ADAPTATION OF IMAGERY REHEARSAL THERAPY FOR NIGHTMARES IN CHILDREN: A BRIEF REPORT

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This study investigated the effectiveness of a psychotherapeutic treatment for nightmares that was adapted for 6- to 11-year-old children from imagery rehearsal therapy. Ten child–mother dyads took part in a 3-session, 8-week treatment protocol. Participation in the study (contact with clinician, keeping a prospective dream log) was associated with decreases in unpleasant dreams frequency, nightmare distress, and manifest anxiety. Providing educational information about nightmares did contribute to this positive effect. Results also suggest that drawing modified versions of nightmares for 1 month was associated with further reductions in nightmare distress and anxiety, but with no changes in unpleasant dreams frequency. Follow-ups at 3 and 6 months posttreatment suggest that the intervention had maintained effects.

Keywords: nightmares, children, cognitive behavioral therapy, drawing therapy, anxiety

Nightmares (NMs) can be defined as unpleasant dreams that awaken the sleeper, bad dreams (BDs) as unpleasant dreams that do not provoke an awakening (Zadra & Donderi, 2000), and unpleasant dreams as either type of event. Despite the fact that the first occurrence of NMs can often be traced back to 3 to 6 years of age (American Psychiatric Association, 2000), research on unpleasant dreams in children is scarce. For instance, prevalence studies of unpleasant dreams are few and yield inconsistent findings, with prevalence rates ranging from 1.3% (Simard, Nielsen, Tremblay, Boivin & Montplaisir, 2008) to 13.5% (Hawkins & Williams, 1992) in preschoolers. Research is also clearly needed in the field of NM treatments for children.

In adults, imagery rehearsal therapy (IRT) is the most studied psychotherapeutic intervention that specifically targets NMs. This cognitive–behavioral intervention includes various potentially therapeutic components (Krakow & Zadra, 2006) such as (1) group sessions within which educational information on NMs is provided (e.g., how they are triggered and maintained as a habit) and common beliefs about NMs are discussed; (2) supervised practice of mentally rehearsing a moderately intense NM and applying changes to make it more pleasant; and (3) daily rehearsal (5–20 min) of a modified version of any NM for 4–6 weeks. IRT was consistently reported to be associated with a decrease in NM frequency, NM distress, and anxious and depressive symptoms (Germain & Nielsen, 2003; Krakow et al., 2001; Krakow, Kellner, Neidhart, Pathak, & Lambert, 1993) within 6 to 12 weeks of psychotherapy initiation. These positive outcomes were observed both in patients suffering from posttraumatic stress disorder (PTSD) NMs and in those with non-PTSD NMs.

Despite these promising findings in the adult population, only one study has investigated the effectiveness of IRT with children (St-Onge, 2003; St-Onge, Mercier, & De Koninck, 2009). In this controlled randomized study, IRT was associated with a decrease in NM frequency but did not seem to have any effect on NM distress or
anxiety and depression levels in 9- to 11-year-old children (St-Onge, 2003). St-Onge suggested that using drawing instead of imagery rehearsal and using the telephone instead of an audio recorder to complete daily dream logs might improve the effectiveness of and favor compliance to treatment in children. Drawing is a highly familiar activity to children and has been reported to induce a sense of control, mastery, and competence (Cohen-Liebman, 1999; Hanney & Kozlowska, 2002; Johnson, 1987; Malchiodi, 1998), which are hypothesized to explain, at least partly, the efficacy of IRT in adults (Germain et al., 2004). The use of the telephone should provide a fast and easy way of completing daily dream logs, thus favoring treatment compliance, in comparison with paper and pencil or audiorecorded logs. Moreover, the use of the telephone ensures that participants fill out the logs as instructed on a prospective day-to-day basis. The goal of this pilot study was to measure the effectiveness of a modified version of IRT that introduces two new elements in treating unpleasant dreams in children, specifically the use of drawing and of an automated telephone system to complete daily dream logs. In this study, drawing was used in replacement of imagery rehearsal; children were asked to draw a modified version of their last unpleasant dream on a daily basis.

Method

Participants and Procedure

Participants were recruited through schools and health care facilities in Montreal, Quebec, Canada, and surrounding areas. Over 3,000 letters and flyers including a brief description of the study and contacts were distributed to parents. Only 32 parents contacted us to obtain more information. Sample size was further reduced after applying the following inclusion criteria: age between 6 and 11 years, no history of a diagnosed mental or neurological disorder, no history of taking psychoactive medication, presence of NM-related psychological distress, NM frequency = at least 1/week, NM as the main sleep complaint, and child not currently undergoing psychotherapy. All accompanying parents were mothers. The final sample consisted of 17 French-speaking children (10 girls, 7 boys) between 6 and 11 years of age, living primarily in highly educated families (university level in 11 of 17, or 64.7% cases; college level in 3 of 17, or 17.7% cases). The sample was mostly White (14 of 17, or 82.4%), other cultural backgrounds being Latin American (n = 1), Arab (n = 1), and African American (n = 1). Of the 17 parent–child dyads participating in the first session, 7 (41.2%; 3 boys, 4 girls) dropped out of the study before Session 2 because of a dramatic decrease in frequency of NMs/BDs (n = 3), parent’s lack of time to attend sessions (n = 3), or child being referred to a mental health professional (n = 1). There were no dropouts from Session 2 to Session 3 (n = 10). Follow-up interviews were conducted with 7 mother–child dyads at 3 months postintervention and with 6 dyads at 6 months postintervention.

The 8-week protocol included 3 mother–child sessions, each spaced by a 4-week interval. All sessions were conducted by a child psychologist. Session 1 (90 min) included the following elements: providing details about the study; obtaining informed consent; discussing the differences between dreams, BDs, NMs, and sleep terrors; supervised practice in using the automated phone system (parent–child; 45 min); investigating the child’s perception of NMs; and measuring baseline levels of the child’s psychological symptoms (child only; 45 min). At Session 2, children were randomly assigned to a waiting list (60 min) or a treatment group (90 min). In both groups, child–mother dyads were provided educational information about NMs (30 min), then the child completed the same interviews and questionnaires administered in Session 1 (child only; 30 min). In the treatment group, the parent and child were additionally given treatment instructions and a study rationale and took part in a supervised rehearsal of the technique (parent–child; 30 min). At Session 3, children in both groups completed the same questionnaires and interviews for the third time (child only; 30 min). Children in the waiting-list group received treatment instructions and rationale (parent–child; 30 min). Children in both groups called the automated phone system 7 days/week for 8 weeks, from Session 1 to Session 3.

Originally, two treatment groups were included in the protocol to control for a potential therapeutic effect of drawing per se: one full-treatment group (drawing modified versions of NMs/BDs) and one partial-treatment group (drawing original versions of NMs/BDs). Because of low recruitment rate, both groups were combined into a single treatment group. At Sessions 2 and 3 (n = 10), there were 4 (40.0%)
children in the waiting-list group (2 boys, 2 girls, 7–10 years old; $M = 8.25$, $SD = 2.25$), and 6 (60.0%) children in the treatment group (2 boys and 4 girls, 6–10 years old; $M = 8.00$; $SD = 3.2$). Follow-ups were completed through phone interviews at 3 and 6 months after Session 3 with the child and his or her mother separately.

**Prospective Daily Report of BDs/NMs**

The frequency and intensity of BDs/NMs were measured prospectively with the Daily Dream Log Interview (DDLI) delivered by the automated phone system. After typing his or her code, the child heard the clinician’s voice asking questions about BDs/NMs that may have occurred the preceding night (presence/absence, level of unpleasantness from 1 to 8, and level of realness from 1 to 8). Children answered questions by typing their response choices on the telephone keypad. They were also asked to verbally recount their BDs/NMs, which were recorded by the system.

**Information About NMs (Session 2: Both Groups)**

An information sheet on NMs was discussed with each mother–child dyad. It included information about (1) epidemiology of NMs, (2) myths or cognitive biases about NMs (predict the future, signal a serious disease, come true if told, are punishment), (3) common consequences of NMs (intrusive thinking, subsequent/associated fear, tiredness, nervousness/worry, sadness), and (4) mechanisms through which NMs are triggered (e.g., after a stress) and maintained (e.g., like a habit). This information was adapted from adult IRT (see Krakow & Zadra, 2006) and based on epidemiological findings for unpleasant dreams in children (Simard et al., 2008).

**Treatment Instructions**

Children were instructed to draw, daily (7 days/week), a modified version of the last distressing dream they had (maximum, 7 days/NM). The importance of the child choosing how to change the distressing dream by himself or herself was emphasized. For instance, one child having a NM about being kidnapped in his bed by an unknown man chose to draw himself in his bed with a remote that controlled the kidnapper. The rational underlying the treatment was described to each mother–child dyad.

**Measures**

A general information questionnaire included 24 questions about the aforementioned inclusion/exclusion criteria, sociodemographic information, and the child’s and family’s histories of NMs. Posttreatment follow-up interviews were conducted at 3 and 6 months after Session 3 with the mother (12 items) and child (7 items) and included questions about frequency of BDs/NMs (mother and child), posttreatment use of the drawing technique (mother and child), major life or health changes (mother), and emotions felt during unpleasant dreams (child).

To distinguish between PTSD and non-PTSD NMs, we assessed the presence/absence of PTSD using a French adaptation of the Anxiety Disorders Interview Schedule for DSM–IV, Child Version (ADIS-C). The English version of this semi-structured interview has good psychometric properties (Silverman, Saavedra, & Pina, 2001). General level of anxiety was measured by the French version of the Revised Children Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978). The validated French version of this child self-administered questionnaire showed good to excellent internal consistency and good test–retest reliability (Turgeon & Chartrand, 2003). The level of depression was assessed with the French version of the Children Depression Inventory (CDI; Kovacs, 1982), which has demonstrated good internal consistency and 2-month test–retest reliability (Saint-Laurent, 1990). Psychological distress specific to NMs was assessed by the Nightmare Distress Interview (NDI), adapted for use with children from the Nightmare Distress Questionnaire (NDQ; Belicki, 1992).

**Ethics Boards Approval**

The study received approval from institutional ethic boards and scientific committees of the participating local health centers, the Montreal School Board, Sacré-Coeur Hospital, Ste-Justine Hospital, and the University of Montreal, Montreal, Quebec, Canada. All participating parents provided informed consent on behalf of their children.
Results

Pretreatment NM problem severity was indexed through questions from the general information questionnaire. According to the mother, the impact of NMs in various life domains of the child was greatest for quality of sleep (Mdn = 2, on a scale ranging from 0 to 4), followed by general energy level (Mdn = 1 on a scale ranging from 0 to 4). Sleep of family members seemed to be as affected as the child’s sleep (Mdn = 2). Children in waiting-list and treatment groups did not differ on any of these variables and had the same median scores for most life domains. All NMs/BDs were nontraumatic; no child met the criteria for PTSD in accordance with the Diagnostic and Statistical Manual of Mental Disorders (text revision; DSM–IV–TR; American Psychiatric Association, 2000).

Psychological Variables

A repeated measures analysis of variance (ANOVA) revealed a significant decrease in total NM distress (on the NDI) from Session 1 to Session 3, F(2, 16) = 5.85, p < .05, η² = 0.42. Post hoc analyses revealed a significant decrease from Session 1 (M = 8.87 ± 3.64) to Session 2 (M = 7.00 ± 3.12, p < .05), but not from Session 2 to Session 3 (6.00 ± 2.96, ns). Another repeated measures ANOVA was performed to assess change in manifest anxiety level (on the RCMAS; total score/28) and, overall, revealed no significant change from Session 1 to Session 3, F(2, 18) = 2.18, ns. There was a trend toward a decrease in anxiety from Session 1 (M = 14.70 ± 6.18) to Session 2 (M = 12.20 ± 6.76), F(1, 9) = 2.22, p = .054, η² = 0.35. Most children (7 of 10, or 70.0%) reported fewer anxiety symptoms at Session 2, with a decrease ranging from 2 of 28 to 8 of 28. Level of depressive symptoms (on the CDI) was low at Session 1; it ranged from 0 of 20 to 7 of 20 (M = 2.80 ± 2.74) and remained stable from Session 1 to Session 3.

Because of small sample size, Group X measure effects could not be examined through statistical tests. However, a descriptive analysis of these data revealed that the decrease in anxiety ended at Session 2 for most participants in the waiting-list group (3 of 4, or 75.0%), whereas it kept decreasing from Session 2 to Session 3 in all participants in the treatment group (6 of 6 or 100.0%). Similarly, in the waiting-list group, the decrease in NM distress stopped at Session 2 in most cases (3/4 or 75.0%), whereas it kept decreasing in the treatment group (4 of 6 or 66.7% participants).

Prospective Frequency of Unpleasant Dreams

Because of the relatively low frequency of unpleasant dreams, a descriptive analysis of the data was conducted. The DDLI revealed a relatively low frequency of unpleasant dreams during the first pretreatment week (n = 14); 4 (28.6%) children did not report any; 7 (50.0%) had only one, 2 (14.3%) had 2, and 1 (7.1%) had 3. From Weeks 1–2 to Weeks 3–4 (n = 13), the frequency of unpleasant dreams was reduced for 7 (53.8%), stable for 4 (30.8%), and heightened for 2 (15.4%) children. There was no clear pattern of change in unpleasant dreams frequency after Session 2.

Follow-Up

Most children (5 of 7, or 71.4%) and parents (71.4%) reported no unpleasant dreams from Session 3 to 3 months posttreatment. Children who reported some unpleasant dreams (n = 2; 28.6%) did not report being awakened from them. Mothers of the 2 children who had unpleasant dreams at 3 months posttreatment both reported major health problems for their child since Session 3; that is, growth retardation and installation of an orthopaedic prosthesis.

At the 6-month follow-up, 3 of 6 children (50.0%) and their parents reported unpleasant dreams. In the time between follow ups, all these children went through stressful events (i.e., beginning psychotherapy, breaking an arm, immune system defect).

Discussion

NM distress and manifest anxiety both decreased from Session 1 to Session 2 and kept decreasing after Session 2 but only in the treatment group. These findings replicate IRT studies in adults that have reported a decrease in NM distress and level of anxiety (Germain & Nielsen, 2003; Krakow et al., 2001). Our results suggest that many therapeutic ingredients might contribute to reducing anxiety and NM distress: inclusion in a NM intervention protocol (contact with the clinician, daily reports of NMs, use of an
automated phone system), drawing, and modifying NMs. However, information on NMs alone (Session 2; waiting-list group) did not seem effective in reducing anxiety and NM distress. Neither inclusion in our treatment protocol nor the intervention per se were associated with changes in level of depressive symptoms. This is probably due to the relatively low baseline level of depressive symptoms in this sample.

Inclusion in the protocol, but not intervention or the providing of information, had the effect of decreasing unpleasant dreams frequency in 53.8% of participants. Our results suggest that the mere inclusion in a research protocol (including contact with a clinical psychologist; Session 1) or the reassuring structure provided by calling the automated phone system are effective ingredients in reducing unpleasant dreams. It might be that hearing the clinician’s voice or knowing that their unpleasant dream reports will be listened to by the clinician have a therapeutic effect in children.

In conceptualizing effective psychotherapeutic interventions for NMs in children, NM distress, rather than NM frequency, should be given highest consideration. Our results suggest that NM distress, as well as anxiety, require specific interventions (e.g., drawing a modified version of the NM), whereas NM frequency is amenable to more general kinds of intervention (e.g., inclusion in a study, contact with the clinician, keeping a daily dream log, or using an automated phone system with the clinician’s voice). It may be that NM frequency is related to REM sleep regulatory processes that are responsive to general therapeutic interventions, whereas NM distress and anxiety can be understood as waking consequences of NMs that are responsive to interventions which enhance a sense of control through NM modification.

Follow-up results indicate that our intervention protocol was effective in reducing unpleasant dreams frequency at least until a new stress occurred in the child’s life. In fact, at 3 and 6 months posttreatment, the only children who reported having had unpleasant dreams since the end of treatment were those who had new health problems or stressors. Thus, treatment does not seem to have inoculated the child against the occurrence of future NMs. However, the posttreatment unpleasant dreams were reported by children and parents to be less intense. Thus, the long-term effect of treatment seems to be more enduring for the distress component and may modify a distress-prone personality trait (Nielsen & Levin, 2007).

The small sample size limits the robustness of the findings and the low recruitment rate (32 of 3,000; 1.1%) might be associated with a self-selection bias (e.g., families with a special interest in dreams). Lower NM distress and frequency rates than expected and the fact that children might be reluctant to tell their unpleasant dreams to their parents might account for the low recruitment rate. For future studies, one strategy could be to recruit directly in schools and to target the children through briefly informing them about dreaming and NM/BD, asking about NM frequency and distress, and giving them the letter to hand out to parents. The present sample might differ from the general population (e.g., high level of education) and was selected from a single geographic area (e.g., Montreal, Quebec, Canada), thus not allowing for generalization of the findings. Also, our protocol did not allow us to determine whether the reduction in frequency of unpleasant dreams from Session 1 to Session 2 was due to elements inherent to Session 1 (e.g., talking about NMs, contact with the clinician) or to calling the automated phone system. Thus, further dismantling protocols of IRT are clearly needed and future research should measure its effectiveness in treating children with PTSD. If effective, this low-cost intervention could easily be applied with children living in environments that pose high risks for trauma.

References


