



An Assessment of Medical Practitioners' Knowledge of, Experience with, and Treatment Attitudes Towards Sleep Disorders and Nightmares

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Abstract

Sleep disorders are frequently under assessed and not well understood by medical practitioners. This study investigated medical practitioners' knowledge of, experience with, and treatment considerations for sleep disorders, with a particular emphasis on nightmares. Eighty-eight individuals practicing medicine in the United States completed a survey eliciting information in three domains: (a) professional experience with nightmares, (b) knowledge of nightmares, and (c) attitudes about treatment of sleep disturbances. Seventy percent of participants reported a lack of professional experience with nightmares, 78% endorsed inaccurate definitions of a nightmares, and 82% considered sleep disorders to be a secondary problem, with 75% considering nightmares a secondary problem. Seventy-two percent of participants reported they would be likely to consider psychological treatment for nightmares. Results suggest that medical practitioners may not be receiving updated and/or adequate education about sleep disorders, including nightmares. This lack of information may contribute to sleep disorders being under assessed and untreated.

Keywords Sleep disorders · Nightmares · Practitioner knowledge · Practitioner treatment · Preferences

In 2016, the National Center on Sleep Disorders Research reported that roughly 70 million individuals within the United States are affected by a sleep disorder at some point in their life, costing the national health care system approximately 15 billion dollars each year (U.S. Department of Health and Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute, 2016). With high rates of sleep disturbances reported within the general population (Ram, Seirawan, Kumar, & Clark, 2010), and an increased rate among those diagnosed with a psychological disorder (Krystal, 2006), it is essential that physical and mental health providers be aware of sleep disturbance assessment, diagnosis, and treatment. However, previous research

has shown that sleep disorders, such as insomnia or obstructive sleep apnea, are often missed or poorly understood by medical practitioners (Papp, Penrod, & Strohl, 2002). Diagnostic rates of any sleep-related disorder were found to be as low as 0.1% in a community outpatient clinic sample (Rosen, Zozula, Jahn, & Carson, 2001). Until recently, sleep disturbances, including insomnia, could be classified as primary or secondary problems. When characterized as a secondary condition, an assumption may be that treating the “primary” condition will resolve the sleep disturbances (Sateia, 2014), however, sleep disorders often require direct intervention (Ho, Chan, & Tang, 2016). Since a significant proportion of individuals suffering from psychological or physical difficulties also will experience sleep disturbances that may not remit without targeted intervention, and most will be treated solely by general medical practitioners (Olsson, Blanco, Wang, Laje, & Correll, 2014), it is imperative to understand medical practitioners' knowledge of and treatment considerations regarding sleep disturbances.

Nightmares are a sleep problem that warrants specific attention. Nightmares are commonly defined as distressing dreams that are remembered by the dreamer and usually result in awakening (American Psychiatric Association

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[APA], 2013; Hartmann, 1996). Debate has arisen on whether awakening is a key characteristic of a nightmare (Germain & Nielsen, 2003); however, this characteristic is commonly attributed to nightmares (Phelps, Forbes, & Creamer, 2008; Zadra, Pilon, & Donderi, 2006) and is mentioned as an outcome of nightmares in the *Diagnostic Statistical Manual of Mental Disorders* (DSM-5; APA, 2013), the *International Classification of Diseases, 10th edition* (ICD-10; WHO, 1992), and the *International Classification of Sleep Disorders, 3rd edition* (ICSD-3; American Academy of Sleep Medicine, 2014).

Schredl (2010) reported that approximately 5% of the general population experiences at least one nightmare per week. This prevalence rate drastically increases when considering trauma exposed populations. In fact, nightmares that begin or are exacerbated in frequency or severity following a traumatic event and have reoccurring dream content or emotions related to the trauma (posttrauma nightmares) are frequently reported among trauma survivors (estimates range from 19 to 88%; Forbes, Phelps, & Mchugh, 2001; Ohayon & Shapiro, 2000; Pruiksma, Taylor, & Wachen, 2016). Sleep disturbances, such as posttrauma nightmares, have been referred to as hallmark features of posttraumatic stress disorder (PTSD), in that they contribute to the development and/or the maintenance of PTSD (Ross, Ball, Sullivan, & Caroff, 1989), often do not remit following treatment for PTSD (e.g., Pruiksma et al., 2016), and are associated with several comorbidities, including depression, anxiety, and cardiovascular risk factors (Galatzer-Levy, Nickerson, Litz, & Marmar, 2013; Pacella, Hruska, & Delahanty, 2013). Additionally, nightmares are significantly associated with suicidal ideations and attempts (Littlewood, Gooding, Panagioti, & Kyle, 2016; Nadorff, Nazem, & Fiske, 2013; Tanskanen et al., 2001), indicating the importance of attending to them in treatment.

Researchers in Germany (Thünker, Norpoth, Von Aspern, Özcan, & Pietrowsky, 2014) conducted a survey assessing healthcare providers' and nightmare sufferers' knowledge and coping strategies regarding nightmare disorder. Among general practitioners, results indicated that nightmares were considered of low importance for care (average rating of relevance for patient care was 2.4 of possible range 1–7). Additionally, only 5% of these general practitioners reported that they assessed for nightmares, while simultaneously reporting a low need for nightmare treatment. In a community patient sample, Nadorff, Nazem, and Fiske (2015) assessed whether participants reporting clinically significant nightmare symptoms had discussed these concerns with healthcare providers. Results indicated that a large majority (62.2–88.9%, across two samples, respectively) of individuals experiencing frequent nightmares did not report these nightmares to a healthcare provider. When individuals experiencing nightmares were asked, “Do you believe it is possible to treat

nightmares?” a majority (67.3%) believed that nightmares could not be treated. More recently, Creamer, Brock, Mat-sangas, Motamedi, and Mysliwiec (2018) suggest similar trends among United States military personnel, with these individuals also underreporting nightmares. Although not directly assessed, these rates also suggest that providers infrequently screen for nightmare symptoms. Therefore, with infrequent screens and misattributions that nightmares are untreatable, brief evidence-based treatments for nightmares (Ho et al., 2016; Seda, Sanchez-Ortuno, Welsh, Hal-bower, & Edinger, 2015), such as Exposure, Relaxation, and Rescripting Therapy (Davis et al., 2011) and Imagery Rehearsal Therapy (Krakow, Hollifield, & Johnston, 2001) may be underemployed. As a first step for improving access to evidence-based nightmare treatments, an additional assessment of United States medical practitioners' perceptions and knowledge of nightmare, and experience in caring for patients with nightmares is warranted.

Method

Participants and Procedure

Participants were individuals practicing medicine across the United States. Participants were selected if their email addresses were openly available from public rosters on university websites. Additionally, participants were encouraged to share the survey with other medical colleagues. For the purpose of the study, *medical practitioner* was operationally defined as any individual with a medical degree currently practicing medicine. Individuals who did not identify themselves as medical practitioners (e.g., working primarily as a researcher or administrator) were excluded from the survey. Potential participants received emails asking for their voluntary participation in an anonymous online study. All participants provided informed consent and completed the short online survey assessing their knowledge, experience, and perception of a variety of sleep-related conditions and treatments.

The survey took approximately 5 min to complete and was administered through the online survey website, Qualtrics, from December 2014 to December 2015. The survey was emailed to 244 medical practitioners. Given this survey also utilized the snowball method of recruitment, the total number of practitioners who received the email for participation is unknown. Overall, 88 participants completed the survey. Of the 88 participants who completed the survey, 55.7% ($n = 49$) reported providing general medical care not within a specialty area and 44.3% ($n = 39$) reported practicing in a specialty field, such as pediatrics ($n = 16$), women's health ($n = 8$), and family medicine ($n = 7$). On average, participants reported working in their field for at least 6–10 years.

Measures

The questionnaire, developed for this study, consisted of 11 questions eliciting information in three domains: (a) professional experience with nightmares, (b) knowledge of nightmares, and (c) attitudes about treatment of sleep disturbances. Three demographic questions inquired about the participants' profession, specialty, and years in the medical community.

Professional experience with nightmares was assessed with two *Yes* or *No* questions. First, participants were asked if they have provided care to a patient who was experiencing nightmares. Second, participants were asked if they provided care to a patient experiencing nightmares related to trauma exposure.

Knowledge of nightmares was assessed by the participants' understanding of distinguishing characteristics of a nightmare from other sleep disturbances, according to DSM-5 (APA, 2013) and the ICD-10 (WHO, 1992). As commonly defined in sleep literature and for the purposes of this study, nightmares were defined as "a frightening dream that fully wakes the dreamer and can be remembered upon waking." Given that awakening and fear, often interfering with one's ability to return to sleep, are key variables that can distinguish nightmares from bad and stress dreams (Zadra et al., 2006), these criteria were included in the current study's definition of a nightmare. Participants were given a list of eight sleep disturbances and told to select all they considered as a nightmare (see Table 1 for a list of the definitions). Two of the eight sleep disturbances were considered definitions of nightmares: Response #2: *A disturbing dream that wakes someone up, and he or she does remember the dream content*, and Response #4: *A dream that wakes someone and the dream frightened them so badly that they had problems going back to sleep*. The six sleep disturbances that were not considered accurate definitions of a nightmare were sleep disturbances that are commonly confused with nightmares,

including bad dreams and sleep paralysis. Participants were also asked if they believed there were any differences between idiopathic nightmares (nightmares with no known cause) and posttrauma nightmares (nightmares caused by a traumatic event).

Attitudes about treatment were assessed by several questions. Participants were asked what treatment option they would consider for several sleep problems (e.g., nightmares, insomnia). Participants could respond by indicating whether they would consider psychological treatment, medication/medical device, both psychological treatment and medicine/medical device, neither, or would not consider it a problem. Next, participants were asked whether they considered sleep problems as typically a primary or secondary (problem caused by something else) condition. As a follow-up question, participants were asked whether they considered nightmares as a primary or secondary condition. Participants were asked to indicate the first line of treatment they would consider for posttrauma nightmares. Participants were provided an open, or free response, text box for their answer. Lastly, participants were asked whether they would consider psychological treatment for idiopathic and posttrauma nightmares. Participants could respond on a 5-point scale that ranged from 1 = *very likely* to 5 = *very unlikely*.

Results

Professional Experience with Nightmares

In regards to professional experience providing care to individuals experiencing nightmares, 77% ($n = 65$) of participants reported they *have not* provided care to a patient with idiopathic nightmares and 54% ($n = 48$) reported they *have not* provided care to a patient who was experiencing posttrauma nightmares.

Table 1 Participant endorsement of nightmare definitions

Prompts of nightmare definitions	<i>N</i> (%)
1. A dream that wakes someone up, but he or she <i>does not</i> remember what the dream content was	7 (7.95%)
2. A disturbing dream that wakes someone up, and he or she <i>does</i> remember the dream content ^a	46 (52.27%)
3. A dream that wakes someone, but they have no recollection of waking or the dream come morning	3 (3.41%)
4. A dream that wakes someone and the dream frightened them so badly that they had problems going back to sleep ^a	69 (78.41%)
5. A dream that wakes someone up, but he or she has no problem going back to sleep	19 (21.59%)
6. A stressful or frightening dream that does not wake the dreamer	53 (60.22%)
7. Sleep paralysis	12 (13.64%)

$N = 88$

^aThese items were considered nightmares. Percentages will not add to 100% as participants could select all prompts they considered as a nightmare

Provider Knowledge of Posttrauma Nightmares

Results of nightmare definitions are in Table 1. Approximately 78% ($n = 69$) of the sample defined a nightmare as something other than “a frightening dream that wakes the dreamer.”

Attitudes About Treatment

Regarding whether participants believed sleep problems to be a primary condition, 82% ($n = 72$) of participants considered sleep problems, generally, to be a symptom caused by another condition. Similarly, a majority of the participants (75%, $n = 66$) considered nightmares a secondary problem. When inquiring about treatments, half of the sample (51%, $n = 45$) reported that a psychological treatment would be their first line of treatment for posttrauma nightmares. Specifically, the treatments listed in the open text-box were: psychological treatment, trauma-focused cognitive behavioral therapy (CBT), CBT, therapy, counseling, and psychotherapy. Furthermore, 72% ($n = 63$) of participants reported they would be very likely to consider psychological treatment for idiopathic and posttrauma nightmares. Regarding other sleep disturbances, approximately 41% ($n = 36$) of the sample reported they would be likely or very likely to consider psychological treatment. Table 2 depicts the percentage of participants that would consider some form of psychological treatment for specified sleep disorders.

Discussion

Given the high prevalence rates of sleep disturbances, the present study aimed to investigate medical practitioners' knowledge, perceptions, and treatment considerations for sleep disorders, specifically focused on nightmares. Results

Table 2 Percentage of participants that would consider some form of psychological treatment for the specified sleep disorder

Sleep disorder or problem	<i>N</i> (%)
1. Insomnia	74 (84.1%)
2. Chronic nightmares (i.e., nightmares a couple of times a week)	74 (84.1%)
3. Problems falling asleep	60 (68.2%)
4. Problems Staying asleep	60 (68.2%)
5. Occasional nightmares (i.e., a couple of times a month)	37 (42.0%)
6. Sleep paralysis	32 (36.3%)
7. Sleep apnea	5 (5.7%)

$N = 88$. Percentages will not add to 100% as participants could select any disorder or problem they would consider treating with a psychological treatment

indicate that a majority of the sample reported that they never treated a patient with idiopathic or posttrauma nightmares. More practitioners indicated having worked with a patient reporting posttrauma nightmares rather than idiopathic nightmares, perhaps reflecting the difference in prevalence rates of these conditions, the willingness of patients to report posttrauma nightmares, or increased screening for nightmares in trauma-exposed individuals. As much of the research on nightmares has focused on posttrauma nightmares and their resistance to treatment unless targeted directly, this is an area of great importance regarding educational efforts for practitioners.

Results also suggest that this sample of medical practitioners may not have an accurate understanding of the current definition of a nightmare. A majority of the participants (78%) ascribed inaccurate sleep disturbances to nightmares. With these results in mind, and with previous research that suggest patients under-report their nightmares (Nadorff, Nazem, & Fiske, 2015), it is likely that some participants may have unknowingly provided care to an individual suffering from nightmares. This result may also be due to patients often being poor reporters of nightmares (Creamer, Brock, Matsangas, Motamedi, & Mysliwiec, 2018), or potentially being unsure of the differences themselves and confusing nightmares with sleep terrors and/or bad dreams. Although a majority of participants in the present study did not accurately define a nightmare, participants reported knowing that there is a difference between idiopathic and posttrauma nightmares.

Over half of the sample reported they would be likely or very likely to consider psychological treatment for nightmares, but not for sleep problems more generally. This result is not surprising as medical devices or medications are the first line treatment for several sleep disorders (e.g., sleep apnea, restless leg syndrome). However, the optimal integration of medical and psychological approaches and long-term efficacy of pharmacological approaches remain mixed (e.g., Morin, 2006).

In regards to treatment considerations, a majority of the sample reported they would consider some form of psychological treatment for the following sleep disorders: insomnia, problems staying asleep, night terrors, idiopathic nightmares, and posttrauma nightmares. This result is promising for the field and potentially indicates a shift in physicians consideration for utilizing mental or behavioral health services for their patients. However, a majority of the sample reported believing sleep problems, including nightmares, were a secondary symptom caused by another condition. This result suggests participants identify other psychological or medical conditions as the source for sleep disturbances, and may not directly target the sleep disturbances in their treatment plan. Previous paradigms for understanding sleep disturbances did categorize sleep disturbances into primary, secondary, or comorbid conditions

(e.g., APA, 2000), making it challenging to know what symptoms to target. While these subtypes may be important, sleep disturbances often require direct intervention regardless of the pathophysiology (Sateia, 2014). For example, sleep disturbances often precede other conditions (e.g., bipolar disorder; Ritter, Marx, Bauer, Leopold, & Pfennig, 2011) and often do not remit despite effective treatment of other conditions (Carney, Segal, Edinger, & Krystal, 2007; Pruiksma et al., 2016). Additionally, treating sleep problems directly can significantly improve other comorbid conditions (e.g., Davis et al., 2011; Ho et al., 2016).

Overall, a majority of the practitioners noted not having treated a patient with nightmares. This aligns with previous research that insinuates there is currently a lack of providers who treat sleep disorders, such as insomnia, with empirically supported treatments (Matteson-Rusby, Pigeon, Gehrman, & Perlis, 2010). These results may reflect the sample's misunderstanding of the definition of the nightmare, but it also highlights the importance of regular screening and assessment of these problems. Prevalence rates regarding the frequency of nightmares suggest that these practitioners have likely encountered a patient with such a problem. Therefore, in addition to increased knowledge about nightmares as a primary and treatable condition, one that can have several indirect therapeutic effects on other conditions, practitioners should attempt to incorporate routine screening procedures for nightmares, specifically in trauma exposed populations, and have referral resources available for patients reporting nightmares. Unfortunately, little educational time is spent covering sleep conditions in medical school (Mindell et al., 2011), placing the onus on physicians to educate themselves. Recent publications have proposed strategies to incorporate the topic of circadian rhythms (Selfridge, Moyer, Capelluto, & Finkielstein, 2015) and sleep medicine into curriculum (Bandla et al., 2012). Development of educational materials for special topics, including nightmares, is needed. For educational information, physicians could utilize the American Academy of Sleep Medicine's website (AASM; <https://aasm.org/>) and read reviews on PTSD, sleep disturbances, and nightmares (e.g., Miller, Brownlow, Woodward, & Gehrman, 2017; Phelps et al., 2008). There also are brief and freely available measures that can be used to screen and start a conversation about nightmares, such as the Trauma-Related Nightmare Survey (TRNS; Cranston, Miller, Davis, & Rhudy, 2017), and a new primary care-focused sleep disorder screener (Sleep Disorders Symptom Checklist-25; Klingman, Jungquist, & Perlis, 2017).

Limitations

Several limitations should be considered when interpreting the above results. As mentioned previously, awakening was kept as a defining feature of a nightmare. However, certain

texts do not include awakening as a key facet of a nightmare and other sources infer that awakening is more of a result rather than a defining characteristic of nightmares (APA, 2013; Germain & Nielsen, 2003). Further, it should also be noted that there is existing literature that supports the notion that sleep disturbances are a secondary problem brought on by other conditions, such as PTSD (Hefez, Metz, & Lavie, 1987). Thus, the debate on the definition of a nightmare and its relation to other disorders may influence the present results. Not only is this debate a limitation of the study, but it is also a limitation of the current field of nightmare research. A major challenge with identifying key features of nightmares is the reliance on the subjective experience. Nightmares are observed less than about 1% of laboratory nights, even in individuals with frequent nightmares (Woodward, Arsenault, Murray, & Bliwise, 2000), making it difficult to capture potential defining features through standard sleep assessment methodology.

In addition to these limitations, the relatively small sample size of practitioners limits the generalizability of the findings. Furthermore, response bias could also be effecting the results of the survey. As previously reported, a majority of the individuals contacted for participation did not complete the survey. Thus, it is possible that certain types of physicians or physicians with a particular interest in the subject were more likely to participate in the study, which would also effect the generalizability of the results. This study was also limited to medical practitioners with medical degrees; therefore, excluding important professions (e.g., nurses, nurse practitioners, physician assistants) who may often do the initial screening and assessment of conditions. It should also be mentioned that the survey was developed for the purposes of this study; therefore, it lacks in-depth psychometric testing. Lastly, the survey did not directly assess participants' validity in responding and the influence of social desirability on responses.

Conclusion

Overall, the results of this survey provide additional evidence that medical practitioners may not be receiving up-to-date and/or adequate education about nightmares and sleep disorders more broadly. This limitation may be a reason for infrequent screening for nightmares and other sleep disorders. Despite this problem, it is promising that medical practitioners would consider psychological treatment for their patients experiencing idiopathic and posttrauma nightmares. Perhaps, these results demonstrate a shift in practice (Bishop et al., 2016), with more medical practitioners being aware of, treating, and referring patients to psychological interventions. Given the frequency of sleep disturbances in the general population and posttrauma nightmares among

trauma survivors, and the myriad negative consequences to mental and physical health, occupational functioning, and the increased risk suicidal behaviors in individuals with nightmares, it is imperative that educational efforts focus on increasing knowledge of medical practitioners of sleep problems and their treatments.

Compliance with Ethical Standards

Conflict of interest The authors Westley A. Youngren, Katherine E. Miller, and Joanne L. Davis declare that they have no conflict of interest.

Ethical Approval All protocols were approved by a university institutional review board and were in accordance with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Statement of Human and Animal Rights All procedures performed in this study involving human participants were in accordance with the ethical standards of the University and Kansas' IRB committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from every participant in this study.

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