposure to violence on television.

Table 2. Nightmare correlates in children

Studies	N	Age (years)	Respondents	Variables examined	Variables significantly associated with nightmares
Simonds et Parraga, 1982 (17)	309	5 to 18	mothers	Chronic medical problems	None
Salzarulo et Chevalier, 1983 (37)	208	2 to 15	Families	Disturbance of wake-sleep cycle	none
Fisher and Wilson, 1987 (31)	1695	5 to 18	Parents	Sleepwalking, talking during sleep, enuresis, academic performance, degree of physical activity, problems of attention, emotional excitability, being easily upset	Sleepwalking, degree of physical activity, problems of attention, emotional excitability, being easily upset
Hawkins and Williams, 1992 (16)	163	3 to 5	Mothers	Sleep related behaviours, behavioural problems, life events	Talking during sleep, snoring, night terrors, being afraid of going to bed, insisting on bedtime rituals, sharing a bedroom with another child
Schredl et al., 1996 (15)	624	10 to 16	Children	Trait anxiety	Trait anxiety
Smedje et al., 1999 (18)	1844	5 to 7	Parents	Other sleep disturbances	Serious health problems or disabilities, prior consultation for sleep disturbances, sleep disturbance linked to life events, agitated sleep, night-time awakening, night terrors, prolonged latency to sleep, resistance to going to bed, sleep deficit of more than one hour, bedtime anxiety, difficulty falling asleep
Schredl et al., 2000 (30)	300	6.5 to 11.5	Parents	Stressful events, personality traits, academic difficulties, other sleep disorders	Parents' divorce, academic difficulties, being serious and taciturn, night-time awakening, night terrors, sleepwalking

Table 2 (part 2)

Studies	N	Age (years)	Respondents	Variables examined	Variables significantly associated with nightmares
Smedje et al., 2001 (38)	635	6 to 8	Parents	Hyperactivity, emotional symptoms, problems of conduct, problems with peers, difficulty with pro-social behaviour, global difficulties (includes all previously mentioned difficulties except difficulty with pro-social behaviour)	Pro-social difficulties and global difficulties score
Stein et al., 2001 (19)	472	4 to 12	parents	Nightmares encompassed in parasomnia variable : medical history, sleep related behaviour, behavioural problems	Frequent falls, pica, medication, sleep disturbances prior to 2 y, problems of externalized and internalized behaviours
Mindell and Barrett, 2002 (39)	60	5 to 11	Children and parents	Trait anxiety, nightmare induced distress	Parent measurements : anxiety and occurrence of nightmares; Child measurements: nightmare frequency and anxiety; nightmare induced distress and anxiety
Shang et al., 2006 (12)	1319	4 to 9	parents	Perinatal factors, parental mental distress, child behavioural problems, other sleep disturbances	Perinatal factors (non-prescription medications, vaginal bleeding); parental mental distress; problems of externalized and internalized behaviour, sleep disturbances: insomnia, waking up late, night-time awakening, talking during sleep, sleep walking, night terrors, enuresis, bruxism, snoring
Schredl et al., 2008a (24)	252	9 to 13	Children	Watching TV, computer games, police or criminal TV series, reading	Time allotted to reading
Schredl et al., 2008b (25)	95	9 to 11	Children	Academic stress, social stress, other stressors : moving, chronic illness, death of loved one, chronic illness of loved one	Social stress, death of loved one, chronic illness of loved one

Table 2 (part 3)

Studies	N	Age (years)	Respondents	Variables examined	Variables significantly associated with nightmares
Schredl et al., 2008b (25)	95	9 to 11	Children	Academic stress, social stress, other stressors : moving, chronic illness, death of loved one, chronic illness of loved one	Social stress, death of loved one, chronic illness of loved one
Simard et al., 2008 (32)	971	0.5 to 5	parents	Bedtime routine established by parents, child temperament, separation anxiety, emotional disturbances, anxiety, insomnia, agitation, looking for attention and crying, difficulty calming down	5months: difficult temperament and crying; 5 and 17 months : agitation ; 17 months : emotional disturbances, anxiety, difficulty calming down
Schredl et al., 2009a (26)	4531	8 to 11	Children and parents	Nightmares during past year, problems of conduct, hyperactivity and inattention, emotional symptoms, problems with peers and pro-sociality	Nightmares during past year, problems of conduct, hyperactivity and inattention, emotional symptoms, problems with peers (only with child-rated nightmare frequency)
Schredl et al., 2009b (27)	851	8 to 13	Children and parents	Sleep disturbances, nightmares during past year, problems of conduct, hyperactivity and inattention, emotional symptoms, problems with peers and pro-sociality	Sleep disturbances and other parasomnias such as sleepwalking and night terrors, problems of conduct, hyperactivity and inattention, emotional symptoms, problems with peers
Coulombe et al., 2011 (76)	980	12-16	adolescents and parents	Aggression, attention problems, anxiety/depression, and withdrawal	Aggression, attention problems, anxiety/depression, and withdrawal. When psychological co-morbidity was entered in model nightmares was uniquely associated with symptoms of anxiety/depression.
Stephan et al., 2012 (59)	3167	6 to 18	children	Amount of TV viewing	None

Nightmares and behavioural problems

Most studies focusing on behavioural problems as possible correlates of nightmares in children have relied on scores on either the Child Behaviour Checklist (CBCL) or the Preschool Behaviour Checklist (PBC) thereby allowing for a direct comparison of results across studies.

One study (16) of preschool children with frequent nightmares found that they did not differ from children without nightmares in terms of behavioural problems as measured by the PBC, but the picture appears to change as children become old enough to attend school. Indeed, studies of children aged four to 12 (19) and four to nine (12) found a significant association between nightmare frequency and behavioural problems. In the study by Stein et al (19), children reporting more parasomnias (including nightmares) obtained higher scores on CBCL measures of behavioural problems (i.e., timidity, somatic complaints, anxiety, depression, social problems, cognitive problems, attention problems, delinquent behaviours and aggressive behaviours) while a multiple regression analysis revealed that parasomnias were primarily predicted by anxiety and depression, cognitive problems, and social difficulties. Similarly, Shang et al. (12) found that all CBCL variables distinguished children who experiences nightmares in the previous months from those who did not while their logistic regression model revealed that anxiety and depression were the only variables that significantly predicted nightmare occurrence.

Schredl et al. (26) found a significant positive relationship between nightmare frequency, as measured by parents and self-reported by children, and conduct problems, hyperactivity and inattention with the strongest association being between nightmares and

emotional troubles. The children's self-reported frequency for nightmares (but not the parents' estimates) was also related to problems with peers. Schredl et al. (30) also found in a separate study that nightmares were associated with academic difficulties.

Smedje et al. (38) reported an association between nightmares and problems with prosocial behaviours as well as global difficulties encompassing hyperactivity, emotional symptoms, conduct problems, and problems with peers.

Finally, although Fisher and Wilson (31) reported a relation between nightmares and attentional difficulties, emotional excitability and being easily upset, their effect sizes were very small and none of the variables predicted more than 3.3% of the variance in nightmare occurrence.

Nightmares and anxiety

In addition to aforementioned studies in which anxiety was assessed as part of broader measures of behavioural problems (12), some research has specifically focused on the relation between nightmares and anxiety. One study (28) of 13 to 16 years old teenagers found that anxiety scores reported by the mother distinguished 13-year old children who had frequent nightmares from those who did not. At 16 years of age, self-reported indices of separation anxiety, hyper-anxiety disorder and generalised anxiety well as hyper-anxiety disorder as reported by the mother differentiated those with and without frequent nightmares. A significant relation between nightmare frequency and trait anxiety was also reported by Schredl et al. (15).

Results from one of the rare longitudinal studies in field (32) suggest that children with difficult temperaments as early as five months of age tend to experience nightmares on a

regular basis between the ages of five months and five years. Furthermore, at the age of 17 months, these children are more emotionally troubled and more anxious than children without nightmares.

Finally, while other studies have also reported associations between nightmares and anxiety in children, the nature of the results varies depending on whether or not nightmares were reported by the children's parents or by the children themselves (26, 39). For instance, Mindell and Barrett (13) found that levels of anxiety did not differ between children who reported having nightmares and those who did not but such a difference did emerge when measures were based on parent ratings.

Nightmares, stress and traumatic events

Although the general association between anxiety and nightmares in children could lead one to expect that stress would also be positively linked to nightmares, the nature of this relationship remains unclear.

Among preschool aged children, stressful life events do not distinguish those who have nightmares from those who do not (16). In school aged children, however, self reported social stress (e.g., being excluded from a group, parents separating, fighting with friends or siblings) was associated with self-reported nightmare frequency, although school-related stress (e.g., getting bad grades, homework, being called to the front of the class) was not (25). Other stressful events associated with the concurrent experience of nightmares include having a loved one become physically ill or passing away as well as having one's parents divorce (25, 30).

In adults, nightmares are strongly associated with post-traumatic stress disorder as well as with a variety of traumatic experiences (33, 40-42). A similarly strong relation exists in children. For example, one study of 15 year olds having lived through a major traumatic event found that even six months after the event, 100% of them reported recurring dreams related to their trauma (43).

Some researchers have proposed that dreams may play an important role in working through the emotional and cognitive sequelae of traumatic experiences (42, 44-47) and studies of children having lived through war-related traumas do tend to show increases in dream recall frequency following exposure to trauma (45, 46). Furthermore, these children's dreams contain more severe threats and with more significant consequences than do dreams of children who have not been traumatized (45-47). What's more, dreams of children who have lived through a traumatic event can be distinguished from those of other children by their contents, including overall unpleasant atmosphere, high level of negative emotions, and the presence of hostility and anxiety (45).

Nightmares and maternal mental health problems

Several studies on sleep disorders in children have evaluated the relation between these disorders and deficient maternal attachment styles or the presence mental disorders in the mother (48-51). However, few of these studies have focused specifically on nightmares. One such study (12) found that children of mothers who had scored high on measures of psychopathology (e.g., anxiety, depression, interpersonal difficulties, somatic concerns, sleep disorders) were more likely to have had nightmares in the past month and during their lifetime than did control children (12). A more distal association was also reported between perinatal

factors (e.g., mother taking non prescribed medications, vaginal bleeding during pregnancy) and nightmares in children.

Nightmares and suicidal ideation

Suicide and suicidal ideation constitute one extreme form of psychosocial adjustment difficulties and there has been increasing interest in the study of disturbed dreaming in relation to suicidal ideation and behaviors in adults as well as in children. Amongst people having attempted suicide, disturbed dreaming has been found to be the sleep-related problem most strongly associated to suicidal risk (52), and similar results have been obtained in non-clinical adult populations (53-55).

Turning specifically to children, one study (56) of adolescents aged between 13 and 16 found that 13% of boys who had often thought about suicide reported frequent nightmares versus 4% of boys that had never thought about it. Among girls, 29% of those who had often thought about suicide reported frequent nightmare versus 10% of those who had not.

A subsequent study (22) of adolescents between the ages of 12 to 18 found that those who reported frequent nightmares during the past month also had an increased risk of suicidal ideation and attempt and these results remained significant after controlling for depression. A similar investigation (57) of 12 to 18 year-old subjects found that suicidal thoughts were associated to the intensity of emotions disturbing dreams as well as to nightmare-related distress but not to nightmare frequency.

Examining children specifically at risk for self-harm, one study (58) found that disturbed dreaming at ages 12 to 14 did not predict suicidal thoughts at ages 15 and 17 when common risk factors and other sleep problems were for controlled for.

Finally, one recent longitudinal investigation of disturbed dreaming and suicidal ideation in young teenagers showed that by age 13, children who report having thought about suicide in the past year experience more disturbing dreams than children who have not thought about suicide. However, why the association between disturbed dreaming and suicidal ideation appears during adolescence and how it evolves over time remains to be elucidated.

In sum, although there is ample evidence for an association between nightmares and suicidal ideation, the direction of this relation remains unclear. It is possible that the repeated experience of nightmares accentuates ongoing distress that underlies suicidal thoughts or that disturbed dreaming merely reflects waking state turmoil.

Nightmares and other sleep disorders

Several sleep disorders show robust and stable associations with nightmares. These include other parasomnias such as sleepwalking (12, 16, 27, 30, 31) as well as sleep terrors (16, 27, 30, 38), although it should be noted that parents and children alike may confuse nightmares with sleep terrors (see Table 3)

Children with frequent nightmares are also more likely to snore, to talk in their sleep, to be afraid of going to bed, to insist on night time rituals, to wake up during the night, and to suffer from enuresis or bruxism (15, 16, 30, 38).

Table 3. **Comparison of nightmares and sleep terrors**

	Nightmares	Sleep terrors
Time of night	Last half of the sleep period	First third to half of the sleep period
Sleep stage	REM sleep	Slow-wave sleep
Associated activity	Movements are rare and limited	Sits, screams; agitated motor activity
Duration	3–20 min	1–10 min
Autonomic activation	None to moderate	Moderate to extreme
Recall for the event	Vivid and detailed dream recall	Variable amnesia for the event
Full awakening	Common	Uncommon
State after event	Fully awake and functional	Confused/disoriented
Arousal threshold	Low	High
Potential for injury/violence	No	Yes

Nightmares and exposure to violence in media and gaming

Many parents tend to intuitively link their children's nightmares with specific daytime experiences such as having watched scary movies (31). However, nightmares in children do not appear to be linked to time spent watching television, exposure to violent shows, electronic games, and time allotted for reading although children may themselves report that things they saw on TV may give rise to negatively-tones dreams (24, 59).

Summary of nightmare correlates

Many correlates have been examined in relation to nightmares and some show stronger and more consistent associations across different age-points. Thus, when compared to children with few or no nightmares, children with frequent nightmares are more anxious and this from the youngest age. Frequent nightmares are also related to suicidal ideation, even when controlling for depression. However, the link between nightmares and stressful life events appears weaker and is only found when stress is assessed by the children themselves. That being said, it is important to bear in mind the correlational nature of these findings when postulating mechanisms underlying such relations. Nightmares also show strong relations to the other sleep disorders, including sleepwalking and sleep terrors. These sleep-related experiences may have a common aetiology, be it genetic, related to personality, or attributable to shared life events. Additionally, the presence of frequent nightmares appears to be a stable occurrence during the childhood and adolescence of affected individuals (26, 32), which parallels other sleep disorders in general (19).

Treatment of nightmares in children

Although considerable progress has been made in the treatment of various forms of nightmares and associated distress in adult populations (5, 60-65), little is known about nightmare treatment in children. Addressing this lack of work in the area is all the more important given that a notable proportion of adults with frequent nightmares trace the onset of their disturbing dreams back to childhood or adolescence (66-68).

Of the proposed treatments, interventions based imagery rehearsal therapy, a typically brief and relatively simple treatment (5), but adapted to children appear to be the most promising. Two controlled studies support the idea that such cognitive-behavioral approaches can be effective in children. The first study (69) showed that imagery rehearsal therapy significantly decreased nightmare frequency in children aged nine to 11 suffering from chronic nightmares as compared to a no-treatment control group and that gains were maintained at a nine-month follow-up. Similar improvements were also observed in the control children once they too received the treatment. The second controlled study (70) involving children aged 6 to 11 found that being enrolled in the study itself had a positive impact on nightmare frequency as well as nightmare induced distress even before treatment began. That said, imagery rehearsal of nightmare (in this case based on drawings rather than mental imagery) further decreased nightmare-induced distress but not nightmare frequency. However, since nightmare frequency was relatively low at the onset of the study, this result may be due to by a floor effect. It should be noted that imagery rehearsal therapy, as usually administered in adults, was also found to significantly reduced nightmare frequency and nightmare-related distress in a group of adolescent girls aged 13 to 18 suffering from

nightmares related to sexual abuse (71). Finally, although they have been subject to relatively few studies, other psychological approaches and even pharmaceutical options for the treatment of nightmares have been proposed (72, 73).

Methodological issues and future directions

Several methodological issues make comparing and integrating results from different studies difficult. The three main problems are how nightmares are defined, the nature of instruments used to measure nightmare frequency, and the choice of using parents versus the children themselves as respondents.

While some researchers clearly define the term nightmare in their studies, others have not or have left nightmares to be defined by the subjects themselves. Moreover, this issue is further compounded by the use of other terms such as bad dreams and anxiety dreams which are themselves often poorly or vaguely defined. Finally, researchers don't always provide participants with a definition of sleep terrors and thus this psychologically and physiologically distinct sleep disorder can be confused with nightmares.

Since there are no standardized questionnaires to assess nightmare frequency in children, some researchers have adapted adult-based questionnaires while others rely on in-house instruments. Furthermore, these instruments show considerable differences in the scales used to determine nightmare frequency. Response scales can take different forms, including binary, nominal, ordinal and open-ended choices and variations exist even within each of these categories. The same variability is also found in interval scales whereas open-ended choices are relatively homogeneous (e.g., How many nightmares do you recall per month?).

Furthermore, parametric tests are often used inappropriately to analyse data obtained using ordinal or nominal scales (3).

These differences in questionnaire formats are intimately associated to the issue of whether parents or the children themselves are selected to complete the instruments at hand. Although it may be difficult to question very young children about their nightmares, parents' estimates of nightmare frequency in their children may be biased, incomplete, or misguided (e.g., being unduly affected by their children's sleep terrors). In the case of older children, estimates provided by parents may be biased by the quality of the parent-child relationship (e.g., children may or may not tell their parents about their dreams). It is likely preferable to question children directly once they reach the age of ten with questionnaire items adapted to their comprehension level although some studies rely on parents to obtain information on nightmares in 15 year olds (37), and even 18 year olds (31).

Finally, studies (13, 74) in which frequency values for nightmares were obtained from parents as well as their children suggest that parents tend to underestimate nightmare frequency in their children not only when it is low (e.g., one nightmare per six months) but also when it is high (e.g., one per month)

In sum, regardless of how they are defined and measured, nightmares clearly affect a significant proportion of children of all ages. Future investigations need to take the aforementioned methodological considerations into account and longitudinal studies of children are especially needed to provide a better picture of the evolution of nightmares and their correlates over time. Since nightmares affect a large number of children and are associated with a range of psychosocial difficulties, it appears important to further investigate

their clinical significance at different age points as well as to better document ways in which affected children can be helped.

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2.1.2 Transition entre les articles 1 et 2

Certains constats peuvent être tirés suite à la revue de la littérature effectuée dans ce premier article.

Premièrement, les rêves dysphoriques touchent plus de la moitié des enfants, et leur prévalence semble diminuer au cours de l'enfance. Deuxièmement, au niveau de leurs corrélats, celui qui est le plus robuste est l'association avec d'autres troubles du sommeil (tels que le somnambulisme, les terreurs nocturnes ou le bruxisme). Ceci suggère que les rêves dysphoriques font peut-être partie d'une constellation plus large de problèmes liés à une perturbation du sommeil. Parmi les variables d'ajustement psychosocial, il semble que les enfants avec des rêves dysphoriques sont plus anxieux que les autres enfants. Dans le cas d'événements stressants, les rêves dysphoriques semblent davantage liés à l'expérience subjective avec laquelle est vécu l'événement qu'à la fréquence des événements en tant que telle. Aussi, contrairement à ce qui est peut-être véhiculé, l'occurrence de rêves dysphoriques ne semble pas associée à l'écoute d'émissions de télévision violentes. Pour ce qui est des troubles extériorisés, il existe relativement peu d'études, et surtout, peu d'entre elles se sont attardées à des troubles extériorisés spécifiques. De plus, bien que les études portant surtout sur la fréquence des rêves dysphoriques chez les adultes aient commencé à examiner la détresse qui leur est liée, peu d'études ont examiné d'autres aspects des rêves dysphoriques à part leur prévalence et leur fréquence. Troisièmement, il ressort aussi de cette revue de littérature qu'il existe des traitements potentiellement efficaces pour les rêves dysphoriques qui sont relativement simples à mettre en place. Ces traitements, inspirés de ce qui a été fait chez les adultes, semblent bien fonctionner pour une majorité d'enfants aux prises avec des rêves dysphoriques.

Quatrièmement, cette revue de la littérature met de l'avant l'importance de considérer certains aspects méthodologiques dans l'étude des rêves dysphoriques. En effet, il semble particulièrement important de questionner les enfants directement sur leurs rêves dysphoriques plutôt que de passer par leurs parents qui semblent sous-estimer leur fréquence. De plus, étant donné que les rêves dysphoriques semblent fortement liés à d'autres troubles du sommeil qui sont aussi liés à l'ajustement psychosocial, il apparaît important de contrôler pour l'effet des autres troubles du sommeil dans les analyses des liens entre rêves dysphoriques et ajustement psychosocial. De plus, peu de ces études ont contrôlé pour des facteurs communs à l'ajustement psychosocial et aux rêves dysphoriques, comme le niveau socioéconomique. Finalement, il est très rare de voir des études qui ont pris le soin de recueillir leurs mesures d'ajustement auprès de divers répondants, même s'il est maintenant reconnu dans la littérature que ceci est particulièrement important lorsque l'on souhaite avoir une vision complète et la moins biaisée possible des difficultés des enfants.

Dans l'article qui suit, nous nous appuyons sur cette revue de la littérature pour examiner avec plus de précision les liens entre les troubles extériorisés et les rêves dysphoriques, et également tester le possible effet modérateur de l'émotivité négative dans les liens entre rêves dysphoriques et ajustement psychosocial. Tel que mentionné dans l'introduction, cette hypothèse a été proposée par Levin et Nielsen (2007) dans leur modèle intégratif sur les rêves dysphoriques, où ils mentionnaient que certaines personnes plus sensibles aux émotions négatives en général seraient aussi plus sensibles à leurs rêves dysphoriques.

2.2 Deuxième article

The Relation Between Disturbing Dreams and Psychosocial Maladjustment in Children: Extending the Adult Literature and Exploring the Moderating Role of Early Negative Emotionality

Aline Gauchat^{1,2}, Antonio Zadra¹, Sophie Parent³,

Richard E. Tremblay^{1,2,4,5} & Jean R. Séguin^{1,5*}

¹Department of Psychology, Université de Montréal, Canada;

² Centre de recherche du CHU Ste-Justine;

³Department of Psychoeducation, Université de Montréal, Canada;

⁴ Department of Pediatrics, Université de Montréal, Canada;

⁵ School of Public Health and Population Science, University College Dublin, Ireland;

INSERM U669, Paris, France.

Objectifs spécifiques de cet article : Examiner les liens entre les rêves dysphoriques et les troubles intériorisés et extériorisés et tester l'hypothèse que l'émotivité négative puisse être un modérateur de ces liens.

Statut : en révision.

Contribution des auteurs

Aline Gauchat : Élaboration de l'article incluant les hypothèses de travail, la recension des écrits, l'analyse des données, l'interprétation des résultats, la préparation des tableaux et graphiques et la rédaction des différentes sections de l'article.

Antonio Zadra : Soutien et supervision pour l'élaboration des hypothèses, l'interprétation des résultats et pour la rédaction de l'article. Révision et correction du manuscrit.

Sophie Parent : Soutien et supervision pour l'analyse des données et l'interprétation des résultats, révision du manuscrit.

Richard E. Tremblay : Révision du manuscrit.

Jean Séguin : Organisation et financement de la collecte de données, soutien et supervision pour l'élaboration des hypothèses, l'interprétation des résultats et pour la rédaction de l'article. Révision et correction du manuscrit.

Abstract

While it is well established that the frequency of disturbing dreams (DD) is associated with poor psychological well-being in adults, considerably less information exists on the psychosocial correlates of DD in children. It has been suggested that the association between DD and psychosocial adjustment may be moderated by negative emotionality, one subtype of temperament. This study, for the first time assesses the moderating effect of very early negative emotionality in the relation between DD frequency and psychosocial maladjustment (i.e., externalizing + internalizing behaviors) in children. One hundred and seventy-three 11 year-olds completed a self-report measure of DD frequency and their psychosocial maladjustment was appraised by teachers, fathers and the children themselves. Mothers had rated negative emotionality when the children were 17 months old. Mixed model analyses revealed that DD frequency was associated with some internalizing behaviors and that the association between DD frequency and most externalizing behaviors was moderated by very early negative emotionality. The latter results support the hypothesis that the relation between DD frequency and externalizing behaviors is significant for children with moderate negative emotionality but particularly strong in children with high negative emotionality. These findings highlight the potential clinical value of assessing disturbing dreams as part of the screening process for psychosocial difficulties in children.

Keywords: nightmares, bad dreams, dreaming, psychosocial adjustment, temperament

The Relation between Disturbing Dreams and Psychosocial Maladjustment in
Children: Extending Adult Literature and Exploring the Moderating Role of Early Negative
Emotionality

Up to 20% of children experience psychosocial adjustment problems (Essex et al., 2009) which are typically divided between externalizing and internalizing (Cicchetti & Toth, 1991), though these two types of problems have some common and unique risk factors (Bayer et al., 2011). It is well established that good sleep quality is associated with optimal development and, conversely, that poor sleep is related to both externalizing and internalizing problems (Alfano & Gamble, 2009; Alfano, Ginsburg, & Kingery, 2007; Aronen, Paavonen, Fjallberg, Soininen, & Torronen, 2000; Gregory et al., 2005; Gregory & O'Connor, 2002; Gregory, Rijdsdijk, Lau, Dahl, & Eley, 2009) although different sleep problems appear to be associated to different externalizing or internalizing problems (Alfano & Gamble, 2009). Sleep problems seem to explain a small but significant proportion of the variance of both externalizing and internalizing problems after controlling for other risk factors (Reid, Hong, & Wade, 2009). Among these sleep problems, disturbing dreams (DD; vivid dreams marked by intense negative emotions such as fear, anxiety and anger) are frequently experienced by children (Abdel-Khalek, 2006; Nielsen & Levin, 2007; Schredl, Biemelt, Roos, Dunkel, & Harris, 2008). While frequent DD, including bad dreams and nightmares, have been repeatedly associated with poor psychological well-being and increased psychopathology in clinical and nonclinical adult populations (see Levin & Nielsen, 2007 for a review),

considerably less information exists on their psychosocial maladjustment correlates in children.

A recent review of the childhood and adolescent literature indicates that the occurrence of frequent DD is associated with a range of difficulties (Gauchat, Séguin, & Zadra, 2014). First, DD frequency is associated with other sleep-related problems including sleepwalking, bruxism, sleep talking, sleep terrors, nighttime awakenings, and unwillingness to go to bed (Hawkins & Williams, 1992; Salzarulo & Chevalier, 1983; Schredl, Blomeyer, & Görlinger, 2000; Schredl, Fricke-Oerkermann, Mitschke, Wiater, & Lehmkuhl, 2009b; Shang, Gau, & Soong, 2006; Simonds & Parraga, 1982; Stein, Mendelsohn, Obermeyer, Amromin, & Benca, 2001). DD have also been linked to a range of specific problems including anxiety (Alfano & Gamble, 2009; Gregory & Eley, 2005; Mindell & Barrett, 2002; Nielsen, et al., 2000; Schredl, Pallmer, & Montasser, 1996; Simard, Nielsen, Tremblay, Boivin, & Montplaisir, 2008), low prosociality (Schredl, et al., 2009b; Smedje, Broman, & Hetta, 2001), academic problems (Schredl, et al., 2000), emotional excitability, being easily emotionally hurt (Fisher & Wilson, 1987), emotional symptoms (Schredl, et al., 2009b; Smedje, et al., 2001), as well as suicidal ideation and suicide attempts, (Liu, 2004; Roberts & Lennings, 2006).

Although many studies have documented relations between DD and internalizing problems, mainly anxiety, or have linked DD to poor global adjustment at school entry (Hawkins & Williams, 1992; Shang, et al., 2006; Stein, et al., 2001), few have examined DD in relation to externalizing behaviors. Some studies show that DD are associated with conduct disorders (Schredl, Fricke-Oerkermann, Mitschke, Wiater, & Lehmkuhl, 2009a) and

hyperactivity (Schredl, et al., 2009b), whereas other studies do not find these specific associations, although they do report a relation between DD and a total maladjustment score which includes externalizing problems (Smedje, et al., 2001). Thus, more work is needed to clarify the association between DD and externalizing problems

Several researchers have suggested that the relation between DD frequency and psychopathology in adults is likely influenced by nightmare-related distress (Belicki, 1992a, 1992b; Blagrove, Farmer, & Williams, 2004; Levin & Fireman, 2002; Levin & Nielsen, 2007), a manifestation of a broader construct known as affect distress, or the "disposition to experience events with distressing, highly reactive emotions" (Levin & Nielsen, 2007). In their model of DD production, Levin and Nielsen (2007) have proposed that this disposition to experience heightened distress and to react with extreme behavioral expressions may represent a temperament subtype. Affect distress would fall under the negative emotionality dimension of temperament (Rothbart, Ahadi, Hersey, & Fisher, 2001; Rothbart & Jones, 1998). In the developmental literature, negative emotionality encompasses individual differences in typical reactions to negative emotional experiences, which can be readily observed from birth (Sanson, Hemphill, & Smart, 2004). Negative emotionality or difficultness, has been related to psychosocial maladjustment throughout infancy and childhood (Clark, Watson, & Mineka, 1994) but recently more than the direct effect of temperament it is its moderating effect that has been mainly reported in the literature. Indeed, difficultness is already known to moderate relations between a variety of risk factors and children's behavior (Bush, Lengua, & Craig, 2010; Jessee, Mangelsdorf, Shigeto, & Wong, 2012; Pluess & Belsky, 2010; Veenstra, Oldehinkel, & De Winter, 2006). Some

temperamental characteristics may indeed predispose children to develop behavior problems, particularly when other risk factors are present (Karreman et al., 2010; Jessee, et al., 2012).

In sum, combining together Nielsen and Levin's (2007) model of disturbed dreaming production and the developmental temperament literature suggests that the link between the frequency of DD and psychosocial adaptation may differ as a function of a child's negative emotionality.

This hypothesized moderator effect of negative emotionality has never been tested. Further, there is a lack of data on the relation between DD and externalizing problems and most studies of DD in children suffer from one of the following three methodological limitations. First, DD frequency in children is often assessed through parent reports, despite the fact that this method has been shown to underestimate DD frequency in comparison to child self-reports (Mindell & Barrett, 2002; Schredl, et al., 2009a, 2009b). Second, many studies do not include any adjustment for possible confounding factors, such as risk factors common to both psychopathology and DD (e.g., socio-economic status or comorbid sleep problems), despite the fact that taking such factors into account has been shown to attenuate observed associations (Coulombe, Reid, Boyle, & Racine, 2010). Finally, although it is important to measure children's psychosocial maladjustment through multiple informants due to differences in child behavior across contexts (van der Ende, Verhulst, & Tiemeier, 2012), multiple informants have rarely been used in the reviewed studies (Gauchat, et al., 2014).

The goal of the present study was first to investigate the relationship between DD frequency and psychosocial maladjustment in children across a wide range of internalizing and externalizing behaviors, and second, to take into account the possible moderator effect of early

emotional negativity. Methodological shortcomings characteristic of many studies in the field were also addressed: (a) measures of DD frequency were obtained from the children themselves, (b) socio-economic status and co-morbid sleep disorders were taken into account in the analyses, and (c) children' psychosocial maladjustment was assessed through multiple informants. Two main and complementary predictions tested were: a) DD frequency will be positively associated with psychosocial maladjustment across several internalizing and externalizing behavioral domains; b) Negative emotionality will moderate this relation between measures of DD frequency and psychosocial maladjustment across several internalizing and externalizing behavioral domains. Specifically, we tested the alternative hypothesis that the association between DD frequency and internalizing and externalizing problems would be strengthened with increasing levels of negative emotionality.

Method

Participants

Participants were part of a longitudinal study focusing on the social, psychological, and cognitive development of children from urban socioeconomic backgrounds in the province of Québec, Canada. At the study's inception, 1000 families were randomly selected from the Québec 1996-1997 birth register (Santé Québec, 1997). Of these, 572 accepted to participate in the original study and were then assessed annually from the age of 5 months. Due to annual attrition, variability in the participants' year to year availability for data collection, and funding constraints which limited the capacity to follow-up all families, a total of 173 children (comprised equally of boys and girls) completed the present study (mean age

=11.4 years, SD = 0.1). These 173 children did not differ from the remainder of the original 572 five month-old children in terms of their socio economic level, including family income ($p=.68$), family type (single parent or not; $p=.57$), maternal level of education ($p=.33$), or age 17 months negative emotionality ($p=.54$). They did not differ on other behavioral measures at 17 months in term of hyperactivity ($p= .73$); inattention ($p=.89$); emotional troubles ($p=.77$); anxiety ($p=.74$); physical aggression ($p=.71$), except for opposition with children in the current sample being a little less oppositional ($M= 3.2$; $SD= 1$) than the remainder of the sample ($M=3.5$; $SD= 1.1$); $t= 2.8$; $p<.05$.

Questionnaires and Measures

Assessment of Disturbing Dreams. Participants from this longitudinal sample self-reported about their DD for the first time at 11 years. The instructions to children referred to DD using the expression “bad dreams” (defined as very disturbing dreams) because the term DD was too unfamiliar to them given their age. Children were required to answer the question: “On average, how frequently do you have bad dreams?” using the following choices: “Never” “Sometimes”, “Often”, “Always”, or “Don’t know.” Participants reporting bad dreams were also asked to estimate the number of bad dreams experienced over the past month. For children who reported “never” in the previous question, number of bad dreams was coded as 0 while maximum frequency was set at 30 (i.e., 1 DD/day) to limit the impact of potential outliers. A one-month retrospective frequency estimate was used instead of a one year estimate as it has been shown to correspond more closely to prospectively collected log-based frequency measures of DD from the same individuals (Robert & Zadra, 2008; Zadra & Donderi, 2000).

Measures of psychosocial maladjustment. Psychosocial maladjustment was measured using a battery of validated scales (Baillargeon et al., 2007; Gauchat, Zadra, Tremblay, Zelazo, & Séguin, 2009; Vaillancourt, Miller, Fagbemi, Côté, & Tremblay, 2007) drawn from various instruments. Some scales from the Preschool Behavior Questionnaire (Tremblay, Vitaro, Gagnon, Piché, & et al., 1992), the Child Behavior Checklist (Achenbach, 1999) and the Reactive and Proactive Aggression Questionnaire (Dodge & Coie, 1987) were used to create the questionnaire. The scales included measures of both internalizing problems: anxiety (4 items, e.g., being nervous, high-strung or tense), social withdrawal (3 items, e.g., prefers to play alone rather than with other children), and emotional problems (3 items, e.g., has trouble enjoying him or herself); and externalizing problems: opposition (3 items, e.g., punishment doesn't change the child's behavior), physical aggression (4 items, e.g., physically aggresses people), reactive aggression (4 items, e.g., reacts aggressively when someone takes a personal belonging, for example by hitting, pushing or slapping another child), proactive aggression (3 items, e.g., scares other children to get what is wanted), indirect aggression (3 items, e.g., when angry at someone, tries to get others to dislike the other person), ADHD symptoms (7 items, e.g., cannot settle on anything for more than a few moments; is impulsive / acts without thinking; is inattentive). These validated scales have been shown to be sensitive to various environmental, familial and perinatal risk and protective factors (Huijbregts, Seguin, Zoccolillo, Boivin, & Tremblay, 2008) as well as to early sleep patterns (Touchette et al., 2007). At age 11 the instrument was completed by the participants themselves as well as by each child's father and teacher in order to get a complete description of their difficulties

across social context. Questions for the child version were read to them by the research assistant and they could record answers confidentially.

Covariables.

Socioeconomic status. Three variables were used to evaluate each family's socioeconomic status family income (continuous variable), level of maternal education (dichotomous variable, with a high level being defined as having a secondary school diploma or higher), and whether or not the child was in a single parent family (dichotomous variable).

Sleep. Two sleep-related variables were included: Sleepwalking, since this sleep disorder has been repeatedly associated with DD (Fisher & Wilson, 1987; Hawkins & Williams, 1992; Li et al., 2011; Schredl, et al., 2000; Shang, et al., 2006) and daytime somnolence because poor sleep quality (which usually leads to daytime somnolence) is associated with poor mood and behaviors (Alfano & Gamble, 2009; Touchette, et al., 2007; Touchette, Petit, Tremblay, & Montplaisir, 2009). Two questions to the mother were “Does your child sleepwalk in his/her sleep?” and “In general, is your child sleepy during the day?” Both could be answered with “Never”, “Sometimes”, “Often” or “Always”.

Negative emotionality. Negative emotionality was assessed at 17 months with a shortened scale developed by Vitaro and colleagues (Vitaro, Barker, Boivin, Brendgen, & Tremblay, 2006) of the original fussy/difficult temperament scale developed by Bates and colleagues (Bates, Freeland, & Lounsbury, 1979) (example of item: intensity of the child's protest). This seven item scale was completed by the mother which avoids a shared-method variance problem with the informants who completed the psychosocial adjustment measures

(Vitaro, et al., 2006). The measure of negative emotionality used in the present study showed good internal consistency with a Cronbach alpha of .71.

Procedure

Each parent or person responsible for the child received an invitation by mail to participate in the study along with a consent form. Appointments were then scheduled where research assistants met the caregivers and children. The study was approved by the Research Ethics Committee of the CHU Ste-Justine Research Center and the study protocol also complied with the ethical guidelines of the American Psychological Association ("Ethical Principles of Psychologists and Code of Conduct.," 2002).

Analyses

Model used: Mixed-effects model analyses were estimated in SPSS (Version 18) to investigate relationships between DD and dimensions of psychosocial maladjustment. Responses provided by the three informants (child, teacher and father) were included for each psychosocial maladjustment scale within the mixed-effects models where each of the informants represents a repeated component. A mixed-effects model as opposed to a traditional repeated-measure ANOVA allows for an unbalanced design. In a mixed-effects model, if one or two informants are missing, the other informants are still included in the analyses, whereas traditional repeated-measures ANOVA requires data from all three informants for each participant entered in the analyses. Thus the mixed effect model actually uses all the available information for parameter estimation (Statistical Package for the Social Sciences). Responses were available from all three informants for 78 participants (42.6%), from the child and teacher for 38 participants (22%), from the child and father for 32

participants (18.6%), and only from the child in 32 cases (18.6%). There was no systematic pattern of missing responses related to child behavior outcomes.

Preliminary analyses: Sex differences on DD frequency measures were assessed with T-tests. Potential a priori covariates were selected for inclusion in the analyses on an empirical basis in order to enter only meaningful variables and avoid loss of power (Tabachnick, 1996) as it has been done in other studies (Jessee et al., 2012).

This was done by first computing correlations or ANOVAs between potential control variables (SES, sleepwalking, somnolence) and outcome variables to determine which control variables should be entered as fixed effects for which outcome measures. If a potential control variable was related to an outcome variable (at $p \leq .05$) assessed by at least one of the informants, it was entered in the analysis. Maternal level of education was thus entered in the analyses for anxiety, physical aggression, ADHD symptoms, and opposition whereas family income was entered in the analyses for anxiety, ADHD symptoms and opposition (for all those variables a higher socio economic status was linked to less psychosocial maladjustment). The family type and sleep disorder variables were not related to any of the psychosocial maladjustment measures. Whenever interactions between two variables were not significant, the interaction term was removed from the analytical model and only the main effect was tested.

Our two hypotheses were tested using a mixed-effects model for each psychosocial maladjustment problem. Informant source and child sex were always entered as fixed effects. Interactions between DD measures and child sex or informant source were tested since children's behaviors can be perceived differently at school versus at home and because

behavioral difficulties differ between boys and girls (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003; van der Ende et al., 2012) resulting in differences in observed associations between DD and behavioral difficulties as a function of context and sex.

Interactions between DD and negative emotionality were investigated to test the second hypothesis which proposed that early negative emotionality moderates the relationship between DD frequency and psychosocial maladjustment. DD frequency and negative emotionality were centered.

Results

Descriptive statistics

Of the 173 children that completed the questionnaires, 129 (82.7%) reported experiencing at least one DD per month. The mean frequency of DD reported per month by the entire sample was 3.6 ($SD = 5.3$), with 12 % of the sample having 10 or more DD per month. A significantly greater proportion of girls (88.7%) reported having at least one DD in the last month than did boys (76.3%), $\chi^2=4.21, p<.05$. However, there were no significant sex differences in the actual number of DD experienced in the past month. Correlations between informant pairs on measures of psychosocial maladjustment ranged from .01 (proactive aggression; fathers and teachers) to .54 (ADHD symptoms; fathers and teachers) with a mean correlation of .27. None of the interactions with informants were significant negative emotionality was not correlated to DD ($r=.04; p=.58$).

Before testing the moderating effect of negative emotionality, we examined its correlation with DD to determine if it met criteria for moderation analysis. DD and negative emotionality were not correlated ($r=.04; p=.58$). We also examined associations between

negative emotionality and outcome variables. Correlations ranged from .03 to .07 with a mean of .05 for internalizing behaviors, and they ranged from .05 to .20 with a mean of .09 for externalizing behaviors. None of those correlations were significant except the one between emotional negativity and physical aggression ($r=.19$; $p\leq.05$).

Associations between DD frequency and internalizing behaviors.

When considering internalizing behaviors, none of the interactions between DD and temperament were significant (all $ps >.50$). They were therefore removed from the models. Table 1 shows main effects and effect sizes for the association between DD frequency and internalizing problems once control variables were included in the statistical models. DD frequency was positively related to 2 of the 3 measures of internalizing behaviors (social withdrawal and emotional problems), with Cohen’s d statistics of effect size in the small to medium range (Cohen, 1992). This partially supports the first hypothesis.

Table 1. *Main Effects of DD Frequency on Internalizing Problems*

Variables	<i>F</i>	<i>df(v1,v2)</i>	<i>p</i>	<i>d</i>
Social withdrawal	5.26	1,141.75	.02	.39
Emotional problems	9.17	1,175.91	.003	.45
Anxiety	2.89	1,131.75	.09	.30

Associations between DD frequency and externalizing behaviors

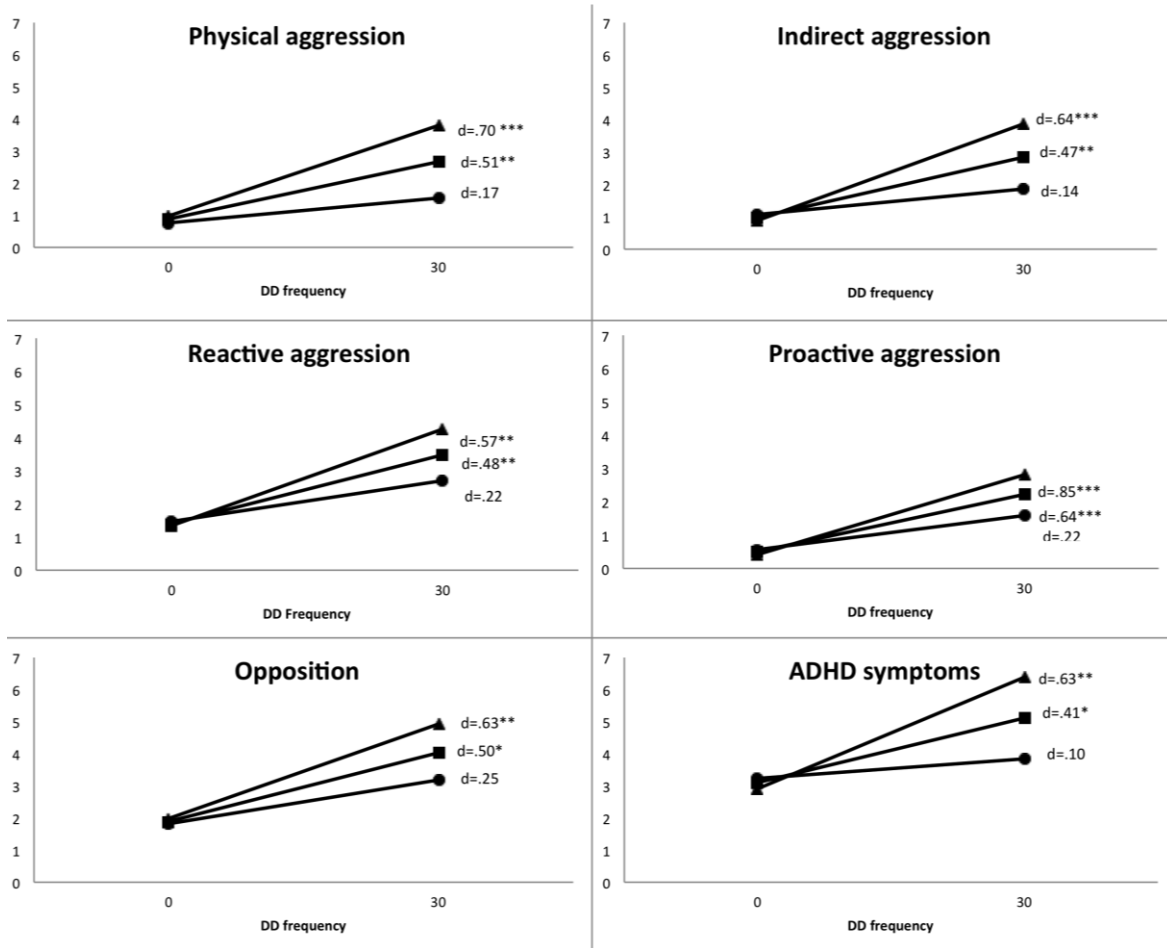
The interaction term between emotional negativity and DD was kept in all models examining externalizing behaviors because p values were consistently below .13 (between

.001 for proactive aggression and .13 for opposition). Table 2 presents results of the analyses of main effects and interactions for each externalizing behaviors. Figure 1 plots these interactions using the method proposed by Aiken and West (1991) by showing the strength of association between DD frequency and each externalizing behavior as a function of negative emotionality, with the effect sizes for the relation between DD and each dimension of externalizing behaviors plotted as a function of negative emotionality level (low, average or high). As can be seen, the pattern of interactions was highly consistent across dimensions of externalizing behaviors, where associations between frequency of DD and externalizing behaviors were systematically positive and significant for children with moderate to high levels of negative emotionality. For these children, effect sizes were medium to large, ranging from $d = .41$ to $d = .85$ (Cohen, 1992). This partially supports the second hypothesis.

Table 2. *Main Effects of DD Frequency and Interactions with Early Negative Emotionality for each Externalizing Behavior Problem*

Variables	Main effects of DD				Main effects of negative emotionality				Interaction between DD and negative emotionality			
	<i>F</i>	<i>df(v1,v2)</i>	<i>p</i>	<i>d</i>	<i>F</i>	<i>df(v1,v2)</i>	<i>p</i>	<i>d</i>	<i>F</i>	<i>df(v1,v2)</i>	<i>p</i>	<i>d</i>
Indirect aggression	.85	1,160.9	.36	0.14	.59	1,160.1	.44	.12	6.64	1,154.8	.01	.41
Physical aggression	.68	1,136.9	.41	.14	.48	1,125.1	.49	.12	6.21	1,129.1	.01	.44
Reactive aggression	.42	1,160.2	.52	.10	.36	1,154.7	.55	.09	4.25	1,152	.04	.33
Proactive aggression	.10	1,140.79	.33	.05	1.69	1,138.2	.19	.22	9.41	1,134.1	.003	.53
ADHD symptoms	1.03	1,129.9	.31	.17	.51	1,118.2	.48	.13	5.69	1,120.1	.02	.44
Opposition	.01	1,127.9	.97	.02	.34	1,114.9	.56	.10	2.34	1,117.5	.13	.28

Figure 1. Strength of Association Between DD and Externalizing Behaviors as a Function of Negative Emotionality



Notes.

● Low Negative Emotionality (-1SD) ■ Average Negative Emotionality ▲ High Negative Emotionality (+1SD)

Externalizing behaviors are standardized across a range from 0-7.

Discussion

The results of the present study partially support our predictions that DD frequency would be positively associated with psychosocial maladjustment in children and that early emotional negativity would moderate this relationship. In line with previous adult and childhood literature in the field, DD frequency was positively related to psychosocial maladjustment of the internalizing type: children with higher DD frequency scored higher on two out of three measures of internalizing problems (i.e., emotional problems and social withdrawal) across informants. The fact that none of the interactions with informants were significant shows that despite contextual differences in behaviors, the association between DD and psychosocial maladjustment is robust and did not differ as a function of informant source.

The associations between DD frequency and internalizing behaviors remained significant even after adjusting for socioeconomic and sleep-related variables. That DD in children were associated with a range of internalizing problems (e.g., emotional problems and social withdrawal), is consistent with findings reported in children and adult populations (for a review see: Gauchat & Zadra, 2014; Levin & Nielsen, 2007). However, unlike some reports, DD frequency in the present study was not significantly related to anxiety. The effect size for this relation ($d = .30$) was too small to reach statistical significance given our sample size; by comparison, effect sizes in previous studies have ranged between .20 and .72 (M $d=.53$) (Gregory & Eley, 2005; Nielsen, et al., 2000; Schredl, et al., 1996). Differences in measures of anxiety themselves (e.g., source of informant, symptoms scale versus clinical diagnosis) may also partially account for this.

The finding that negative emotionality specifically moderated the relationship between DD and externalizing behaviors is new. In fact, this is the first study to document that DD in children with early moderate to high emotional negativity are strongly associated to externalizing behaviors (with corresponding ds ranging between .60 and .90). The consistency of results across externalizing problems may be due to a common underlying factor (Castellanos-Ryan & Conrod, 2011; Krueger et al., 2002). How the relation between frequent DD and externalizing behaviors in children with a history of moderate to elevated negative emotionality evolves over time remains to be clarified. However, some studies of early emotional negativity has been shown to moderate other associations implicating later externalizing behaviors, such as the relation between early child care and externalizing behaviors during adolescence (Belsky & Pluess, 2012). Consequently, and in the absence of a concurrent a measure of negative emotionality, this long-term effect noted across several studies also supports the hypothesis that negative emotionality is a relatively stable developmental characteristic.

Overall, our results suggest that DD are linked to both externalizing and internalizing behavior difficulties, with one exception: DD are not related to externalizing difficulties in children who are low on emotional negativity. In fact, our results show that the hypothesized moderator effect of emotional negativity is valid specifically for externalizing problems. In order to clarify the meaning of the absence of a moderator effect on internalizing problems, it may be useful to return to the measure of emotional negativity used in the present study. Our measure of emotional negativity at 17 months may not have been sensitive to the complete spectrum of manifestations for affect distress. For example, in contrast to observations in

infants, studies have shown that toddlers high in emotional reactivity are more likely to manifest their reactivity through inhibition or withdrawal (Kagan, & Snidman, 1991a; Kagan, & Snidman, 1991b). These behavioral manifestations have been associated with later proneness to internalizing difficulties (Chronis-Tuscano et al., 2009; Fox, Henderson, Rubin, Calkins, & Schmidt, 2001; Prior, Smart, Sanson, & Oberklaid, 2000). Our measure of emotional negativity did not include items specifically formulated to detect these behavioral manifestations of emotional reactivity, which might explain why it did not correlate with, or moderate, later internalizing difficulties. Thus, our measure may be more sensitive to behavioral manifestations of toddlers' "affect distress" that are linked to later externalizing problems than to subsequent internalizing problems.

The correlational nature of our study does not allow us to draw conclusions about the direction of the link between DD and psychosocial adjustment. On the one hand, it is possible that DD have an impact on psychosocial adjustment as it has been shown that DD can have an impact on the dreamer's state the following day (Lancee & Schrijnemaekers, 2013). Frequent DD in children could similarly result in negative emotions and distress during wakefulness much like the nightmare-related distress documented in adults (Belicki, 1992a; Blagrove, et al., 2004; Levin & Nielsen, 2007). Thus, it is possible that repeated and negative experiencing of DD elicits negative reactive emotions during wakefulness. On the other hand, it is also possible that psychosocial adjustment problems and related perceived stress may have an impact on the frequency of DD (Levin & Nielsen, 2007). In this case DD would reflect issues and concerns experienced during wakefulness. Alternatively, it is possible that a third variable explains the relation between DD and psychosocial adjustment. This would be consistent with

suggestions that DD represent a failure in the emotional regulation function believed to occur during normal dreaming (Agargun & Cartwright, 2003; Cartwright, Agargun, Kirkby, & Friedman, 2006; Rosalind Cartwright, Young, Mercer, & Bears, 1998; R. D. Cartwright, 1991; Kramer, 1991, 1993). Psychosocial maladjustment problems are also known to be related to problems in emotional regulation (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Eisenberg et al., 2001). As discussed earlier, this interpretation would be consistent with the hypothesis of a moderator effect of emotional negativity and DD on psychosocial adjustment. While our study has some key strengths including the use of an early measure of negative emotionality, control variables, and multiple informants for the assessment of psychosocial maladjustment, it also has some shortcomings. With the exception of the children's early emotional negativity measure, this was essentially a cross-sectional correlational study and as such it cannot address the developmental sequence with regards to DD and psychosocial maladjustment.

Longitudinal studies are needed to clarify the nature and time course of DD in relation to psychosocial maladjustment. Also, as has been done in adults, the inclusion of measures of potentially more severe forms of maladjustment such as suicidality (which emerges in early adolescence) may be helpful as suicidal ideation has been linked to both internal distress and externalizing behaviors such as impulsivity and conduct disorders (Dougherty et al., 2004; Dumais et al., 2005; Gould, Greenberg, Velting, & Shaffer, 2003; Simon et al., 2001). In addition, the study of other moderator variables could further our understanding of these complex developmental issues. Disorganized attachment, for instance, is a promising candidate as it has been related to both externalizing behaviors and DD and could play a

moderator role (Csoka, Simor, Szabo, Kopp, & Bodizs, 2011; van Ijzendoorn, Schuengel, & Bakermans-Kranenburg, 1999). In fact, one retrospective study of adults found a positive association between early mother separation and negative dream affect (Csoka, et al., 2011).

From a clinical perspective, these findings suggest that DD frequency in children may be indicative of more global problems related to their psychosocial adjustment. The inclusion of an item on DD in screening instruments could represent a simple and useful complementary avenue in the assessment of psychosocial difficulties in children. Determining the added clinical value of such screening instrument requires further study.

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2.2.2 Transition entre les articles 2 et 3

Ce second article démontre que les rêves dysphoriques chez les enfants sont liés à l'ajustement psychosocial. En effet, dans cette étude, la fréquence des rêves dysphoriques chez les enfants est associée non seulement aux troubles intériorisés, mais aussi aux troubles extériorisés. Toutefois, dans les cas des troubles extériorisés, l'émotivité négative joue un rôle de modérateur.

Les rêves récurrents constituent une autre catégorie de troubles oniriques qui a été associée avec des problèmes d'ajustement chez les adultes. Les rêves récurrents touchent environ les deux tiers des adultes à un moment de leur vie et sont principalement de tonalité négative. Lorsque les adultes sont questionnés sur leurs rêves récurrents d'enfance, ils rapportent qu'ils sont particulièrement à caractère négatif et qu'ils contiennent des situations menaçantes, mais aucune étude à ce jour n'a questionné directement des enfants au sujet de leurs rêves récurrents. Dans le troisième article de cette thèse, nous avons voulu questionner des enfants et des jeunes adolescents sur leurs rêves récurrents afin d'en connaître plus sur la prévalence de ce type de rêve, leur contenu et leur valence émotionnelle.

2.3 Troisième article

The content of recurrent dreams in children

Aline Gauchat,¹ Jean R. Séguin,^{2,3} Esther McSween-Cadieux,¹ Richard E.

Tremblay,^{1,2} Antonio Zadra¹

¹Université de Montréal

²International Laboratory for Child and Adolescent Mental Health Development; University
College, Dublin

³Ste-Justine Hospital Research Center

Objectifs spécifiques de cet article: Décrire les rêves récurrents des enfants et des adolescents. Examiner leur prévalence, leur contenu et leur valence émotionnelle. De plus, les différences entre les garçons et les filles seront examinées.

Statut : en préparation

Contribution des auteurs

Aline Gauchat : Élaboration de l'article incluant la recension des écrits, l'analyse et l'interprétation des résultats, la préparation des tableaux et la rédaction des différentes sections du manuscrit.

Jean Séguin : Organisation et financement de la collecte de données, soutien et supervision pour l'élaboration des hypothèses, l'interprétation des résultats et pour la rédaction de l'article, révision et correction du manuscrit.

Esther Mc Sween-Cadioux : Cotations des rêves, entrée et analyse des données.

Antonio Zadra : Conceptualisation de l'article, soutien à l'analyse des données et à l'interprétation des résultats, rédaction de certaines sections de l'article et correction du manuscrit.

Abstract

Although recurrent dreams are relatively common experiences in adults and children alike, relatively little is known about their actual contents. Studies on children's recurrent dreams have been largely descriptive and based on adults' recollections of recurrent dreams experienced during childhood. We collected 102 reports of recurrent dreams from a sample of children aged between 11 and 15 years and scored the dream narratives using a range of content measures. Prevalence of youth reporting RD dropped from 35.5 at 11 years to 15.4% at 15 years. Content analyses revealed that the most frequently reported themes involving confrontations with monsters or animals, followed by, physical aggressions, falling, and being chased. Recurrent dreams were more likely to include negative content elements (e.g., negative emotions, misfortunes, aggressions) than positive elements (e.g., positive emotions, good fortunes, friendliness). Differences between the content of recurrent dreams reported by children and those reported by adults are discussed as are possible sex effects and key issues that remain to be addressed by future research.

Keywords: Recurrent dreams; dream content; parasomnia; sex differences

Introduction

Many kinds of contemporary dream theories converge in their view that recurrent dreams are related to unresolved difficulties in the dreamer's life (e.g., Bonime, 1962; Domhoff, 1993; Fantz, 1978; Freud, & Loew, 1987) and researchers have shown that the occurrence of recurrent dreams during adulthood is associated with stressors and lowered levels of psychological well-being (Cartwright et al. 1984; Robbins and Houshi, 1983; Brown and Donderi, 1986; Zadra et al, 1998). Similarly, one study of 11-year-old children found that the presence of recurrent dreams was associated with emotional difficulties in boys although not necessarily in girls (Gauchat et al, 2009).

Although recurrent dreams are relatively common, with 60% to 75% adults reporting having had one at some point in their lives (Cartwright, 1979; Cartwright & Romanek 1978; Robbins & Houshi, 1983; Brown & Donderi, 1986; Robbins & Tanck, 1992; Webb & Fagan, 1993; Zadra, 1996), relatively little is known about their actual contents, especially in children and young adolescents.

A majority of recurrent dreams experienced during adulthood are described as being negatively toned (Cartwright, 1979; Robbins and Tanck, 1992; Zadra, 1996; Zadra et al, 2006) and questionnaire studies of adults' retrospective accounts of recurrent dreams experienced during childhood show that almost 90% are described as being unpleasant or of a threatening nature (Cartwright, 1979; Robbins & Tanck, 1992; Zadra 1996). In addition, two studies (Cartwright, 1979; Robbins and Tanck, 1992) of retrospective accounts of childhood recurrent dreams showed that in approximately 70% of cases, the dreams' unpleasant content was attributable to agents external to the dreamer, such as monsters and witches. Both studies also found that as people grow older, fewer recurrent dreams are reported as having threatening contents. Further comparisons of recurrent dreams reported by adults as having occurred either during one's childhood or adulthood showed

that although the themes related to “being chased” were common in adult as well as childhood recurrent dreams, the threatening agents in the former were usually human characters, whereas monsters, wild animals, or ghoulish creatures predominated in the latter (Robbins & Tanck, 1992; Zadra, 1996). Finally, non-threatening contents (e.g., descriptions of places, mundane activities, or acquaintances without any immediate danger to the dreamer) characterized up to 40% of adult recurrent dreams while these kinds of dreams occurred in only 10% to 15% of childhood recurrent dreams.

Although the aforementioned findings are of empirical and theoretical interest, adults’ retrospective accounts of dream-related experiences experienced during childhood can be biased or distorted by selective or faulty recall. To our knowledge, no study has directly investigated the content of recurrent dreams by questioning children directly. The goal of the present study was thus to obtain a more detailed and accurate account of recurrent dreams as reported by children between the ages of 11 and 15. This age range is of particular interest as it represents a time period during which dream recall tends to improve in quality and quantity and resemble that of adults (Foulkes, 1982; Foulkes, 1999; Siegel, 2005; Sándora, Szakadáta, Bódizs; 2014).

Method

Participants

Participants were obtained from a longitudinal study focusing on social, psychological and cognitive development of children in the province of Québec, Canada and came from all socioeconomic backgrounds of the urban areas of Montreal and Québec City. At the study’s outset, 1000 families were randomly selected from the Québec 1996-1997 birth register (details on the epidemiological sampling plan can be found in Santé Québec, 1997). The initial sample of participants was comprised of 572 children who were seen annually, the majority since the

age of 5 months. Due to annual attrition and year-to-year variations in participation rates, 173 children (87 girls, 86 boys) participated in the study at age 11 while variations in the number of subjects available for scheduled periods of yearly data collection resulted in 216 children (112 girls, 104 boys) being available at age 12, 148 (75 girls, 73 boys) at age 13, 194 (100 girls, 94 boys) at age 14, and 208 (108 girls, 100 boys) at 15 years of age.

Questionnaires and Measures

Assessment of recurrent dreams. Children completed a sleep and dream-related questionnaire that contained a question on whether or not they had ever experienced a recurrent dream (defined as a dream that when recalled, gives you the impression that you had it before) in the past 12 months. If so, the child was asked to provide a detailed description of the dream, including the surroundings in which the dream took place, the people or things involved, the ending (if there was one), and any other details they thought were important.

Thematic content. Categories for the classification of the thematic content of recurrent dreams was based on the recurrent dream themes previously reported in the clinical empirical literature as well as pilot testing. Whenever possible, conceptually related categories used in previous studies were grouped to avoid overlap and only categories capturing more than 2% of the narratives' content were retained. Table 1 presents the final 12 thematic categories used to classify the recurrent dream narratives. When dream reports contained more than one theme, raters had the option of identifying a secondary theme if its occurrence was not the direct consequence of the main theme (e.g., a character becomes ill only after being physically attacked).

Dream content. Since a majority of children's dream reports did not make explicit mention of specific emotions (e.g., fear, anger, sadness), the overall emotional tone of each

recurrent dream narrative was scored as being primarily positive, negative, neutral, or a combination of positive and negative emotions instead of as a function of specific subtypes of emotions.

The following variables from the Hall and Van de Castle (1966) coding system were also scored. *Good fortune and misfortune*. Good fortune is scored when something beneficial happens to a character that is completely adventitious while misfortunes refer to any mishap, adversity, harm, danger, or threat that happens to a character as a result of circumstances over which they have no control. *Success and failure*. These variables measure the successful handling of some difficulty encountered by a character or an incapacity of the character to achieve a desired goal because of personal limitations and inadequacies. *Friendly and aggressive interactions*. This scale measures the frequency of emotionally-toned social interactions.

Table 1. *Classification of thematic categories in children's recurrent dreams*

Theme	Description
Being chased	Dreamer being chased by another character but not physically attacked.
Being alone or lost	Dreamer is alone and/or lost in the dream.
Physical aggression	Threat or direct attack to one's physical integrity by another character, including sexual aggression, murder, being kidnapped or sequestered.
Falling	Feeling of falling in mid-air, falling off cliffs or from other elevated objects.
Fire	Dreamer notices or is caught in a fire or sees an object (e.g., car, house) on fire.
Car accidents	The dreamer or another character is involved in a car accident.
Contact with strangers	Dreamer encounters one or more unknown characters with ensuing action unrelated to another thematic category.
Death in the family	Witnessing or learning about the death of a family member.
Confrontation with monsters, animals or zombies	Dreamer is confronted by monsters, animals, zombies or similar creatures.
The dreamer is injured or ill	The dreamer is facing illness or injuries.
Stranger entering the dreamer's house	A stranger is breaking into the dreamer's house or trying to enter it.
Being late or lost	The dreamer is late or lost or in danger of being late or lost.
Others	Includes idiosyncratic as well as infrequent themes such as being in an insalubrious environment, flying out of control, and facing natural forces.

An invitation to participate in the study along with a consent form was first mailed to the parents or person responsible for the child. After consenting to the study, a research coordinator made an appointment with the family. A research assistant then met with each child and read the study questions to the child. Children were told that their answers were confidential and that they could ask for clarifications whenever needed. All reports of recurrent dreams were recorded and transcribed for further analyses. The project was approved by the Research Ethics Committee of the CHU Ste-Justine Research Center and conforms to the guidelines of the American Psychological Association (2002).

Results

Over one third of participants (35.3%) reported having had a recurrent dream over the past year at age 11, while the proportion decreased to 20.9% at age 12, 12.2% at age 13, and 18.3% at 14, and 15.4% at 15. The only significant sex difference in the proportion of boys and girls reporting a recurrent dream occurred at age 13, with significantly more boys (17.3%) than girls (6.8%) reporting having had a recurrent dream ($\chi^2 = 3.81, p < .05$). A total of 102 recurrent dream reports were collected, 71 (69.6%) from girls and 31 (30.4%) from boys. The mean number of words per dream narrative was 50.5 ± 24.2 words with no significant differences in report length as a function of sex. Almost a third (35.3%) of the 102 recurrent dreams reports collected were reported at age 11, while 27.4% were collected at age 12, 10.7% at age 13, 12.7 % at age 14, and 13.7% at age 15.

In terms of thematic content, 57.9% of the dream reports contained a single theme and 42.1 % contained two or more. The distribution of thematic categories across the recurrent dreams reported by boys and girls are presented in Table 2. Themes involving confrontations with monsters, animals or zombies were the most frequently reported category followed by

physical aggressions, falling, and being chased. Themes involving car accidents occurred in 6.9% of the recurrent dreams reported by boys as well as girls while the theme of being chased but not physically attacked was reported by 6.5% of the boys and 11.3% of the girls.. All other themes appeared in fewer than 6% of the narratives. Finer analyses of thematic contents as a function of age and sex were not further explored since these breakdowns resulted in too many categories having zero frequency counts and with over two thirds of all data cells containing n values ≤ 5 . Moreover, in addition to not being amenable to statistical analyses, the data showed no discernable patterns in observed frequency distributions.

The proportion of recurrent dreams from boys and girls described as having a positive or negative emotional valence as well as the results from the Hall and Van de Castle (1966) content variables are presented in Table 3. As can be seen in Table 3, children's recurrent dreams were more likely to contain negative content elements (e.g., negative emotions, misfortunes, aggressions) than positive elements (e.g., positive emotions, good fortunes, friendliness). In fact, good fortunes were entirely absent from the present data set while instances of success and positive emotions were noted in fewer than 10% of all narratives. Although a comparable proportion of recurrent dreams from boys and girls were found to contain aggressive social interactions, those reported by girls were significantly more likely to contain one or more friendly interactions. There were no other statistically significant sex-related differences in the content of the dream narratives.

Table 2.

Thematic content of boy's and girl's recurrent dreams themes

Theme	Boys N=31 (%)	Girls N=71 (%)	Total N=102 (%)
Confronting monsters/animals /zombies	29.0	23.9	25.4
Physical aggression	22.6	16.9	18.6
Falling	16.1	7.0	9.8
Being chased	6.5	11.3	9.8
Contact with strangers	12.9	5.6	7.8
Car accident	6.5	7.0	6.9
Death of the dreamer	6.5	5.6	5.9
Family death	6.5	4.2	4.9
The dreamer is injured or ill	16.1	7.0	4.9
Stranger enters or tries to enter the dreamer's house	3.2	4.2	3.9
Being late or lost	0	3.0	2.9
Being stuck or trapped	6.5	1.4	2.9
Others	38.0	39.4	38.2

Table 3.

Emotional valence of recurrent dreams and proportion containing Hall & Van de Castle content categories

Content variable	Boys N=31 (%)	Girls N=71 (%)	Total N=102 (%)
Good fortune	0	0	0
Misfortune	25.8	26.8	26.5
Success	3.2	4.2	3.9
Failure	3.2	9.9	7.8
Friendliness	3.2	28.2	20.6*
Aggression	41.9	38.0	39.2
Positive emotions	6.5	9.9	8.8
Negative emotions	71.0	59.2	62.7
Neutral	22.5	26.7	25.5
Mixture of positive and negative emotions	0	4.2	2.9

* Significant difference between girls and boys, $\chi^2 = 8.21$; $p < .05$

Discussion

To our knowledge, this is the first study to have investigated the content of recurrent dreams directly reported by children as opposed to querying adults retrospectively about recurrent dreams they may recall having had during childhood. The prevalence of recurrent dreams in our sample ranged between 35% at age 11 and 15.4% at age 15. These values are lower than the results obtained by Robbins and Tanck (1992) who reported that a little over half of college students recalled having had a recurrent dream during childhood. Reasons for this discrepancy remain unclear.

Themes in which the dreamer is in danger (e.g., threatened with injury, death, or chased) have been found to characterize approximately 40% of recurrent dreams from adulthood (Cartwright, 1979; Cartwright & Romanek, 1978; Robbins & Houshi, 1983; Zadra, 1996; Zadra et al, 2006) and between 65% and 90% of recurrent dreams recalled by adults from their childhood (Robbins & Tanck, 1992; Zadra, 1996). Using the same broad content category, almost 80% of the present sample of recurrent dreams could be classified as containing themes in which the dreamer was in danger. In a majority of these cases, the dreamer was often fleeing, attempting to hide, or helplessly watching events unfold.

Turning to more specific content categories, the most frequently reported theme in the children's recurrent dreams involved confrontations with various kinds of monsters, animals and zombies. This finding is consistent with Robbins and Tanck's (1992) observation that threatening agents in childhood recurrent dreams often involved folkloric or fictional characters such as monsters and witches. The second most frequently reported theme involved physical aggressions in which the dreamer's physical integrity was directly threatened by another dream character. Although the extent to which children considered these recurrent dreams to be nightmares is not known, the fact that this content category is one of the most frequently reported themes in people's idiopathic nightmares (Robert & Zadra, 2014) speaks to the potential intensity of such negative dream imagery. That approximately 8% of the children's recurrent dreams involved encounters with strangers (but without the ensuing action being related to another thematic category) is a novel and interesting observation that may partially reflect children's growing exposure to and awareness of strangers in their everyday lives as well as a broadening of their social networks from early childhood into adolescence.

Several thematic content categories reported in studies of adult recurrent dreams were noticeably absent from the recurrent dreams collected from our 11 to 15-year-old children. These

included themes involving problems with house maintenance (e.g., the dreamer becomes overwhelmed by an inordinate number of household chores or discovers that the house is falling apart or in ruins), losing one's teeth, and being unable to find a private toilet.

Over 60% of the recurrent dreams reported by our participants were described as containing negative emotions, a percentage lower than the 80% to 90% found to characterize childhood recurrent dreams recalled by adults (Robbins and Tanck, 1992; Cartwright, 1979; Zadra, 1996). Moreover, almost a third of recurrent dreams collected in the present study were described without emotions being present or as affectively neutral (e.g., dreams involving mundane events, descriptions of places or settings, or of acquaintances). Taken together, these findings suggest that as people grow older, they are more likely to remember emotionally salient recurrent dreams from their childhood than relatively unexciting ones. That approximately 8% of the children's recurrent dreams contained only positive emotions is in line with the 6%-10% figure previously found in studies of adults reporting recurrent dreams from either adulthood or childhood (Cartwright, 1979; Zadra, 1996).

Results from the Hall and Van de Castle (1966) scales highlighted the predominance of negative content categories (i.e., misfortune, failure and aggressive social interactions) over their positive equivalents (i.e., good fortune, success and friendly social interactions). One striking result was that while friendly interactions were present in almost a third of girls' recurrent dreams, they occurred in fewer than 3% of the boys' recurrent dreams. Although we are not aware of any data pertaining to children's dream content that could help explain this finding, even if this difference is present, albeit to a lower extent, in the everyday dreams of normal children (Crugnola, Maggiolini, Caprin, De Martini, Giudici; 2008), a parallel may be drawn with a recent study (Robert & Zadra, 2014) showing that when compared to men's bad dreams, women's bad dreams are more frequently centered around interpersonal conflicts and

are twice as likely to contain friendly interactions. One may speculate that by ages 11-15 years, recurrent dreams experienced by young female adolescents may already be incorporating ongoing interpersonal concerns to a greater degree than do recurrent dreams experienced by boys of the same age, including a tendency to depict positive social interactions even in the context of potentially negatively-toned dreams. In fact, one recent review article suggests that it is between 9 and 14 years of age that children's dreams begin to resemble those of adults in terms of length, complexity and links with one's personality (Sándora, et al., 2014).

When compared to percentage values obtained from adults recalling recurrent dreams having occurred prior to age 12 (Zadra, 1996), the present sample of recurrent dreams contained fewer misfortunes (26.5% vs 43%) but more failures (7.8% vs 2%). Since misfortunes in dreams occur as a result of circumstances over which they have no control whereas failures result from a character's "personal limitations and inadequacies," these findings suggests that recurrent dreams from 11 to 15 year-old children are more likely to reflect issues of personal competence than do recurrent dreams from early childhood. Given that failures characterize and even greater percentage (approximately 17%) of adult recurrent dreams (Zadra, 1996), this hypothesis is consistent with Cartwright's (1979) suggestion that "as the subject grows, the responsibility in the repetitive dreams with an unpleasant tone is less often attributed to things beyond her control" (p.135).

This study is not without inherent limitations. First, the number of recurrent dreams collected was relatively small, especially with respect to boys. This limits the generalizability of the results as well as the robustness of any sex-related findings. Second, some dream reports contained too few details or were too vague to allow thorough content analysis as is usually performed with dream reports from daily dream journals. Finally, although dream reports were

collected from children aged 11-15, the small sample size precluded us from examining possible changes or trends as a function of age as well as gender.

To summarize, this study is the first to present results on the content of recurrent dreams collected directly from children and young adolescents. In addition to providing a global portrait of the themes and content characteristics their recurrent dreams, our findings reveal notable differences between the recurrent dreams of 11 to 15 year-olds and those of older adults. For instance, whereas threatening agents in adult recurrent dreams are typically human characters, children's recurrent dreams are much more likely to contain monsters, wild animals, and other types of ghoulish creatures. There is also growing evidence to suggest that people age and mature, their recurrent dreams are more likely to reflect issues of personal competence. To what extent the content of recurrent dreams may reflect personal doubts, interpersonal issues, or be a byproduct of direct experiences with books, stories, movies, or television remains to be clarified. Since recurrent dreams that appear in childhood can persist into adulthood, longitudinal investigations of how the content of such dreams may become altered over time (e.g., transitions from dreams of physical threats to dreams of personal doubt or incompetence) could shed light on the issue of how dream symbols or metaphors believed to depict problems or concerns in the dreamer's life (e.g., Lakoff, 1993) also change with age. Finally, much work remains to be done to elucidate why people in different age groups experience recurrent dreams, what psychosocial factors may help explain their occurrence, and to what extent different classes of recurrent dreams (e.g., negatively-toned versus positively-toned contents) show differential relations to waking measures of stress, mood, and psychological well-being.

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2.3.2 Transition entre les articles 3 et 4

Cet article avait comme objectif d'examiner le contenu des rêves récurrents chez les enfants, phénomène largement sous-étudié. On note que les rêves récurrents des enfants sont, comme ceux des adultes, en grande majorité négatifs; environ deux tiers d'entre eux sont négatifs alors que seulement 5 % sont positifs et les autres sont neutres. Leur prévalence tend à diminuer entre 11 et 15 ans, touchant entre 30 et 15 % des jeunes. Comme les rêves récurrents chez les adultes sont liés à la dépression, aux problèmes de vie, aux conflits et au bien-être psychologique, la quatrième étude de cette thèse examinera si les rêves récurrents sont liés à l'ajustement psychosocial chez les enfants.

2.4 Quatrième article

Recurrent dreams and psychosocial adjustment in pre-teenaged children

Aline Gauchat¹, Antonio Zadra¹, Richard E. Tremblay^{1,2,3}, Philip David Zelazo⁴,
and Jean R. Séguin^{3,5}

¹Department of Psychology, Université de Montréal

²Departments of Pediatrics, University of Montréal, Québec, Canada, International Laboratory for Child and Adolescent Mental Health Development, INSERM U669, Paris, France; School of Public Health, and University College, Dublin, Ireland, ³ Ste-Justine Hospital Research Center. ⁴ Institute of Child Development, University of Minnesota, ⁵Department of Psychiatry,

Université de Montréal

Montréal, Québec, Canada

Objectifs spécifiques de cet article : Tester l'hypothèse selon laquelle les rêves récurrents des enfants sont liés à leur ajustement psychosocial.

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Contribution des auteurs

Aline Gauchat : Élaboration de l'article incluant les hypothèses de travail, la recension des écrits, l'interprétation des résultats, la préparation des tableaux et la rédaction des différentes sections du manuscrit.

Antonio Zadra : Conceptualisation de l'article, soutien à l'analyse des données et à l'interprétation des résultats, supervision pour la rédaction et correction du manuscrit.

Richard R. Tremblay : Révision critique du manuscrit.

Philip David Zelazo : Révision critique du manuscrit.

Jean R. Séguin : Organisation et financement de la collecte de données, soutien et supervision pour l'élaboration des hypothèses, l'interprétation des résultats et pour la rédaction de l'article. Révision et correction du manuscrit.

Abstract

Research indicates that recurrent dreams in adults are associated with impoverished psychological well-being. Whether similar associations exist in children remains unknown. We hypothesized that children reporting recurrent dreams would show poorer psychosocial adjustment than children without recurrent dreams. 168 11-year-old children self-reported on their recurrent dreams and on measures of psychosocial adjustment. Although 35% of children reported having experienced a recurrent dream during the past year, our hypothesis was only partially supported. Multivariate analyses revealed a marginally significant interaction between gender and recurrent dream presence and a significant main effect of gender. Univariate analyses revealed that boys reporting recurrent dreams reported significantly higher scores on reactive aggression than those who did not ($d = 0.58$). This suggests that by age 11 years, the presence of recurrent dreams may already reflect underlying emotional difficulties in boys but not necessarily in girls. Challenges in addressing this developmental question are discussed.

Keywords: Recurrent dreams, children's dreams, psychosocial adjustment, aggression.

Recurrent dreams and psychosocial adjustment in children

Progressive and repetitive patterns of thematic dream development have been observed when a series of remembered dreams is recorded, either within a single night or over a succession of nights. Progressive-sequential patterns of dream content, in which problems are stated, worked on, and sometimes resolved are associated with greater subjective well-being (e.g., Cartwright et al, 1984; Cartwright, 1986; 1991; Kramer et al, 1964; Kramer, 1993) whereas repetitive patterns have long been conceptualized as reflecting a lack of progress in recognizing and resolving daytime emotional preoccupations (e.g., Bonime, 1962; Cartwright, 1991; Domhoff, 1993; Fantz, 1978; Fosshage & Loew, 1987). These results are consistent with those of case studies describing positive changes in repetitive dream elements (e.g., toward a progressive pattern) as a function of successful psychotherapy (e.g., Bonime, 1962; Maultsby & Gram, 1974; Rossi, 1985).

One type of dream that clearly exemplifies the notion of repetition in oneiric content is the recurrent dream which is distinguished by its repetition as a remembered experience. Although not always operationalized, recurrent dreams are typically defined by researchers as a class of dreams that reoccur over time while maintaining, not only the same theme, but the same content (Brown & Donderi, 1986; Heaton et al, 1998; Domhoff, 1993; Zadra, 1996; Zadra, Desjardins, Marcotte, 2006). Recurrent dreams, which may depict salient preoccupations or stressors metaphorically over time, are known to be primarily unpleasant in nature (Cartwright, 1979; Robbins & Houshi, 1983; Robbins & Tanck, 1991; Zadra, 1996) and various data support the theory that they are associated with psychological stasis or the presence of continuing emotional concerns.

Robbins and Houshi (1983) found that undergraduate students who reported having a recurrent dream had moderately significantly higher scores on the Beck Depression Inventory and reported a significantly greater number of problems in their daily lives (e.g., difficulties at school, conflicts with their parents) than did undergraduate students who did not have recurrent dreams.

Brown and Donderi (1986) compared adult recurrent dreamers with people who had never experienced a recurrent dream and with people whose old recurrent dream had not recurred for at least one year (past recurrent dreamers). Participants completed a battery of tests to measure psychological well-being (e.g., anxiety, depression, personal adjustment) and recorded a 14-day sample of their own remembered dreams. Recurrent dreamers scored consistently lower than the other groups on measures of well-being. By comparison, the past-recurrent dreamers scored consistently higher than those without recurrent dreams on indices of well-being, suggesting that the maintained cessation of recurrent dreaming reflects an upturn in well-being.

Using the same methodology as in Brown and Donderi (1986) to study a younger group of adults, Zadra et al. (1997) found that recurrent dreamers reported significantly higher levels of neuroticism, anxiety, depression, somatic symptomatology, and life-events stress, and significantly lower levels of personal adjustment.

Although very little descriptive or empirical research has been conducted on recurrent dreams over the past decade, the clinical and empirical findings reviewed above converge in indicating that repetitive dreams during adulthood may be reliable indicators of unresolved difficulties in the dreamer's life. The presence of recurrent dreams has never been directly

assessed in children and thus whether similar associations exist in younger populations remains unknown. Extrapolating from the adult literature, one could hypothesize that children reporting recurrent dreams would score lower on measures of psychosocial adjustment than children without recurrent dreams.

The goal of the present study was to test this hypothesis by determining if a link between psychosocial functioning and the presence of recurrent dreams could be observed in 11-year-old children. Since the prevalence of many behavioral problems differs as a function of gender (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003), we expected that associations between the presence of recurrent dreams and specific behavioral problems would differ between boys and girls, with boys showing a greater association with externalizing problems and girls with internalizing problems.

Method

Participants

Participants were obtained from a longitudinal study focusing on social, psychological, and cognitive development of children in the province of Québec, Canada. The children come from all socioeconomic backgrounds of the urban areas of Montreal and Québec City. At the study's inception, 1000 families were randomly selected from the Québec 1996-1997 birth register (details on the epidemiological sampling plan can be found in Santé Québec, 1997). The initial sample that accepted to participate in the study was comprised of 572 children who were seen annually, the majority since the age of 5 months. Due to annual attrition, availability for yearly data collections, and budgetary constraints, 168 participated in the study at age 11.

Questionnaires and Measures

Assessment of recurrent dreams: Children were asked whether or not they experienced a recurrent dream in the past 12 months, and if applicable, to describe the dream's content. A recurrent dream was defined as a dream that when recalled, gives you the impression that you had it before.

Measures of psychosocial adjustment: Children completed a questionnaire that assessed anxiety (e.g., You are nervous, high-strung or tense), opposition (e.g., Punishment doesn't make you change your behavior), shyness (e.g., You take a long time to warm up to children you don't know), non aggressive behavioral problems (e.g., You destroy things belonging to your family or other young people), physical aggression (e.g., You physically attack people), reactive aggression (e.g., You react in an aggressive manner when someone takes something of yours [for example, hit, push or slap another child]), proactive aggression (You scare other children to get what you want), indirect aggression (e.g., When you are mad at someone, you try to get others to dislike him/her), hyperactivity (e.g., You cannot settle on anything for more than a few moments), inattention (e.g., You can't concentrate, you can't pay attention), social withdrawal (e.g., You prefer to play alone rather than with other children), emotional problems (e.g., You have trouble enjoying yourself). These scales were drawn from, among others, the Preschool Behavior Questionnaire (Tremblay et al., 1992), the Child Behavior Checklist (Achenbach et al., 1987), and the reactive and proactive aggression questionnaire (Dodge & Coie, 1987). They are well validated (Baillargeon et al., 2007; Vaillancourt et al., 2007) and have been shown to be sensitive to environmental, perinatal and familial risk and protective factors (Huijbregts et al., 2007; Côté et al., 2007) as well as to early childhood sleep patterns

(Touchette et al., 2007). Up until age 10 years, the full version of this instrument was completed by each child's mother. At age 11 years, a self-report abbreviated version of the same instrument was completed by the children.

Cronbach alphas and intraclass correlations between self-reported measures of psychosocial adjustment at age 11 years and those reported by the mother when the child was 10 years old are presented in Table 1. Cronbach alphas ranged from .37 for non aggressive behavioral problems to .72 for physical aggression with an average value of .60 across scales. The alpha levels are generally acceptable given the small number of self-report items used per scale at age 11 years. The average intraclass correlations between self-report measures of psychosocial adjustment at age 11 years and those reported by the mother when the child was 10 was .33 with the weakest correlation (0) being found for shyness, an internalizing behavior, and the highest (.57) for hyperactivity, an externalizing behavior. The wide range in strength of intraclass correlations is consistent with the finding that the level of parent-child agreement for these types of measures tends to be relatively weak (Grills & Ollendick, 2002). Further, in addition to being sensitive to different observers, the size of the intraclass correlation may also reflect behavior changes over time.

Procedure

An invitation to participate in the study along with a consent form was first mailed to the parents or person responsible for the child. After consenting to the study, a research coordinator made an appointment with the family. A research assistant then met with each child and read the study questions to the child. Children were told that their answers were

confidential and that they could ask for clarifications whenever needed. The project was approved by the Research Ethics Committee of the Ste-Justine Hospital Research Center and conforms to the guidelines of the American Psychological Association (2002).

Analyses

General Linear Model multivariate analyses (GLM-MANOVA) were performed to test the hypothesis that children with recurrent dreams differ from children without recurrent dreams on measures of psychosocial adjustment while minimizing type 1 error. Interactions between gender and the presence or absence of recurrent dreams were also examined to test for invariance across boys and girls.

Table 1. Scale reliabilities, intraclass correlations between self-reported measures of psychosocial adjustment at age 11 years and those obtained from the mother when the child was 10 years old.

	Cronbach alpha	Number of items	Intraclass correlations
Indirect aggression	0.57	3	0.21
Physical aggression	0.72	4	0.51***
Reactive aggression	0.65	4	0.24*
Proactive aggression	0.43	3	0
Anxiety	0.68	4	0.38*
Prosociality	0.77	3	0
Hyperactivity	0.64	4	0.54***
Inattention	0.69	3	0.57***
Opposition	0.44	3	0.46***
Social withdrawal	0.67	3	0.54***
Shyness	0.48	3	0
Non aggressive behavior problems	0.37	5	0.35**
Emotional problems	0.62	3	0.44***

Note: * = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$.

Results

Fifty-nine of the 168 children tested (35.1%) reported on the dream questionnaire that they had experienced a recurrent dream during that past year. There was no significant difference in the proportion of boys (32 %) and girls (38 %) who reported having a recurrent dream.

The multivariate interaction effect between gender and recurrent dream presence was significant at $p < .10$: Pillai's Trace = 0.13, $F(13,151) = 1.69$, $p = .068$, explaining 13% of the variance in scores of psychosocial adjustment. The multivariate main effect of gender effect was significant: Pillai's Trace = 0.18, $F(13,151) = 2.6$, $p < .01$, explaining 18% of the variance in scores of psychosocial adjustment. The multivariate main effect of recurrent dream presence was not significant: Pillai's trace = 0.075, $F(13,151) = .94$, $p = .52$.

Results from the univariate analyses are presented in Table 2. Although most significant effects were due to a main effect of gender i.e., prosocial behavior and non-aggressive behavior problems, the effect for reactive aggression was associated with the presence of recurrent dreams and could not be properly interpreted without taking into account the significant univariate interaction between gender and presence of recurrent dreams $F(1,163) = 4.63$, $p = .03$, $\eta^2 = .028$. Bonferroni post hoc analyses revealed a simple effect for boys ($F(1,163) = 10.05$, $p < .002$), indicating that boys reporting recurrent dreams scored significantly higher on reactive aggression than those who did not (Cohen's (1992) $d = 0.58$, which is a moderate effect size, as opposed to $d = 0.05$ in girls). There was a main effect for gender on reactive aggression, $F(1,163) = 7.46$, $p = .017$, $\eta^2 = .034$, with boys ($M = 5.0$ $SD = 1.4$) showing significantly higher levels than girls ($M = 4.6$, $SD = 0.97$). Finally, there was

also a univariate main effect for presence of recurrent dreams for reactive aggression $F(1,163) = 5.77, p = .017, \eta^2 = .034$, indicating that children with recurrent dreams ($M = 5.6, SD = 1.86$) had higher levels of reactive aggression than children who did not report recurrent dreams ($M = 4.7, SD = 1.04$).

Table 2. Overall univariate effects of recurrent dream presence for measures of psychosocial adjustment.

Psychosocial adjustment measures	<i>F</i>	<i>P</i>	<i>R</i> ²
Indirect aggression	1.01	0.39	0.02
Physical aggression	2.56	0.06	0.04
Reactive aggression	4.74	< 0.005	0.08
Proactive aggression	0.67	0.57	0.01
Anxiety	0.89	0.45	0.02
Prosociality	4.13	< 0.05	0.07
Hyperactivity	0.88	0.45	0.02
Inattention	1.92	0.13	0.03
Opposition	1.10	0.35	0.02
Social withdrawal	0.17	0.91	0.00
Shyness	0.97	0.41	0.017
Non aggressive behavior problems	3.09	< 0.05	0.05
Emotional problems	1.15	.33	0.02

Discussion

The hypothesis that the presence of recurrent dreams in children is associated with poorer psychosocial adjustment was partially supported. In our current sample, boys who reported experiencing recurrent dreams scored higher on measures of reactive aggressiveness than those who did not have recurrent dreams. Reactive aggression, as opposed to proactive aggression, which would be driven by reward seeking motivations, is defined as a defensive reaction to a stimulus which is perceived as threatening (Dodge & Coie, 1987; Kempes et al., 2005). Reactively aggressive children frequently experience problems of adjustment in their

peer relations and show social interpretation deficits and a hostile attention bias (de Castro et al., 2005; Dodge & Coie, 1987, Dodge et al., 1997). The sensitivity of recurrent dreams with reactive aggression is consistent with the observation that disturbed dreaming is associated with a disposition to experience distressing and highly reactive emotions (Levin & Nielsen, 2007). Although this association has been mainly studied in the context of highly disturbing dreams such as nightmares, it may well be applicable to recurrent dreams.

Our other measures of psychosocial adjustment did not discriminate between children with and without recurrent dreams indicating that at age 11 years, the occurrence of recurrent dreams may not be related to various dimensions of psychosocial adjustment. However, unspecified developmental and methodological factors may alter the range and strength of such relations over time. From a developmental perspective, dream content (and possibly any adaptive functions attributed to it) is known to undergo significant changes from preschool to teen years (Foulkes, 1982; 1999; Foulkes et al, 1990; Strauch, 2005; Strauch & Lederbogen, 1999) whereas it remains relatively stable after late adolescence (e.g., Domhoff, 1996). Dream content thus follows a developmental course that parallels cognitive and emotional maturation before reflecting the stability of adult personality. Foulkes' (1982) longitudinal laboratory study of children showed that it was only around the ages of 11-13 years that their dreams began to resemble those of adults on a number of key dimensions (e.g., frequency, length, emotions, overall structure) or to show links to their personality. It is thus possible that the nature and correlates of recurrent dreams similarly evolve throughout childhood. If this is correct, then the recurrent dreams reported by our 11-year-old children may just be beginning to show associations to difficulties in their waking life and the study of recurrent dreams in

older teenagers (e.g., at ages 13, 15, and 17) could prove to be particularly informative. Finally the link we found in boys but not girls may reflect the fact that between the ages of 9 and 13 years, boys are 35% more likely than girls to experience behavioral and/or emotional problems (Costello et al., 2003).

In addition, the length of time during which people experience recurrent dreams may also be related to psychosocial adjustment. We did not assess the history of recurrent dream experiences in our study, but given the subjects' young age, recurrent dream duration was almost certainly shorter than the average duration for adult recurrent dreams (e.g., 8 years in Brown and Donderi's (1986) sample of adults recurrent dreamers).

Another developmental factor that must be considered is that in comparison to adult populations, 11-year-old children may have a more limited or restricted capacity to assess introspective experiences as acquisition of emotional comprehension is known to extend across child development (Saarni & Harris, 1989). In addition emotional understanding can vary between children of the same age. Children who suffer from psychological distress (such as self-reported or clinician-reported symptoms and difficulties) can also show a deficit in emotional self understanding (Southam-Gerow & Kendall, 2002). Hence, it is possible that children with a lower level of psychosocial adjustment are more prone to experience difficulties in understanding their emotions, thereby impacting self report measures of psychosocial adjustment. Finally, at a methodological level, some of the children who took part in our study may have had difficulties understanding the questions being asked concerning the concept of a recurrent dream, although they were free to ask the research assistant for clarifications throughout the testing procedure. For instance, one study (Breton et

al., 1995) found that only 42 % of 11-year old children understood the questions of the Diagnosis Interview Schedule for Children (DISC, Version 2.25). Future studies could consider the adjunctive use of vignettes to enhance children's understanding of these key concepts (Muris, Merckelbach, Gadet, & Moulaert, 2000).

Many of the aforementioned issues and limitations could be examined in developmental or longitudinal studies of psychosocial adjustment in relation to dream content and recurrent dream presence across different age groups. A longitudinal approach would also permit the investigation of the emergence, duration and cessation of recurrent dreams and their association with levels of psychosocial adjustment across time. In addition, efforts should be made to collect descriptions of participants' recurrent dreams so that their actual contents (e.g., main themes, characters, social interactions, emotions) could be investigated from developmental or other age-related perspectives. The inclusion of measures of emotional comprehension, cognitive and mnemonic capacities could also be considered.

In sum, this study was the first to examine the link between recurrent dreams during childhood and associated levels of psychosocial adjustment. The data suggest that by age 11 years, the presence of recurrent dreams may already reflect underlying emotional difficulties in boys, but not in girls. The association found in boys is consistent with what has been described in the adult populations. These findings also add to the existing literature showing that more severe forms of disturbed dreaming (i.e., frequent bad dreams and nightmares) during childhood are associated with a range of negative symptoms, including difficult temperament and anxiety disorders (Nielsen et al, 2000; Simard et al, 2008). However, how

relations between repetitive dream content and waking adjustment evolve over time remains to be determined.

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2.4.2 Transition entre les articles 4 et 5

Les 4 premiers articles de cette thèse portaient sur deux types de troubles oniriques : les rêves récurrents et les rêves dysphoriques. Ces articles ont démontré que les rêves dysphoriques et les rêves récurrents étaient des troubles oniriques qui touchaient les enfants et étaient associés, chacun à leur manière, à des problèmes d'ajustement. Tel que mentionné dans l'introduction de la thèse, des études récentes montrent que les rêves dysphoriques chez les adultes sont aussi liés à des problèmes d'ajustement plus graves : les pensées suicidaires. Le suicide est un problème de santé majeur dont la prévalence augmente durant l'adolescence, et la recherche sur ses corrélats psychologiques demeure une démarche certes importante. Le peu d'études qui ont examiné les liens entre rêves dysphoriques et pensées suicidaires chez les enfants présentent des résultats conflictuels. De plus, bien que les rêves récurrents, comme les rêves dysphoriques, aient été associés à divers problèmes d'ajustement chez les adultes, aucune étude, ni chez l'adolescent ou l'adulte, n'a porté sur le lien potentiel des rêves récurrents avec les pensées suicidaires. La dernière étude de cette thèse portera donc sur le lien entre les rêves dysphoriques, les rêves récurrents et les pensées suicidaires, et l'évolution de ces liens chez les jeunes adolescents de 12 à 13 ans.

2.5 Cinquième article

Association between Recurrent Dreams, Disturbing Dreams and Suicidal Ideation in Adolescents

Aline Gauchat^{a,b}, Antonio Zadra^a, Sophie Parent^d, Johanne Renaud^{e,f},

Richard E. Tremblay^{a,b,g,h} & Jean R. Séguin^{b,g*}

^a Department of Psychology, Université de Montréal, Canada; ^b Centre de recherche du CHU Ste-Justine; ^c Department of Psychoeducation, Université de Montréal, Canada; ^d Douglas Mental Health University Institute, McGill University, Montréal, Canada, Canada; ^e Standard Life Centre for Breakthroughs in Teen Depression and Suicide Prevention, McGill University, Montréal, Canada; ^f Department of Pediatrics, Université de Montréal, Canada; ^g School of Public Health and Population Science, University College Dublin, Ireland; INSERM U669, Paris, France.

Objectifs spécifiques de cet article : Tester l'hypothèse selon laquelle les rêves récurrents et les rêves dysphoriques des jeunes adolescents sont liés aux pensées suicidaires.

Statut : en révision

Contribution des auteurs

Aline Gauchat : Élaboration de l'article incluant les hypothèses de travail, la recension des écrits, l'interprétation des résultats, la préparation des tableaux et la rédaction des différentes sections du manuscrit.

Antonio Zadra : Conceptualisation de l'article, soutien à l'analyse des données et à l'interprétation des résultats, rédaction et correction du manuscrit et aide à la révision de l'article.

Sophie Parent : Soutien à l'analyse des données et à l'interprétation des résultats.

Richard R. Tremblay : Révision critique du manuscrit.

Johanne Renaud : Soutien à l'interprétation des résultats et révision critique du manuscrit.

Jean R. Séguin : Organisation et financement de la collecte de données, soutien et supervision pour l'élaboration des hypothèses, l'interprétation des résultats et pour la rédaction de l'article, révision et correction du manuscrit.

Abstract

Disturbing dreams and recurrent dreams have been linked to a wide range of psychological difficulties in children. There is growing evidence indicating that the experience of frequent disturbing dreams is associated with suicidal ideation in adults but studies in adolescents are rare and the results conflicting. In addition, the possible relationship between suicidal ideation and recurrent dreams has yet to be investigated because as disturbing dreams, they have also been linked to psychosocial difficulties in adult. The goal of the present study was to investigate the relation between disturbing dreams, recurrent dreams and suicidal ideation in young adolescents. Self-report measures of disturbing dream frequency, recurrent dream frequency, and suicidal ideation were collected at age 12 years and again at age 13 years from 170 children from the province of Quebec, Canada. Analyses revealed that by age 12, adolescents who reported having had suicidal thoughts over the past year had more than double the frequency of disturbing dreams as well as more than triple the frequency of recurrent dreams than adolescent who had not thought about suicide. These findings highlight the potential clinical value of assessing disturbing and recurrent dreams as part of the screening process for suicidal ideation in adolescents.

Keywords: Disturbing dreams, recurrent dreams, suicidal ideation, adolescence childhood

1. Introduction:

It is well established that good sleep quality is associated with optimal development and, conversely, that poor sleep is related to mental health problems (Alfano & Gamble, 2009). Disturbing dreams (DD) and recurrent dreams (RD) are sleep problems frequently experienced by children and adolescents (Gauchat & Zadra, 2012; Gauchat, Zadra, Tremblay, Zelazo, & Séguin, 2009).

DDs are vivid dreams marked by intense negative emotions such as fear, anxiety and anger (Nielsen & Levin, 2007). Research on the correlates of DD in adolescents has been inspired by studies of adults in whom these relations have been investigated at length (e.g., Levin & Nielsen, 2007). Disturbing dreams, including bad dreams and nightmares, have been linked to a wide range of psychological difficulties in children and adolescents including anxiety, depression and behavioural problems (Gauchat & Zadra, 2012; Simard, Nielsen, Tremblay, Boivin, & Montplaisir, 2008). Recent findings indicate that frequent DD are associated with suicidal ideation in adults (Pigeon, Piquart, & Conner, 2012) and DD is the sleep-related problem most strongly associated with suicidal risk in people having attempted suicide (Sjostrom, Hetta, & Waern, 2009). Similar results have been obtained in non-clinical adult populations (Cukrowicz et al., 2006; Tanskanen et al., 2001).

Few studies, however, have examined these relations in adolescents. This lack of information is surprising given that suicide constitutes a major public health concern and that suicide attempts increase markedly during adolescence (Brezo et al., 2008; Gould, Greenberg, Velting, & Shaffer, 2003; Perou, 2013) and some authors have started to denounce this lack of study on DD and suicidality among adolescent (Abe & de Kernier, 2013; Bernert & Joiner, 2007; Liu & Buysse, 2006). Identifying correlates of suicidal ideation is particularly important

since adolescents are reluctant to report suicidal thoughts (Lothen-Kline, Howard, Hamburger, Worrell, & Boekeloo, 2003).

Furthermore, the few studies that do exist on adolescents have yielded conflicting results. One study of European adolescents aged between 13 and 16 found a significant association between frequent DD and suicidal ideation (Choquet & Henke, 1990). A similar relation was found in a study of Asian adolescents aged between 12 to 18 (Liu, 2004) in which adolescents who reported having DD “sometimes” or “often” were 2 to 3 times more likely to report suicidal ideation than were those who rarely had DD. Moreover, the association between DD and suicidal ideation remained significant after controlling for depression. By contrast, one study of Australian adolescents between 12 and 18 years of age found that DD frequency was not significantly associated with suicidal ideation (Roberts & Lennings, 2006). As this finding was secondary to the study’s main goals, the authors did not offer an explanation for this result. Finally, in one prospective study of American children, the occurrence of DD between the ages of 12 and 14 did not predict suicidal thoughts between the ages 15 and 17 when common risk factors and other sleep problems were controlled for (Wong, Brower, & Zucker, 2011). In that study, the model used to predict suicidal ideation at ages 15-17 included alcoholism and a history of suicidal thoughts or attempts in the parents, the participants’ gender and age, as well as suicidal thoughts, depressive symptoms, aggressive behaviors, substance-related problems, overtiredness, nightmares, and trouble sleeping at ages 12-14. Results showed that only “having trouble sleeping” at ages 12-14 predicted suicidal thoughts at ages 15-17.

While the contents of DD tend to vary over time, RD are defined as a class of dreams that reoccur over time while maintaining the same theme and content (Brown & Donderi, 1986; Domhoff, 1993; Heaton, Hill, Hess, Leotta, & Hoffman, 1998; Zadra, Desjardins, &

Marcotte, 2006; Zadra, 1996b). Studies of RR in adults converge in showing that people with RR obtain higher scores on indices of depression, anxiety, neuroticism, somatic symptomatology and life stress events, than people without RR (Brown & Donderi, 1986; Robbins & Tanck, 1991; Zadra, O'Brien, & Donderi, 1997). Only one study examined the psychological correlates of RR in adolescents and found that by age 11, the presence of recurrent dreams may already reflect underlying emotional difficulties in boys but not necessarily in girls (Gauchat, et al., 2009). No studies have examined at the possibility that RD, like DD, could be linked to suicidal ideation in adolescents or even in adults.

The aim of the present study was to investigate the relations between DD, RD and suicidal ideation in young adolescents over a 2 year period between the ages of 12 and 13 years.

2. Method

2.1 Participants

Participants were adolescents taking part in a broader longitudinal study focusing on the social, psychological and cognitive development of children from urban socioeconomic backgrounds in the province of Québec, Canada. At the study's inception, 1000 families were randomly selected from the Québec 1996-1997 birth register (Santé Québec, 1997). Of these, 572 accepted to participate in the original study and were subsequently assessed annually from the age of 5 months. Due to annual attrition, variability in the participants' year to year availability for data collection and budgetary constraints to maintain follow-up, a total of 216 children (comprised equally of boys and girls) completed the present study at age 12, and 195 at age 13. These samples did not differ from the rest of the original 572 children in terms of socio economic level, including family income (at 12: $p=.1$; at 13: $p=.47$), family type (single

parent or not) (at 12; $p=.6$; at 13 $p=.14$), and level of education of the child's mother (at 12: $p=.62$; at 13: $p=.6$).

2.2 Measures

Presence of suicidal ideation and frequency of DD and RD were assessed within a battery of self-reported questionnaires. Suicidal ideation was assessed with the following item: "Over the past 12 months, did you ever seriously consider attempting suicide?" When interacting with adolescents we used the expression "bad dreams" (defined as very disturbing dreams) to refer to DD as the concept of DD was too unfamiliar given participants' age. Adolescents were required to answer the question: "On average, how frequently do you have bad dreams?" using the following choices: "Never" "Sometimes", "Often", "Always", or "Don't know." Those reporting bad dreams were also asked to estimate the number of bad dreams experienced over the past month. Responses for adolescents who reported "never" to the previous question were coded as 0 while a maximum frequency was set at 30 (i.e., 1 DD/day) to limit the impact of potential outliers. A one- month retrospective frequency estimate was used instead of a one year estimate as it has been shown to correspond more closely to prospectively-collected log-based frequency measures of DD from the same individual. A recurrent dream was defined as "a dream that, when recalled, gives you the impression that you had it before." Adolescents were asked whether or not they experienced a recurrent dream in the past 12 months and, if yes, had to report the frequency of the RR. Responses for adolescents who reported that they did not have RR were coded as 0 for the frequency variable.

2.3 Procedure

When the adolescents were aged 12 and 13 years, each parent or person responsible for the adolescent received an invitation by mail to participate in the study along with a consent form. Appointments were then scheduled where research assistants met the caregivers and adolescents. Adolescent participants could complete the questionnaires confidentially and were provided with a list of adolescents-oriented resources (Lothen-Kline, et al., 2003). Research assistants were trained to implement a clinical follow up protocol devised by JR in case of need – no request was made. The study was approved by the Research Ethics Committee of the CHU Ste-Justine Research Center and the study protocol also complied with the ethical guidelines of the American Psychological Association ("Ethical Principles of Psychologists and Code of Conduct.," 2002)

2.4 Analyses

Adolescents with or without suicidal ideation were compared using repeated measure (ages 12, and 13) Mixed-effects model analyses in SPSS (Version 18) to investigate relationships between DD, RD and suicidal ideation in two separate models. We chose a mixed-effects model as opposed to a traditional repeated-measure ANOVA as it allows for an unbalanced design. In a mixed-effects model, if data for one of the years is missing, the other year is still included in the analyses, whereas traditional repeated-measures ANOVA requires data from each time point for each participant to be entered in the analyses. Thus the mixed effect model actually uses all the available information for parameter estimation. Two different models were tested because even if DD and RD are not independent disorders, they represent two different constructs: the correlations between RD and DD at age 12 was .11 ($p = .14$), and

.21 ($p < .05$) at age 13. Suicidal ideation was treated as a predictor variable; the covariates were sex and age while DD or RD frequencies were the dependent variables.

3. Results

Table 1. *Descriptive statistics of DD, RD and suicidal ideation.*

Age	DD frequency	RD frequency	% of adolescents with suicidal ideation
12	2.5(3.14)	0.98 (2.44)	2.8
13	1.79(2.77)	0.36 (1.22)	10.2

The prevalence of suicidal ideation in the current sample was comparable to other study (Breton, Tousignant, Bergeron, & Berthiaume, 2002). The proportion of adolescents with DD was comparable to other studies although comparisons across studies is difficult because of differences in methodology (Gauchat & Zadra, 2012; Hasler & Germain, 2009). DD and RD frequency diminish between 12 and 13 years old (see Table 1). Conversely, the rate of self-reported suicidal ideation more than tripled in our sample between the ages of 12 and 13 years, see Table 1.

In the first model of the relation between suicidal ideation on DD frequency we tested interactions with sex ($p = .21$) and with age ($p = .91$) to verify the assumption of homogeneity of slopes, and both interactions were non-significant so were removed from the model. Sex and age therefore met criteria for being used as covariates in the model. The main effect of suicidal ideation was significant $F(1,315) = 4.1, p < .05$ and so was the main effect of age $F(1,315) = 5.43, p < .05$ whereas the main effect of sex was not significant $p = .27$. Adolescents had significantly fewer DDs at age 13 than at age 12 (see table 1). Finally, adolescents with

suicidal ideation had significantly more DDs ($M=4.0$; $SD=3.2$) than adolescents without suicidal ideation ($M=2.2$; $SD=3.0$).

In the second model of the relation between suicidal ideation on RD frequency, we again tested interactions with sex ($p= .79$) and with age ($p=.87$) to verify the assumption of homogeneity of slopes, and both interactions were non-significant so were removed from the model. Sex and age were left as covariates in the model. The main effect of suicidal ideation was significant $F(1,337) = 11.1$, $p<.05$ and so was the main effect of age $F(1,337) = 20.67$, $p<.05$ whereas the main effect of sex was not significant ($p=.35$). Adolescents had significantly fewer RDs at age 13 than at 12 (see Table 1). Also adolescents with suicidal ideation had significantly more RDs ($M=2.8$; $SD=3.0$) than adolescents without suicidal ideation ($M=0.63$; $SD=1.9$).

4. Discussion

This study is the first to report an association between both DD and RD and suicidal ideation in adolescents. Specifically, our results indicate that by ages 12 and 13, and even after controlling for age and sex, children who reported having had suicidal ideation over the past year experience more DD and RD than did children who had not thought about suicide. These results are consistent with those found in studies of adult populations (Cukrowicz, et al., 2006; Pigeon, et al., 2012; Sjostrom, et al., 2009) and with studies on adolescents (Choquet & Henke, 1990; Liu, 2004). Furthermore, our results are the first to reveal that the occurrence of RDs was also associated to suicidal ideation. With respect to the association between DD and suicidal ideation, it is possible that frequent and intense negatively toned dreams are related to negative emotional turmoil experienced during wakefulness as dream content has been shown to reflect

the dreamer's current state and concerns (Domhoff, 2011; Pesant & Zadra, 2006; Schredl & Hofmann, 2003). It has also been proposed that this link between DD and suicidal thought can be explained by the fact that DD are linked to problem in emotional regulation (Abe & de Kernier, 2013; Bernert & Joiner, 2007). The directionality of such effects, however, may be reciprocal since the experience of negative dream content can also lead to the experience of negative affective states upon awakening (Lancee & Schrijnemaekers, 2013).

Regardless of the directionality of the observed effects, two clinically related factors warrant further study. First, the added value of including the assessment of DD within a screening instrument targeting youth at risk of suicidal thoughts should be investigated. Second, the potential therapeutic effects of offering treatment for DD on the frequency and intensity of suicidal ideation in at risk populations have yet to be explored. There exist effective short-term cognitive-behavioral treatments for idiopathic, recurrent, and trauma-related DD in adults (Augedal, Hansen, Kronhaug, Harvey, & Pallesen, 2013; Hasler & Germain, 2009; Krakow & Zadra, 2006) and these approaches have also been found to decrease DDs and their associated distress children (Simard & Nielsen, 2009; St-Onge et al., 2009).

Similarly, additional work is also required to clarify the nature and clinical significance of the relation between RDs and suicidal ideation. Studies of RD in adult populations (Brown & Donderi, 1986; Zadra, 1996a) have shown that RD are associated with lowered scores on indices of psychological well-being and one study (Gauchat, et al., 2009) in adolescents found that the presence of RDs was linked to reactive aggression (defined as a defensive reaction to a stimulus which is perceived as threatening (Dodge, Lochman, Harnish, Bates, & Pettit, 1997)) among boys. The present results are consistent with these findings and, taken as a whole, point

to a need for RD and their correlates to be studied more in depth in adolescent populations in general and at-risk populations in particular.

One important limitation of the present study was the relatively small sample that did not allow to reliably control for other potential confounding variables, such as depression, which is a common risk factor to suicidal ideation and DDs (Pigeon, et al., 2012). Nonetheless, among adults the link between DD and suicidal thoughts seem to be maintained even after control for depression (Pigeon, et al., 2012), as it has also been shown in adolescents (Liu, 2004).

In conclusion, although the direction of the association between RD, DD and suicidal ideation remains to be clarified, the present results add to those of previous studies in showing that disturbing and recurrent dreams show significant relations with the dreamer's waking emotional state (Hartmann, 1998). In the context of at-risk behaviors such as suicide, these observations are particularly important since adolescents are generally reluctant to talk about suicidal ideation, especially when confidentiality is not assured (Lothen-Kline, et al., 2003). Thus, collecting information on DD may be clinically valuable in the assessment of potential for suicide in at-risk individuals. Finally, work in adolescents and adult populations alike is required to delineate possible beneficial impacts of early treatments aimed at DD or RD on suicidal ideation.

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3. Discussion

Cette thèse visait à étudier les relations entre les rêves dysphoriques, les rêves récurrents et l'ajustement psychosocial chez les enfants et les jeunes adolescents afin de mieux comprendre l'importance de ces expériences oniriques aux niveaux empirique, clinique et théorique. Les rêves dysphoriques ainsi que leurs liens avec des mesures d'ajustement psychosocial avaient déjà été relativement bien étudiés chez les adultes mais pas chez les enfants ni les adolescents. Qui plus est, il n'existait, à notre connaissance, aucune étude transversale ou longitudinale sur les rêves récurrents chez les enfants ou les adolescents.

Le premier article de cette thèse, une recension des écrits portant sur les rêves dysphoriques chez les enfants et les adolescents, avait pour but d'organiser et synthétiser la littérature dans le domaine afin de pouvoir tirer des conclusions sur la prévalence, les corrélats et le traitement des rêves dysphoriques chez les jeunes. Cette recension nous a permis de conclure que les rêves dysphoriques touchaient plus de la moitié des enfants et qu'ils étaient associés à divers problèmes d'ajustement psychosocial. Il est aussi ressorti de cette recension que les liens avec les troubles extériorisés avaient été relativement peu étudiés, ce sur quoi le deuxième article de thèse a porté. Plus précisément, le deuxième article portait sur les corrélats des rêves dysphoriques chez les enfants en s'attardant non seulement aux troubles intériorisés, mais aussi à une panoplie de troubles extériorisés. Dans cet article, le possible rôle modérateur de l'émotivité négative dans les associations entre rêves dysphoriques et ajustement psychosocial, tel que proposé par le modèle théorique de Levin et Nielsen (2007), a aussi été investigué. Il ressort aussi de la recension du premier article que les liens entre les rêves dysphoriques et les pensées suicidaires, nouvellement étudiés chez les adultes, ont fait l'objet

de très peu d'attention chez les jeunes alors que l'on sait que la problématique des pensées suicidaires augmente au cours de l'adolescence. Le cinquième article de cette thèse visait à apporter de nouvelles connaissances à cet égard. Le troisième article visait pour sa part à établir un portrait du contenu des rêves récurrents chez les enfants et les adolescents. Suite à cela, nous avons voulu vérifier si les rêves récurrents étaient liés, comme chez les adultes, à l'ajustement psychosocial (article 4). Puisque les résultats obtenus dans les études 2 et 4 démontraient que les rêves dysphoriques et les rêves récurrents semblaient tous deux associés à certains symptômes de difficultés d'ajustement psychosocial, nous avons voulu vérifier s'ils étaient aussi liés aux pensées suicidaires, ce qui a donné lieu au 5e article.

3.1 Apport à la littérature existante

Nous proposons maintenant de résumer les résultats des cinq articles afin de mettre de l'avant ce qu'ils ajoutent à la littérature existante sur le sujet.

3.1.1 Prévalence des rêves récurrents et des rêves dysphoriques

Dans la revue de littérature présentée dans l'article 1, nous avons pu conclure que les rêves dysphoriques touchaient au moins la moitié des enfants et des adolescents. Pour ce qui est des données de notre propre échantillon, tel que l'on peut le voir dans l'article 2, 83 % des enfants âgés de 11 ans rapportent avoir eu au moins un rêve dysphorique au cours du dernier mois. Bien que cette prévalence soit plus élevée que les valeurs qui ressortent globalement de la littérature, elle est comparable aux pourcentages obtenus par les études ayant utilisé une méthodologie semblable à la nôtre, soit en questionnant les enfants ou les adolescents directement et en s'attardant à des périodes couvrant les quelques dernières semaines ou les

quelques derniers mois. Il est à noter que le terme utilisé dans notre étude (mauvais rêves) est souvent différencié des cauchemars, qui eux entraînent par définition le réveil du dormeur. Ceci a probablement contribué à la plus grande prévalence dans notre étude car le terme mauvais rêves regroupe une plus grande étendue de rêves à caractère négatifs que les cauchemars.

Pour ce qui est des différences entre les garçons et les filles, elles se situent principalement au niveau de la prévalence des rêves dysphoriques et non de leur fréquence. Ainsi, il semble y avoir plus de filles que de garçons qui rapportent des rêves dysphoriques, mais la fréquence des rêves dysphoriques ne semble pas être significativement différente entre les garçons et les filles, sauf à 14 ans. Ainsi, les résultats provenant de notre échantillon s'accordent à la littérature existante (voir recension de l'article 1), qui démontre que la différence de sexe dans la prévalence des rêves dysphoriques (bien documenté chez les adultes) n'est pas présente chez les jeunes enfants, mais qu'elle apparaîtrait plus tard au cours de l'adolescence.

Entre les âges de 11 à 15 ans, la prévalence des rêves dysphoriques de notre échantillon diminue, passant de 83 % à 58 % des jeunes. Cette diminution touche légèrement plus les garçons que les filles, mais elle est visible pour les deux sexes. Il en va de même pour la fréquence mensuelle des rêves dysphoriques : elle passe d'une moyenne de 3,6 rêves par mois à 11 ans, à 1,3 rêves par mois à 15 ans. Ainsi, en vieillissant, les jeunes sont moins nombreux à rapporter des rêves dysphoriques et la fréquence de ces rêves dysphoriques tend à diminuer.

Dans notre échantillon, la prévalence des rêves récurrents tend à diminuer entre 11 et 15 ans, passant d'un tiers des enfants à environ 15 % d'entre eux, et une différence de prévalence entre les filles et les garçons semble apparaître à 13 ans. L'étude 3 de cette thèse

étant la première à porter de manière prospective sur les rêves récurrents des enfants et des adolescents, il n'y a aucune autre étude prospective sur les rêves récurrents des enfants avec laquelle comparer nos résultats. Toutefois, les études chez les adultes montrent qu'environ deux tiers d'entre eux ont eu un rêve récurrent au cours de leur vie et que la plupart rapportent en avoir eu durant leur enfance. Tel que mentionné dans l'article 3, il semble aussi que les adultes se rappellent principalement des rêves récurrents de leur enfance qui contenaient des émotions intenses, et moins de ceux qui étaient plus neutres. En effet, la proportion des rêves récurrents ayant un contenu négatif obtenus directement auprès des enfants est plus faible que celle qui caractérise les rêves récurrents d'enfance rapportés par les adultes.

3.1.2 Rêves dysphoriques et ajustement psychosocial

Suite à la revue de littérature de l'article 1, il avait été possible de conclure que les rêves dysphoriques des enfants et des adolescents étaient liés à l'anxiété, aux troubles de comportement, aux événements que l'enfant perçoit comme stressants et à d'autres troubles du sommeil. Cette revue de la littérature mettait aussi de l'avant l'importance de s'attarder aux problèmes extériorisés, peu étudiés dans ce domaine. De plus, nous avons voulu étudier la possibilité que, comme proposé par Levin et Nielsen (2007), la détresse affective puisse jouer un rôle dans l'association entre rêves dysphoriques et ajustement psychosocial. Ces auteurs (Levin et Nielsen; 2007) ont proposé que cette détresse affective pouvait correspondre à une manifestation d'un type de tempérament, soit l'émotivité négative. Aussi, les études portant sur les rêves dysphoriques chez les enfants étaient souvent marquées par des failles méthodologiques comme le fait d'interroger les parents sur les rêves dysphoriques des enfants, alors que l'on sait que cela tend à sous-estimer leur fréquence. Plusieurs études n'utilisaient qu'un seul répondant pour évaluer les problèmes d'ajustement, alors que l'on reconnaît dans la

littérature développementale la valeur ajoutée d'inclure le point de vue de plusieurs répondants. Finalement, peu d'études avaient inclus des variables de contrôle importantes telles que le niveau socioéconomique ou la présence d'autres troubles du sommeil.

Avec une méthodologie plus robuste que la majorité des études précédentes, l'étude 2 fait ressortir des liens importants entre la présence de rêves dysphoriques et les difficultés d'ajustement psychosocial chez les enfants. Tel que mentionné dans l'introduction de cette thèse, les problèmes d'ajustement des enfants sont souvent divisés en deux grandes catégories : les troubles intériorisés et les troubles extériorisés. Nous notons d'abord que les troubles intériorisés et extériorisés ne sont pas associés aux autres troubles du sommeil mesurés dans notre étude (sommambulisme et somnolence durant le jour).

Les résultats révèlent ensuite que les rêves dysphoriques sont liés aux troubles intériorisés tels que les problèmes émotionnels et au retrait social, tandis que la relation avec l'anxiété n'est pas statistiquement significative. Les tailles d'effet pour les liens entre les rêves dysphoriques et le retrait social ($d=0,41$) et les problèmes émotionnels ($d=0,5$) sont respectivement petite et grande (Cohen, 1992). Pour ce qui est de l'anxiété, bien que l'effet ne soit pas statistiquement significatif, la taille d'effet de $d=0,30$ est considérée comme une taille d'effet petite (Cohen, 1992). Ceci suggère un manque de puissance statistique dans notre étude pour détecter des effets de cette taille

Comme le premier article de cette thèse le montre, plusieurs études ont fait état de l'association entre l'anxiété et la présence de rêves dysphoriques. Il est possible qu'un manque de puissance statistique ait limité la portée de nos résultats. En effet, si on calcule la taille d'effet pour le lien entre rêves dysphoriques et anxiété dans l'étude de Levin et Nielsen (2000), elle est de $d=0,20$, mais ayant plus de 500 participants, l'effet dans cette étude atteint le seuil

de signification au plan statistique. Ainsi, bien que non significative, notre taille d'effet pour l'association entre rêves dysphoriques et anxiété est comparable à celle obtenue dans d'autres études dans le domaine (Nielsen, et al., 2000; Schredl, Pallmer, & Montasser, 1996). Pour ce qui est des problèmes émotionnels, ils correspondent relativement bien à la mesure de dépression du CBCL (Child Behavior Checklist) et ainsi, nos résultats concordent avec ceux d'études antérieures (Shang, Gau, & Soong, 2006; Stein, Mendelsohn, Obermeyer, Amromin, & Benca, 2001). Finalement, d'autres études avaient déjà démontré une association entre les rêves dysphoriques et la présence de problèmes psychosociaux tels qu'évalués par le CBCL (Smedje, Broman, & Hetta, 2001; Stein, et al., 2001); cette association est semblable à celle que nous avons trouvée entre les rêves dysphoriques et le retrait social. Ainsi, nos résultats portant sur la relation entre les rêves dysphoriques et les troubles intériorisés sont cohérents avec la littérature et montrent des effets de taille variant de petit à moyen.

Pour ce qui est des troubles extériorisés, les effets principaux doivent être interprétés dans le cadre d'interactions significatives avec l'émotivité négative (voir section suivante).

3.1.3 Effet modérateur de l'émotivité négative

L'émotivité négative n'était pas reliée aux rêves dysphoriques, et n'est pas liée à l'ajustement psychosocial (sauf pour ce qui concerne l'agressivité physique). Nous avons ensuite examiné l'hypothèse selon laquelle il y aurait des interactions entre rêves dysphoriques et émotion négative pour les troubles intériorisés et extériorisés. Celles-ci n'étaient significatives que pour les troubles extériorisés. Bien que n'étant pas significatives pour tous les troubles extériorisés, nous avons décidé d'interpréter les interactions avec l'émotivité négative pour toutes les variables des troubles extériorisés en raison de la cohérence des résultats. Nous remarquons alors que pour les enfants ayant un niveau d'émotivité négative

dans la moyenne et au-dessus de la moyenne, les liens entre les rêves dysphoriques et les divers troubles extériorisés sont significatifs et sont presque tous de tailles moyenne à grande. Pour les enfants ayant un niveau d'émotivité négative au-dessus d'un écart type de la moyenne de notre échantillon, ces effets sont très importants, variant de 0,41 à 0,85. Il est à noter que la mesure de l'émotivité négative a été prise à 17 mois, ce qui veut dire que l'effet modérateur est perceptible 10 ans plus tard. En l'absence de mesure concurrente d'émotivité négative, cet effet à long terme soutiendrait l'hypothèse selon laquelle l'émotivité négative serait une sensibilité stable chez l'individu.

La cohérence des résultats des interactions statistiques de l'émotivité négative dans les liens entre rêves dysphoriques et troubles extériorisés pourrait être expliquée par un substrat commun à tous les troubles extériorisés. Ceci serait cohérent avec des études récentes qui mettent en évidence une étiologie commune aux troubles extériorisés, qui pourrait être expliquée par des traits de personnalité tels que l'impulsivité, qui eux-mêmes seraient soutenus par des facteurs à la fois génétiques et environnementaux (Castellanos-Ryan & Conrod, 2011; Krueger et al., 2002; Krueger, Markon, Patrick, Benning, & Kramer, 2007). Ce serait alors ce facteur commun aux troubles extériorisés qui serait lié aux rêves dysphoriques plutôt que chaque trouble spécifiquement.

L'émotivité négative est une dimension du tempérament difficile qui se traduit par une certaine irritabilité ou réactivité aux émotions négatives. Le tempérament difficile a déjà été étudié à de nombreuses reprises comme modérateur entre des variables de l'environnement et le développement de certaines difficultés chez les enfants. En effet, il semble que certains enfants soient plus sensibles, plus perméables aux effets potentiellement négatifs des divers aspects de l'environnement et du stress externe (Bush, Lengua, & Colder, 2010; Ganiban,

Ulbricht, Saudino, Reiss, & Neiderhiser, 2011; Hsu & Liu, 2012; Jessee, Mangelsdorf, Shigeto, & Wong, 2012). Cette explication comporte aussi des limites car de nouvelles études révèlent que le tempérament difficile serait mieux conçu comme un facteur de sensibilité que comme un facteur de risque, étant donné qu'il peut aussi refléter une perméabilité aux aspects positifs de l'environnement (Belsky & Pluess, 2009). Ce serait aussi le cas pour l'émotivité négative, composante importante du tempérament difficile (Kim & Kochanska, 2012; Morgan, Shaw, & Olin, 2012). Dans le cas ici présent, le lien entre rêves dysphoriques et troubles extériorisés est plus fort pour les enfants ayant plus d'émotivité négative. Il est possible que les enfants ayant plus d'émotivité négative soient plus affectés par leurs rêves dysphoriques, et que ceci se manifeste par des comportements extériorisés. Il est aussi possible que les enfants ayant plus d'émotivité négative soient plus affectés par leurs comportements extériorisés et que ceci se reflète par plus de rêves dysphoriques. Finalement, il est également possible que les enfants ayant plus d'émotivité négative aient tendance à avoir une moins bonne régulation émotionnelle, qui se traduit par plus de rêves dysphoriques et plus de troubles extériorisés. Ce lien entre rêves dysphoriques et régulation émotionnelle sera discuté plus loin.

3.1.4 Rêves récurrents et ajustement psychosocial

Pour ce qui est des rêves récurrents, aucune donnée prospective existait sur leurs corrélats chez les enfants, mais la recherche rétrospective au sein de populations adultes a démontré une corrélation positive entre la présence de ce type de rêve et la présence de difficultés d'ajustement psychosocial (Brown & Donderi, 1986; Robbins & Houshi, 1983; Zadra, O'Brien, & Donderi, 1997). Plus spécifiquement, les personnes ayant des rêves récurrents rapportent des niveaux plus élevés d'événements de vie stressants, d'anxiété, de

dépression et d'autres symptômes psychopathologiques que les personnes n'ayant pas de rêves récurrents.

Dans l'étude 3 de cette thèse, il ressort que les rêves récurrents des enfants et des adolescents sont principalement à caractère négatif, et que la plus grande partie d'entre eux comportent un thème où la vie du rêveur est à risque. Ensuite, l'étude 4 de cette thèse a permis d'appuyer partiellement l'hypothèse selon laquelle les rêves récurrents chez les enfants sont associés à des difficultés d'ajustement psychosocial. Effectivement, dans cette étude, les rêves récurrents n'étaient liés qu'à l'agressivité réactive, et ceci seulement chez les garçons. Bien qu'il n'y ait qu'un seul problème d'ajustement psychosocial qui soit significativement lié aux rêves récurrents, il est intéressant que ce soit l'agressivité réactive. En effet, les enfants présentant ce type d'agressivité, qui est une réaction agressive à un stimulus perçu comme menaçant, ont souvent un biais hostile (de Castro, Merk, Koops, Veerman, & Bosch, 2005; Dodge & Coie, 1987; Dodge, Lochman, Harnish, Bates, & Pettit, 1997). Ainsi ces enfants semblent percevoir leur environnement comme étant plus hostile et les situations ambiguës comme étant menaçantes. Si on met cela en lien avec les résultats de l'article 3, il est possible de supposer que les préoccupations de ces enfants se reflètent dans le contenu de leurs RR.

Les différences entre nos résultats et ceux qui sont obtenus auprès de populations adultes sont peut-être dues à des facteurs développementaux. Il semble donc que les liens entre rêves récurrents et ajustement psychosocial apparaissent plus tard au cours de l'adolescence. Il est aussi à noter que les variables d'ajustement psychosocial de nos études étaient quelques peu différentes de celles utilisées dans les études chez les adultes, et que nous n'avons pas examiné les liens entre les rêves récurrents et les événements de vie stressants ou des mesures traditionnelles de psychopathologie, par exemple. Finalement, et à la lumière de l'article 3 de

cette thèse, il est aussi possible que les rêves récurrents des enfants reflètent plus des peurs générales liées à des dangers de nature physique comme le fait d'être poursuivi ou d'être dans des situations à risque de blessures. Quant aux rêves récurrents des adultes, ils refléteraient plutôt des préoccupations en lien avec des problèmes de nature interpersonnelle ainsi que les soucis et les tracas de leur vie quotidienne. Ces différences pourraient expliquer que les rêves récurrents des adultes et des enfants n'ont pas les mêmes corrélats.

3.1.5 Liens entre les rêves dysphoriques, les rêves récurrents et les pensées suicidaires

Tel que mentionné dans l'introduction de cette thèse, les pensées suicidaires (qui sont des facteurs de risque importants pour les comportements suicidaires), augmentent au début de l'adolescence (Nock et al., 2008). Cela dit, les adolescents sont réticents à parler de leurs pensées suicidaires, d'autant plus quand la confidentialité ne leur est pas assurée (Lothen-Kline, Howard, Hamburger, Worrell, & Boekeloo, 2003). Il apparaît donc important, dans un objectif de prévention du suicide, de s'intéresser aux corrélats des pensées suicidaires pour mieux identifier les jeunes à risque.

On sait que les adultes ayant des rêves dysphoriques sont environ 3 fois plus à risque d'avoir des pensées suicidaires et deux fois plus à risque de faire une tentative suicidaire (Pigeon, Piquart, & Conner, 2012), mais nous ne savons pas à quel âge apparaît ce lien, ni s'il existe chez des populations de jeunes adolescents. L'étude 5 de cette thèse montre que les rêves dysphoriques ainsi que les rêves récurrents sont tous deux liés aux pensées suicidaires chez les jeunes dès 12 et 13 ans avec des tailles d'effet respectives de $d = 0,22$ et $d = 0,36$. Pour ce qui est des associations entre les rêves dysphoriques et les pensées suicidaires, notre étude va dans le sens des études chez les adultes qui sont nombreuses à démontrer ces liens. Elle est aussi en concordance avec certaines études chez les jeunes (Choquet & Henke, 1990; Liu,

2004), alors que d'autres études ne trouvaient pas de lien significatif (Roberts & Lennings, 2006; Wong, Brower, & Zucker, 2011). Si l'on calcule les tailles d'effet (Borenstein, 2009), le d de Cohen est de $d=0,32$ pour l'étude de Robert et Lennings (2006), de $d=0,12$ pour l'étude de Wong (2011), et de $d=0,93$ pour l'étude de Lui (2004) (le d n'a pas pu être calculé pour l'étude de Choquet et Hanke (1990) étant donné le peu d'information statistique de cet article). Toutefois, ces écarts ne semblent pas être dus à des différences de nature méthodologique. Pour ce qui est des rêves récurrents, notons que notre étude est la première à montrer des liens significatifs avec les pensées suicidaires, et que les tailles d'effet sont plus grandes que pour les liens entre rêves dysphoriques et pensées suicidaires.

S'il est vrai que nous n'avons pas pu contrôler pour l'effet de la dépression ou de l'anxiété, qui est un corrélat à la fois des rêves dysphoriques et des pensées suicidaires, plusieurs revues de la littérature démontrent que le lien entre rêves dysphoriques et pensées suicidaires chez les adultes n'est pas expliqué par la dépression, contrairement aux liens entre pensées suicidaires et insomnie, par exemple (Abe & de Kernier, 2013; Bernert & Joiner, 2007; Bernert, Joiner, Cukrowicz, Schmidt, & Krakow, 2005; Pigeon, et al., 2012). Pourtant, les études sur le sommeil chez les adolescents s'intéressent surtout aux comportements suicidaires en lien avec l'insomnie plutôt qu'avec les rêves dysphoriques (Abe & de Kernier, 2013). À la lumière des liens entre rêves dysphoriques et comportements suicidaires, l'identification de rêves dysphoriques pourrait constituer un signe clinique complémentaire permettant de mieux cibler les jeunes à risque (Abe & de Kernier, 2013).

3.1.6 Différences entre les rêves récurrents et les rêves dysphoriques

Les rêves récurrents et les rêves dysphoriques sont deux expériences oniriques différentes dont la fréquence et l'occurrence sont peu corrélées. Malgré le fait que les rêves

récurrents ont généralement un contenu négatif qui peut ressembler à celui des rêves dysphoriques (voir article 3 sur le contenu de cette catégorie de rêves), ils se différencient des rêves dysphoriques par leur répétition et par le fait qu'un tiers d'entre eux sont neutres ou même positifs. Dans nos études, ils se différencient aussi des rêves dysphoriques par le fait qu'ils sont liés à peu de variables d'ajustement psychosocial, même s'ils sont liés aux pensées suicidaires. Toutefois, la possibilité que les liens entre rêves récurrents et ajustement psychosocial soient modérés par l'émotivité négative n'a pas été investiguée dans cette thèse. Il est donc possible qu'il existe une association entre la présence de rêves récurrents et l'ajustement psychosocial pour certains enfants plus portés à vivre des émotions négatives.

3.1.7 Conclusions de l'apport des études de cette thèse

Les études effectuées dans le cadre de cette thèse démontrent que les rêves dysphoriques touchent une majorité d'enfants et qu'ils sont liés à divers troubles d'ajustement psychosocial, et tout particulièrement aux troubles extériorisés chez les enfants portés à l'émotivité négative. Des traitements simples et efficaces existent pour les rêves dysphoriques, mais ils demeurent malheureusement peu connus des milieux cliniques. Les rêves récurrents quant à eux touchent environ un tiers des enfants, mais leur association à l'ajustement psychosocial semble être moindre que pour les rêves dysphoriques. Par contre, tant les rêves récurrents que les rêves dysphoriques démontrent des liens significatifs avec les pensées suicidaires.

3.2 Nature et directions des liens entre rêves récurrents, rêves dysphoriques et ajustement psychosocial : intégration des résultats à la littérature existante

Que ce soit pour les liens entre rêves dysphoriques et ajustement psychosocial, ou pour les associations entre les rêves récurrents, les rêves dysphoriques et les pensées suicidaires, nos études ne peuvent pas nous informer sur la direction des liens étant donné la nature corrélationnelle des données. Plusieurs hypothèses peuvent donc expliquer ces liens : 1) les troubles oniriques ont un impact sur l'ajustement; 2) l'ajustement a un impact sur les troubles oniriques; 3) d'autres variables expliquent le lien entre troubles oniriques et ajustement. Ces différentes hypothèses seront maintenant abordées tour à tour.

3.2.1 Hypothèses pouvant expliquer les liens entre rêves dysphoriques et ajustement psychosocial

La première hypothèse pouvant expliquer les liens entre les rêves dysphoriques et l'ajustement psychosocial et les pensées suicidaires est intimement rattachée aux concepts de détresses liée aux rêves dysphoriques. Cette détresse réfère à l'impact négatif des rêves dysphoriques à l'état d'éveil, certaines personnes étant plus affectées par leurs rêves dysphoriques que d'autres (Belicki, 1992; Blagrove, Farmer, & Williams, 2004; Levin & Nielsen, 2007). Ainsi, avoir des rêves intensément négatifs pourrait avoir un impact sur la détresse à l'état d'éveil. La détresse liée aux rêves dysphoriques est par ailleurs peu corrélée à la fréquence des rêves dysphoriques, et semble plus fortement corrélée au niveau de la psychopathologie de la personne qu'à la fréquence de ses rêves dysphoriques (Levin & Nielsen, 2007). Une récente étude (Lancee & Schrijnemaekers, 2013) démontre que parmi des

gens ayant souvent des rêves dysphoriques, l'humeur à l'éveil est négativement affectée suite à une nuit où il y a eu présence de rêves dysphoriques.

Pour ce qui est du lien entre rêves dysphoriques et pensées suicidaires, les auteurs de méta-analyses portant sur le sujet proposent certaines hypothèses pour expliquer les liens entre les rêves dysphoriques et le suicide, même s'ils n'expliquent pas vraiment les processus pouvant sous-tendre ces liens. À titre d'exemple, Berner et Joiner (2007) proposent qu'un sommeil ponctué de rêves dysphoriques pourrait ne pas servir son rôle de refuge émotionnel pour les gens qui vivent de la détresse. De plus, dans leurs méta-analyses portant sur les liens entre les troubles du sommeil et les pensées suicidaires, Pigeon et al., (2012) proposent que les rêves dysphoriques pourraient être des rappels fréquents d'événements négatifs, et que le réveil qu'ils entraînent pourrait aussi augmenter le risque de ruminations négatives nocturnes. Bien que nous n'ayons pas utilisé le critère de réveil pour définir les rêves dysphoriques, les rêves dysphoriques et les rêves récurrents négatifs rapportés dans nos études pourraient en effet ramener certains souvenirs négatifs à la mémoire des jeunes, ou encore laisser les jeunes aux prises avec des émotions négatives lors de leur réveil.

La deuxième hypothèse mise de l'avant pour expliquer les liens entre les rêves dysphoriques et l'ajustement psychosocial propose que les troubles d'ajustement créent une détresse qui, par la suite, se manifeste dans la tonalité émotionnelle de l'expérience onirique. Ainsi, les problèmes d'ajustement et le stress qu'ils entraînent auraient un impact sur la fréquence des rêves dysphoriques. Dans ce cas, les rêves dysphoriques refléteraient les problèmes et les préoccupations vécues à l'éveil, qui se traduiraient par une plus haute fréquence de rêves dysphoriques durant le sommeil. Les rêves dysphoriques seraient ainsi causés par les difficultés d'ajustement.

Une troisième hypothèse voudrait que les rêves dysphoriques et les problèmes d'ajustement seraient tous deux causés par des variables communes. On pourrait ainsi proposer que des facteurs tels que le stress créent à la fois une augmentation des problèmes d'ajustement et une augmentation de la fréquence des rêves dysphoriques. À titre d'exemple, la maladie ou la mort dans la famille, des problèmes financiers dans la famille et de la détresse chez la mère sont liés aux problèmes d'ajustement et aux rêves dysphoriques des enfants (article 1 de la thèse) (Bayer et al., 2011).

Toujours dans le contexte de cette troisième hypothèse, la régulation émotionnelle ou plutôt l'échec de celle-ci pourrait peut-être expliquer les liens entre rêves dysphoriques et ajustement psychosocial. En effet, si on s'attarde à la littérature sur les rêves dysphoriques découlant des théories sur le rêve, on remarque que les auteurs proposent que l'occurrence de rêves dysphoriques refléterait un échec du travail de régulation émotionnelle qui serait accompli par le rêve (Agargun & Cartwright, 2003; Cartwright, Agargun, Kirkby, & Friedman, 2006; Cartwright, Young, Mercer, & Bears, 1998; Cartwright, 1991; Kramer, 1991, 1993). Pour Levin et Nielsen (2007), les rêves dysphoriques représentent un échec de la régulation émotionnelle qui se fait généralement durant les rêves, par le biais d'un travail d'extinction des souvenirs de peur. Dans ce modèle, c'est plus particulièrement l'échec du traitement de la peur qui est lié aux rêves dysphoriques. Mais, à la lumière de nos résultats, on peut proposer que les rêves dysphoriques seraient liés à une difficulté à réguler les émotions négatives de manière plus générale, travail qui serait quant à lui effectué par les rêves. Cette hypothèse a par ailleurs déjà été proposée par d'autres chercheurs qui se sont attardés aux aspects cliniques et psychologiques des rêves dysphoriques (Robert, 2013). Cette vision de la fonction onirique s'illustre par exemple dans le modèle de Kramer où les rêves dysphoriques sont vus comme un

échec dans la capacité du rêve à contenir l'intensification émotionnelle au cours du sommeil (Kramer, 1991, 1993; Kramer, Whitman, Baldrige, & Lansky, 1964). Cartwright (2011) va dans le même sens en concevant les rêves comme ayant un rôle important dans la régulation émotionnelle, une perspective appuyée par ses nombreuses études sur les rêves des gens suite à des événements difficiles tels que le divorce (Cartwright, 2011; R. Cartwright, et al., 2006; Cartwright, 1991; Cartwright, 1996).

Par ailleurs, certains auteurs (Lancee & Schrijnemaekers, 2013) ayant démontré que l'humeur à l'éveil matinal est affectée par l'expérience de rêves dysphoriques au cours de la nuit, expliquent cette association par le fait que les rêves dysphoriques constituent une faille dans la régulation émotionnelle. Cette faille dans la régulation émotionnelle qui se fait normalement dans les rêves aurait un impact négatif sur l'humeur au réveil (Agargun & Cartwright, 2003; Lancee & Schrijnemaekers, 2013).

Il se peut également, comme le propose Kramer (1991), que les gens ayant différentes problématiques d'ajustement aient une moins bonne capacité de régulation émotionnelle qui se traduirait, entre autres, par une incapacité à contenir les émotions dans le rêve. Ainsi, les problèmes de sommeil pourraient être liés aux difficultés de régulation émotionnelle qui s'exprimeraient tant durant le sommeil qu'à l'éveil (Abe & de Kernier, 2013; Bernert & Joiner, 2007).

Ce lien entre difficulté de régulation émotionnelle et problème d'ajustement est aussi proposé dans la littérature sur les psychopathologies. En effet, plusieurs études (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Eisenberg et al., 2001) montrent une association entre des difficultés de régulation émotionnelle et les troubles extériorisés, et il a été démontré que les

troubles d'ajustement psychosocial sont liés à des difficultés de régulation émotionnelle (Aldao, et al., 2010; Eisenberg, et al., 2001).

Il ne faut pas oublier que le sommeil en général joue un rôle dans l'adaptation émotionnelle, le traitement des souvenirs émotionnels et la régulation affective (Deliens, Gilson, & Peigneux, 2014; Kahn, Sheppes, & Sadeh, 2013; Perogamvros, Dang-Vu, Desseilles, & Schwartz, 2013; Stickgold & Walker, 2013). Qui plus est, un nombre grandissant d'études concorde en montrant que le sommeil paradoxal est associé à la mémoire émotionnelle et à la régulation des émotions, mais les évidences manquent encore pour établir un lien direct entre sommeil paradoxal, rêves et régulation émotionnelle (Perogamvros, et al., 2013; Stickgold & Walker, 2013). Cela dit, étant donné que l'architecture du sommeil paradoxal semble altérée lors des nuits avec cauchemars, (Simor, Bodizs, Horvath, & Ferri, 2013), il est possible que l'occurrence répétée de rêves dysphoriques vienne entraver certaines fonctions liées au sommeil.

3.2.2 Addition des hypothèses 1, 2 et 3 et intégration aux théories sur les rêves dysphoriques

Les 3 premières hypothèses discutées ci-haut ne sont pas mutuellement exclusives et ensemble, elles expliquent probablement mieux les relations entre rêves dysphoriques et ajustement psychosocial que de façon individuelle. Quoique spéculatif, il est probable que les rêves dysphoriques et les problèmes d'ajustement soient tous deux liés à des problèmes de régulation émotionnelle. Ces divers éléments que sont les rêves dysphoriques, les problèmes d'ajustement et l'émotivité négative (difficulté à réguler ses émotions négatives, dans le cas des troubles extériorisés) pourraient s'influencer ainsi les uns les autres.

Ces associations entre rêves dysphoriques et régulation émotionnelle pourraient expliquer tant les liens observés entre rêves dysphoriques et ajustement psychosocial qu'entre rêves dysphoriques et pensées suicidaire. En effet, si les rêves dysphoriques et les problèmes d'ajustement sont tous deux liés à des difficultés de régulation émotionnelle, alors la présence de rêves dysphoriques est liée à la présence de problèmes d'ajustement. Ainsi, les gens ayant des difficultés de régulation émotionnelle font à la fois plus de rêves dysphoriques et ont plus de problèmes d'ajustement. De plus, le fait que la régulation émotionnelle ne se fasse pas correctement au cours de la nuit augmenterait les problèmes d'ajustement à l'éveil. Ces trois variables seraient ainsi liées de manière réciproque. Les problèmes de régulation émotionnelle seraient un élément constant entre l'éveil et le sommeil et ils auraient donc un impact sur l'occurrence des rêves dysphoriques au cours de la nuit, mais aussi sur la présence de problèmes d'ajustement le jour. Le fait d'avoir des rêves dysphoriques ne permettrait pas à la régulation émotionnelle de se faire correctement durant le sommeil, ce qui augmenterait les problèmes d'ajustement à l'éveil qui, à leur tour, hausseraient le stress vécu, et donc accroîtraient la manifestation de rêves dysphoriques. Ces trois éléments s'alimenteraient donc les uns les autres.

Il ne faut toutefois pas oublier l'effet modérateur de l'émotivité négative sur le lien entre rêves dysphoriques et problèmes extériorisés. Ainsi, pour tous les enfants, qu'ils aient beaucoup d'émotivité négative ou non, les rêves dysphoriques (et donc les problèmes de régulation émotionnelle) sont liés aux troubles intériorisés. Cependant, ils ne sont liés aux troubles extériorisés que pour les enfants ayant une émotivité négative dans la moyenne et au-dessus de la moyenne. La raison de la spécificité de cet effet de modération aux troubles extériorisés reste à clarifier.

3.2.3 Hypothèses pouvant expliquer les liens entre rêves récurrents et ajustement psychosocial

Il est plus difficile d'intégrer nos données sur les rêves récurrents à la littérature existante sur ce type de rêve étant donné la pauvreté de celle-ci. Toutefois, dans la recherche s'intéressant à la régulation émotionnelle dans les rêves, les définitions des rêves dysphoriques sont souvent relativement vagues et incluent une panoplie de rêves négatifs, et pourraient donc inclure aussi la portion de rêves récurrents qui sont négatifs (voir étude 3). De plus, certaines théories de la régulation émotionnelle des rêves proposent que la séquence des rêves au cours d'une même nuit, ou le changement dans le contenu de nuit en nuit, pourraient jouer un rôle dans le processus de régulation émotionnelle. Selon ce point de vue, un rêve qui se répète irait à l'encontre de cette régulation (Nielsen & Lara-Carrasco, 2007). Ainsi, comme pour les rêves dysphoriques, ces rêves pourraient avoir un impact sur l'humeur du rêveur le matin, tant par leur tonalité négative que par l'échec de la régulation émotionnelle qu'ils pourraient traduire. Il est aussi possible de faire un parallèle entre les rêves récurrents et la rumination qui est liée aux psychopathologies chez l'adulte (Aldao, et al., 2010). En effet, on peut penser que les rêves récurrents sont une forme de rumination (parfois de nature métaphorique) portant sur les problèmes que la personne rencontre dans sa vie sans que des solutions soient trouvées. En se répétant ainsi, ces rêves remettent la personne face à une difficulté ou à des émotions négatives, mais sans que des modifications de contenu puissent aider le processus de régulation. En conclusion, même si les rêves récurrents constituent des expériences oniriques différentes des rêves dysphoriques, ceux ayant un contenu négatif (environ deux tiers d'entre eux) pourraient être corrélés à l'ajustement psychosocial selon les mêmes modalités.

3.3 Limites des études

Nos études comportent diverses limites. Premièrement, même si certaines des études effectuées dans le cadre de cette thèse sont de nature prospective ou longitudinale, elles restent corrélationnelles, ce qui nous empêche de statuer sur la direction des liens unissant rêves dysphoriques, rêves récurrents et ajustement psychosocial. Cette nature corrélacionnelle nous limite aussi quant à la possibilité de statuer sur les processus qui expliquent ces liens, et sur le rôle que pourrait jouer par exemple la régulation émotionnelle. Des études futures pourraient tenter de pallier certaines de ces limites. Premièrement, une étude longitudinale où les rêves dysphoriques, les rêves récurrents et l'ajustement psychosocial seraient mesurés à plusieurs temps de mesure permettrait alors de suivre leurs évolutions conjointes (modèle de type « cross lag »). Ceci permettrait de s'attarder à la valeur prédictive des rêves dysphoriques sur les futurs problèmes d'ajustement, ainsi qu'à la valeur prédictive des problèmes d'ajustement sur les rêves dysphoriques (de même que pour les rêves récurrents). Grâce à ces analyses, on pourrait mieux connaître quels liens semblent les plus robustes et les plus importants.

Deuxièmement, la taille de notre échantillon a limité la possibilité d'inclure des variables de contrôle, comme la dépression, dans l'étude sur les liens entre les rêves dysphoriques, les rêves récurrents et les pensées suicidaires. Il serait donc important que les études futures travaillent avec des échantillons plus grands permettant l'inclusion de plus de variables de contrôle.

Troisièmement, les problèmes entourant la définition des termes rêves dysphoriques, mauvais rêves et cauchemars soulevés dans l'introduction de cette thèse amènent aussi certaines limites. Dans nos études, nous avons fait le choix d'utiliser le terme mauvais rêves,

un terme facile à comprendre pour les enfants et les adolescents. Nous n'étions pas certains qu'ils puissent faire la différence entre mauvais rêves et cauchemars. Toutefois, il y a dans la littérature un problème entourant la définition du terme rêve dysphorique, Ainsi, la capacité de distinguer les cauchemars des mauvais rêves demeure un défi dans ce domaine d'étude. Selon le modèle de Levin et Nielsen (2007), le fait que le dormeur se réveille indique la présence d'un cauchemar qui serait une forme extrême de rêve dysphorique. Ce point de vue est soutenu par Zadra et Dondori (2000), qui ont démontré que les cauchemars sont reliés plus fortement aux problèmes d'ajustement que le sont les mauvais rêves, que les cauchemars contiennent des émotions négatives plus intenses que celles retrouvées dans les mauvais rêves (Robert & Zadra, 2014, Zadra, Pilon et Dondori, 2006), ainsi que par les ouvrages cliniques de référence dans le domaine (American Academy of Sleep Medicine, 2005; American Psychiatric Association, 2000). Le fait que la distinction n'ait pas été faite dans notre étude ne nous permet pas d'estimer dans quelle mesure une telle distinction pourrait exister chez les enfants et les adolescents. Dans des études futures, les deux termes pourraient être inclus afin de vérifier si ces deux phénomènes sont semblables et s'ils ont les mêmes corrélats.

Quatrièmement, nous n'avons pas testé la possibilité que l'émotivité négative modère les liens entre l'ajustement psychosocial et les rêves récurrents, et nous ne pouvons donc pas nous prononcer sur cette possibilité. Ceci pourrait faire l'objet d'une future étude.

Finalement, étant donné que les traitements pour les rêves dysphoriques sont relativement simples à mettre en place et semblent efficaces (voir article 1), il pourrait être intéressant d'étudier la possibilité que ces traitements améliorent l'ajustement psychosocial des jeunes ou puissent même diminuer les pensées suicidaires des jeunes aux prises avec ce genre de problématique.

4. Conclusions de la thèse

Si seulement quelques points des 5 articles de cette thèse devaient être retenus, ceux-ci seraient : 1) les rêves récurrents et les rêves dysphoriques sont des expériences communes mais distinctes au début de l'adolescence; 2) Ces deux catégories de rêves semblent être liées à divers problèmes d'ajustement psychosocial, incluant des problèmes plus sérieux tels que les pensées suicidaires; 3) La nature de ces associations se doit d'être approfondie car des implications cliniques pourraient en ressortir, comme l'intégration des questions clé sur les troubles oniriques dans des questionnaires de dépistage afin de cibler les jeunes vivant certaines difficultés psychosociales, ainsi que la possibilité d'utiliser les traitements des rêves dysphoriques pour améliorer l'ajustement psychosocial (Abe & de Kernier, 2013; Bernert & Joiner, 2007). En intégrant nos résultats à la littérature portant sur les rêves ainsi que sur les problèmes d'ajustement psychosocial, il semble de plus en plus clair que les rêves récurrents, les rêves dysphoriques et les problèmes d'ajustement sont interreliés, et le manque de régulation émotionnelle pourrait jouer un rôle important dans l'explication de ces liens. Il semble important de continuer la recherche dans ce domaine afin de pouvoir utiliser cliniquement ces résultats prometteurs, que ce soit pour la prévention du suicide ou pour mieux comprendre ainsi qu'améliorer l'ajustement psychosocial des jeunes.

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Annexes 1

Questionnaire sur les rêves présenté aux enfants

SECTION 7

Les prochaines questions portent sur tes rêves...

42. En moyenne, de combien de rêves souviens-tu par semaine: _____

43. T'es-tu déjà souvenu de goûts ou d'odeurs spécifiques provenant d'un rêve?

Oui..... 1

Si oui, spécifie: goûts..... a

odeurs..... b

Les deux..... c

Non..... 2

44. As-tu déjà senti des douleurs physiques dans tes rêves?

Oui..... 1

Non..... 2

Un mauvais rêve est un rêve très déplaisant.

Annexes 1 (suite)

45. En moyenne, tu fais des mauvais rêves:

- | | | |
|------------------|---|-------------------|
| Jamais..... | 1 | → Passe à la Q48a |
| Parfois..... | 2 | |
| Souvent..... | 3 | |
| Toujours..... | 4 | |
| Ne sais pas..... | 5 | → Passe à la Q48a |

46. Estime le nombre de mauvais rêves que tu as eus au cours du dernier mois? _____

47. Est-ce que faire des *mauvais rêves* est un problème courant pour toi?

- | | |
|----------|---|
| Oui..... | 1 |
| Non..... | 2 |

Un rêve récurrent est un rêve qui lors du rappel te donne l'impression de l'avoir déjà fait.

48a. Au cours de la dernière année, as-tu eu un rêve récurrent?

- | | | |
|-----------------|---|----------------------------|
| Oui..... | 1 | → Passe à la question 48b. |
| Non..... | 2 | → Passe à la fin. |
| Incertain | 3 | → Passe à la fin. |

48b. *Si oui*, indique (approximativement) le nombre de fois où tu as eu ce rêve récurrent durant la dernière année: _____

48c. Décris ton rêve récurrent. Essaie d'inclure l'environnement dans lequel se passe le rêve, les gens ou les choses impliquées, la fin (s'il y en a une), ou tout autre détail que tu crois important.

Annexes 2

Questionnaire sur les variables d'ajustement psychosocial

SECTION 2

À propos de tes sentiments et de tes comportements.

16. Voici des énoncés qui décrivent des comportements que tu as pu avoir ou non au cours des 12 derniers mois. Choisis la réponse qui te décrit le mieux.

Au cours des 12 derniers mois...	Jamais ou pas vrai	Quelques fois ou un peu vrai	Souvent ou très vrai
a. Quand quelqu'un fait une erreur, je me sens mal ou j'ai de la peine pour lui ou pour elle.	1	2	3
b. Je ne peux pas rester en place, je suis agité(e).	1	2	3
c. Je détruis mes propres choses.	1	2	3
d. Quand quelqu'un se fait mal, j'essaie de l'aider.	1	2	3
e. Je vole des choses à la maison.	1	2	3
f. Je suis malheureux (se) ou triste.	1	2	3
g. Je me bats souvent avec d'autres.	1	2	3
h. Je suis facilement distrait(e), j'ai du mal à poursuivre une activité quelconque.	1	2	3
i. Quand je suis fâché(e) contre quelqu'un, j'essaie d'amener les autres à le(la) détester.	1	2	3
j. Je ne suis pas aussi heureux(se) que les autres jeunes de mon âge.	1	2	3
k. Je détruis des choses qui appartiennent à ma famille ou à d'autres jeunes.	1	2	3
l. Quand il y a une chicane, j'essaie de l'arrêter.	1	2	3

Annexes 2 (suite)

Questionnaire sur les variables d'ajustement psychosocial

Au cours des 12 derniers mois...	Jamais ou pas vrai	Quelques fois ou un peu vrai	Souvent ou très vrai
m. Je ne peux pas me concentrer ou maintenir mon attention.	1	2	3
n. Je suis trop craintif (ve) ou nerveux(se).	1	2	3
o. Quand je suis fâché(e) contre quelqu'un, je deviens ami(e) avec quelqu'un d'autre pour me venger.	1	2	3
p. Je suis impulsif (ve), j'agis sans réfléchir.	1	2	3
q. Je dis des mensonges ou je triche.	1	2	3
r. Je suis très inquiet (ète).	1	2	3
s. J'ai de la difficulté à attendre mon tour dans un jeu ou une activité de groupe.	1	2	3
t. Quand un autre jeune me fait mal accidentellement, je suppose qu'il (elle) l'a fait exprès, je me fâche et je commence une bagarre.	1	2	3
u. Quand je suis fâché(e) contre quelqu'un, je dis de vilaines choses dans son dos.	1	2	3
v. J'attaque physiquement les autres.	1	2	3
w. Quand un autre jeune (ami(e), frère ou soeur) pleure ou a de la peine, je le (la) console.	1	2	3
x. Je pleure beaucoup.	1	2	3
y. Je fais du vandalisme.	1	2	3
z. Je menace de frapper les autres.	1	2	3
aa. Je suis dur (e) ou méchant (e) envers les autres.	1	2	3
bb. J'ai de la difficulté à rester tranquille pour plus de quelques instants.	1	2	3
cc. Quand je suis fâché (e) contre quelqu'un, je dis aux autres: je ne veux pas de lui (d'elle) dans notre groupe.	1	2	3
dd. Je suis nerveux (se) ou très tendu(e).	1	2	3
ee. Je frappe ou je donne des coups de pied aux autres.	1	2	3
ff. Je vole des choses à l'extérieur de la maison.	1	2	3
gg. Je suis inattentif (ve), j'ai de la difficulté à porter attention à ce que quelqu'un dit ou fait.	1	2	3

Annexes 2 (suite)

Questionnaire sur les variables d'ajustement psychosocial

Au cours des 12 derniers mois...	Jamais ou pas vrai	Quelques fois ou un peu vrai	Souvent ou très vrai
hh. J'ai du mal à m'amuser.	1	2	3
ii. Quand un autre jeune (ami(e), frère ou soeur) ne se sent pas bien, je lui offre mon aide.	1	2	3
jj. Quand je suis fâché(e) contre quelqu'un, je raconte ses secrets à d'autres.	1	2	3
kk. Je me rebelle ou je refuse d'obéir.	1	2	3
ll. Quand je me conduis mal, je n'ai pas de remords.	1	2	3
mm. Les punitions ne me font pas changer mon comportement.	1	2	3
nn. J'ai des crises de colère ou je me fâche vite.	1	2	3
oo. J'ai tendance à faire des choses seul/e, je suis plutôt solitaire.	1	2	3
pp. lorsqu'on me taquine, je réagis de façon agressive. (par exemple je tape, pousse ou frappe l'autre)	1	2	3
qq. lorsqu'on me prend quelque chose, je réagis de façon agressive. (par exemple je tape, pousse ou frappe l'autre)	1	2	3
rr. j'encourage des enfants à s'en prendre à un autre.	1	2	3
ss. Je m'approche facilement d'enfants que je ne connais pas.	1	2	3
tt. Je suis timide en présence d'enfants que je ne connais pas.	1	2	3
uu. Je cherche à dominer les autres.	1	2	3
vv. J'ai peu d'intérêt pour des activités impliquant d'autres enfants.	1	2	3
ww. lorsqu'on me contredit, je réagis de façon agressive. (par exemple je tape, pousse ou frappe l'autre)	1	2	3
xx. Je prends beaucoup de temps à m'habituer à la présence d'enfants que je ne connais pas.	1	2	3
yy. Je fais peur aux autres afin d'obtenir ce que je veux.	1	2	3
zz. Je préfère jouer seule plutôt qu'avec d'autres enfants.	1	2	3

