NIGHTMARES

Nightmare Complaints in Treatment-Seeking Patients in Clinical Sleep Medicine Settings: Diagnostic and Treatment Implications

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Study Objectives: To develop clinical guideposts to identify patients with salient nightmare conditions.

Design: Prevalence data from a retrospective chart review on a consecutive series of sleep patients to assess how or whether those with nightmares (1) rank nightmare complaints compared to other sleep complaints, (2) link nightmares to disrupted sleep, (3) report worse sleep symptoms and health outcomes compared to other sleep patients, and (4) endorse criteria for a salient nightmare condition on the Disturbing Dream and Nightmare Severity Index.

Setting: Two community sleep facilities: private sleep medical center and a hospital-based sleep lab.

Patients: Seven hundred eighteen patients presenting at intake: sleep center (n = 620); sleep lab (n = 98).

Measurements and Results: Standard sleep parameters and various health outcomes were assessed with self-report measures. Of 718 sleep patients, 186 ranked a nightmare complaint among their sleep problems, of whom 117 linked their bad dreams to disrupted sleep, suggesting a potential salient nightmare condition. Compared to all other sleep patients, these 117 cases demonstrated consistent significant patterns of worse or more prevalent problems with self-reported sleep indexes, insomnia, sleep quality, sleep-fragmentation factors, sleep-related daytime impairment, psychiatric history, medical comorbidity, and parasomnias. The Disturbing Dream and Nightmare Severity Index identified those with salient nightmare complaints and correlated with worse sleep and health outcomes.

Conclusions: At 2 sleep medical facilities, 16% of patients presented with an apparent salient nightmare condition, and these patients were identified with simple clinical guideposts, which could be incorporated at intake in various sleep medicine settings.

Keywords: Nightmares, insomnia, sleep quality, sleep fragmentation, impairment, imagery rehearsal therapy

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INTRODUCTION

CHRONIC NIGHTMARES ARE A COMMON CONDITION AFFLICTING AT LEAST 4% OF THE ADULT POPULATION AND A HIGHER, ALBEIT UNDETERMINED, PROPORTION OF CHILDREN AND ADOLESCENTS. Nightmares cause or exacerbate insomnia2-5 and psychiatric distress.4,6 as well as impair quality of life.7 Several techniques have been fully developed or explored to treat nightmares, including imagery rehearsal therapy,8-14 lucid dreaming techniques,15 other exposure-oriented techniques (often with imagery aspects),16,17 and medications (e.g., prasozin, trazodone).18,19 In randomized controlled studies, nightmare-specific therapies decreased disturbing dreams, sleep complaints, and psychiatric distress.10,12,20 Imagery rehearsal therapy is the most tested of these treatments and has been suggested as first-line or adjunctive therapy.12,21-23 Two self-help imagery rehearsal therapy programs have been published.11,24

Despite advances in understanding and treating nightmares, few studies have examined their clinical presentations, most prevalence research has involved university or community samples, and no study has assessed sleep-clinic populations.3 The vast majority of individuals with nightmares, who have been studied, had not sought treatment for this vexing condition, which further explains the limited data about clinical presentations and which also suggests some proportion of these patients do not require treatment.

An additional area of confusion arising in the research literature is how to label nightmare problems.2-3,22 While current efforts both in the field of sleep medicine and psychiatry provide precise nosology about nightmare disorder,26,27 researchers have criticized these criteria for being overly restrictive.3,28 For example, do nightmare sufferers need to awaken from their bad dreams to call them nightmares? Are fear or intense anxiety the exclusive emotions required to indicate a nightmare as opposed to a bad dream? These nosologic issues are further confounded by patients’ inconsistent use of terms such as “bad dreams, disturbing dreams, and nightmares” so that the terms become pragmatically interchangeable,29 notwithstanding nosologic validity.

Regardless of the manner in which patients with nightmares describe their difficulties with disturbing dreams, recent research indicates that nightmares may be more usefully appreciated as a specific treatable condition.10,21,23 This newer perspective mirrors current changes in the field of sleep medicine that are attempting to replace “insomnia as a symptom” with “insomnia as a disorder.”29 Failing to view nightmares as a comorbid or independent complaint diverts attention from the problem and steers patients away from evidence-based therapies just like insomnia patients...
who do not receive evidence-based treatments. However, the scar-
city of clinical epidemiologic studies on nightmare complaints3,7
creates a chasm between patients needing or seeking intervention
and practitioners who might provide nightmare treatments. We
have proposed that sleep medical centers may be a valuable set-
ting to bridge this chasm.21

In the current study, a consecutive series of new patients pre-
sented at 2 sleep medical facilities at which nightmare complaints
were routinely assessed through an intake questionnaire. The goal
of the project was to analyze how patients with nightmares view
their problems and how this information might help determine
a clinically salient nightmare condition. Although few patients
presented for treatment of bad dreams, the assessment provided
information about 4 salient clinical questions:

1. How do patients rank their nightmare complaints in compari-
son to other sleep complaints for which they seek help?
2. Do these patients connect their nightmares or bad dreams to
   disrupted sleep?
3. Are there consistent relationships between nightmare symp-
toms and other sleep and health symptoms?
4. Can a clinically salient nightmare condition be identified with
   a brief scale—the Disturbing Dream and Nightmare Severity
   Index (DDNSI)?

We hypothesized that nightmare sufferers would rank night-
mares as a relevant sleep problem, connect them to disrupted sleep,
demonstrate significant associations with other sleep and health
outcomes, and endorse criteria on a brief scale for a clini-
cally salient nightmare complaint.

METHODS

Sample and Consent

The study was a retrospective chart review on a large, con-
secutive series of patients at 2 sites: Maimonides Sleep Arts & Scienc-
es, Ltd (MSAS), a private sleep medical center in Albuquerque,
New Mexico, and Los Alamos Medical Center Sleep Laboratory
(LAMC), a hospital-based sleep lab in Los Alamos, New Mexi-
co. Data for the chart review were collected at intake from 782
eligible participants of whom 64 were excluded due to extensive
missing data (n = 40), age under 18 years (n = 20), or atypical
diagnoses (e.g., narcolepsy) (n = 4) that might skew data. The
final analyzed sample included 718 participants from MSAS (n =
620) and LAMC (n = 98). All patients read and completed consent
for treatment forms, which authorizes the anonymous use of their
data for research purposes. This retrospective chart review study
was reviewed and approved by the Institutional Review Board of
the Los Alamos Medical Center.

Intake Procedure and Forms

The intake questionnaires were identical at both locales, com-
prised several forms, and took 30 to 45 minutes to complete.
For this study, data were culled from the registration form, sleep
medicine history, and 2 validated psychometric scales: Insomnia
Severity Index (ISI)10 and DDNSI3,31,32

The registration form provided sociodemographic data. The sleep
medicine history is a self-report questionnaire based on
American Academy of Sleep Medicine (AASM) nosology26 or
other health outcomes, but it has not been validated in controlled
research studies. The form uses 9 clusters of questions about sleep
indexes (sleep-onset latency, total sleep time, time in bed, sleep
efficiency, and wake after sleep onset), insomnia and sleep quality
(sleep quality, ISI, wake a lot at night, number of awakenings,
trouble returning to sleep, hypnotic dependence, over-the-counter
medication dependence), sleep fragmentation factors (items that
patients connect to disturbed sleep: restless legs, trouble breath-
ing, indigestion/reflux, use of restroom, pain, racing thoughts,
anxiety, or fear), sleep-related daytime impairment (sleepiness,
tiredness, desire to nap, dozing or napping, use of caffeinated
beverages, number of caffeine drinks), sleep-disordered breathing
(snore, movement from bedroom due to snoring, stop breath-
ing, gasping or choking), restless legs syndrome and periodic
limb movement disorder (restless legs sensations, restless leg
sensations go away with movement, periodic limb movement
order disorder, movement from bedroom due to periodic limb
movement disorder), psychiatric history (mood disorder, anxiety
disorder, substance or alcohol abuse, psychotropic medication,
traumatic exposure, claustrophobia), medical comorbidity (any
of the following: immune condition, airway site of obstruction,
heart disease, lung disease, rheumatologic condition, neurologic
condition, metabolic condition), and parasomnias (sleepwalk,
acting out dreams, disruptive noises). The questions are scaled
as dichotomous (present/absent), actual counts (minutes, hours,
or number of episodes), ordinal scales (0 to 6 or 0 to 7), reverse
ordinal (5 to 0), visual analog scales (0 to 10), or percentages.

The sleep medicine history also required patients to rank their
most relevant sleep disorders from 7 categories: insomnia, night-
mares, poor sleep quality, sleep breathing problem, sleep move-
ment problem, other sleep problem, and “I don’t have sleep
problems.” One additional question from the sleep medicine history
inquired about patients’ perceptions of the relationship between
disturbing dreams and sleep—“Bad dreams or nightmares disrupt
my sleep”—to which the respondents agree or disagree on a 5-
point scale ranging from -2 (Strongly Disagree) to 2 (Strongly
Agree).

The ISI is a validated sleep questionnaire that quantifies per-
ceived insomnia severity, using 7 questions, including difficulty
falling asleep, difficulty staying asleep, problems waking up too
early, level of satisfaction with current sleep pattern, the extent
sleep problems interfere with daily functioning, how noticeable
the sleeping problem is to others, and how worried or distressed
one is due to their sleep problem. Each item is scored on a 0-to-4
scale, and the range of total scores is 0 to 28.30 A score of 15 or
above equates to a clinically meaningful insomnia condition. The
Cronbach α for this sample was 0.84.

The DDNSI is an expanded version of the validated Night-
mare Frequency Questionnaire.3,31,32 Through our research experi-
ence, the scale was developed based on the assumption that many
so-called “nightmare patients” have difficulty distinguishing be-
 tween the terms “bad dreams, disturbing dreams or nightmares”
in defining their experience on a questionnaire. Therefore, the
scale does not assess a nosologically defined nightmare disorder.
Rather, it attempts to determine the presence of a clinically salient
nightmare complaint. The scale comprises 5 questions on nights
per week with nightmares, nightmare count per week, awaken-
ings due to bad dreams, severity of nightmare problem, and inten-
sity of actual nightmares; it is scored from 0 to 37, and previous
work3,32 indicates that a total score of 10 or greater predicts the
presence of a clinically salient nightmare complaint. The Cron-
bach α for this sample was 0.83.
DATA ANALYSIS

Data analysis was conducted with SPSS for Windows 11.01. First, rankings and frequency of rankings of nightmares and other sleep conditions were tabulated, followed by tabulation of comorbid rankings of additional sleep conditions among patients with nightmares. Most patients who completed “other sleep problems” listed snoring or other breathing symptoms or difficulties in falling or staying asleep, and these cases were naturally collapsed into the sleep breathing or insomnia categories. Next, using a contingency coefficient, Nightmare Ranking × Nightmares or Bad Dreams Disrupt Sleep was tested to determine whether rankings were associated with greater sleep disruption attributed to nightmares. From these data, 3 classifications were developed: those patients likely to be suffering from clinically salient nightmare complaints; those with nightmares of a milder nature; and, those without nightmares. Then, multivariate analyses of variance was used on the 9 sleep and health outcome clusters (from the sleep medicine history) as dependent variables, and univariate tests were conducted on significant multivariate tests. Independent variables for multivariate analyses of variance included the 3 different classifications of patients with and without nightmares, as follows: high-severity nightmares (bad dreams-bad sleep connection), low-severity nightmares (no connection to sleep disruption), and no nightmares (“high-low-no” classification). Last, for a large subsample (n = 571), analysis of DDNSI was conducted using analysis of variance to compare means between groups based on the “high-low-no” scheme, and correlation coefficients were determined with the sleep and health outcomes. Effect sizes were determined with Cohen d (the standardized mean difference).

RESULTS

Sociodemographics and Chronicity of Nightmare and Sleep Complaints

All analyses were initially conducted for each sleep facility (MSAS = 620; LAMC = 98), which in addition to showing a nonsignificant difference (p = .40) in the proportion of patients with nightmares (26.5% vs 22.4% respectively), revealed no consistently significant differences for numerous outcomes between the 2 locales. Data were subsequently analyzed as 1 large group (n = 718). Of 718 patients, the final sample comprised slightly more men (n = 370) than women (n = 348); their mean ± SD age was 49.23 ± 13.26, with a range of 18 to 86 years, and mean body mass index was 29.50 ± 7.02. Sixty-seven percent of the sample was married. Education level averaged a slightly higher proportion of college graduates or more education (56%), compared with some college or less (44%) education level. Ethnicity comprised 71% Anglo, 18% Hispanic, and 11% Mixed or Other (mostly African American, Asian American, and Native American). Mean duration of sleep complaints was 10.94 ± 12.49 years.

Of 718 patients, 186 (or 26%) of the entire sample ranked nightmares as a relevant sleep problem. Their average duration ± SD of nightmares was 14.34 ± 17.48 years. The mean ± SD age of these patients with nightmares was 45.70 ± 13.50 years, compared with 50.46 ± 13.08 years in those without nightmares (p < .0001). The body mass index in the nightmare group (29.22 ± 7.02) and the nonnightmare group (29.60 ± 7.03) were not significantly different. Nightmare complaints were disproportionately higher among women than men (60% vs 40%, χ[1] = 13.87, p < .0001).

![Figure 1—Ranking of Nightmare Complaints and Mean (SD) Disturbing Dream and Nightmare Severity Index Scores by Ranking.](image)

There were no significant differences for those with and without nightmares for marital status, ethnicity, and education.

In the 4 primary analyses that follow, these 7 sociodemographic factors (age, sex, body mass index, chronicity of sleep complaints, marital status, education level, ethnicity) were restested as independent variables, but no consistently significant effects were demonstrated in any analysis.

Ranking Nightmare Complaints and Comorbid Sleep Complaints

“How do patients rank their nightmare complaints in comparison to other sleep complaints for which they seek help?” The 26% of the entire sample reporting nightmares was lower than the proportion with complaints of poor sleep quality (87%), sleep breathing (64%), insomnia (53%), and sleep movements (35%). Among the nightmare group, comorbid sleep conditions included poor sleep quality in 176 of 186 (95%), breathing and insomnia complaints each at 70%, and sleep movement complaints in 56%. The 186 patients with nightmares ranked their condition in a relatively symmetrical bell-shaped curve (Figure 1). Not a single patient presented exclusively with a complaint of nightmares, and only 17 of 186 (9%) complained of just 1 other sleep problem; whereas 169 (91%) patients ranked 2 or more additional sleep conditions.

Nightmare Rankings and the Perception of Disrupted Sleep

“Do these patients connect their nightmares or bad dreams to disrupted sleep?” Of 186 patients with a nightmare ranking, 181 responded, and 117 agreed or strongly agreed that “Bad dreams or nightmares disrupt my sleep.” Testing with a contingency coefficient demonstrated statistical significance (p < .0001), with notable differences expressed as greater agreement in groups
Table 1—Nightmares Disrupt Sleep (Agree or Disagree) According to Rank of Nightmare Complaint

<table>
<thead>
<tr>
<th>Nightmare Rank</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree or Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>0 (0.0)</td>
<td>2 (11.1)</td>
<td>0 (0.0)</td>
<td>3 (16.7)</td>
<td>13 (72.2)</td>
<td>18 (100)</td>
</tr>
<tr>
<td>Second</td>
<td>0 (0.0)</td>
<td>2 (5.7 )</td>
<td>6 (17.1)</td>
<td>18 (51.4)</td>
<td>9 (25.7)</td>
<td>35 (100)</td>
</tr>
<tr>
<td>Third</td>
<td>0 (0.0)</td>
<td>7 (11.9)</td>
<td>10 (16.9)</td>
<td>30 (50.8)</td>
<td>12 (20.3)</td>
<td>59 (100)</td>
</tr>
<tr>
<td>Fourth</td>
<td>4 (9.1)</td>
<td>9 (20.5)</td>
<td>7 (15.9)</td>
<td>21 (47.7)</td>
<td>3 (6.8)</td>
<td>44 (100)</td>
</tr>
<tr>
<td>Fifth</td>
<td>2 (8.0)</td>
<td>11 (44.0)</td>
<td>4 (16.0)</td>
<td>6 (24.0)</td>
<td>2 (8.0)</td>
<td>25 (100)</td>
</tr>
<tr>
<td>Column Totals</td>
<td>6 (3.3)</td>
<td>31 (17.1)</td>
<td>27 (14.9)</td>
<td>78 (43.1)</td>
<td>39 (21.5)</td>
<td>181 (100)</td>
</tr>
</tbody>
</table>

Data are presented as number (%). Contingency coefficient = p < .0001.

ranking nightmares first, second, or third, compared with lesser agreement in those ranking nightmares fourth or fifth (Table 1). The top-tiered rank showed the most support for the “strongly agree” category, as compared with all other ranks.

Nightmare Rankings and Sleep Indexes and Symptoms

“Are there consistent relationships between nightmare complaints and other sleep and health symptoms?” Although many factors can be used to determine a relevant nightmare condition (e.g., distress associated with bad dreams), this study focused on those factors likely to be most salient in a clinical sleep setting, and, for this precise purpose, the assumption was made that a more salient nightmare condition would likely be present among those who ranked nightmare complaints and linked them to disrupted sleep (n = 117). Preliminary analyses were conducted using the 3 “high-low-no” classifications, but analyses that produced the largest effect sizes involved dividing the sample into just 2 groups: those with a nightmare ranking and the perception that bad dreams disrupt sleep (n = 117) and all other sleep patients (n = 601).

Testing was conducted on variables for sleep indexes, insomnia and sleep quality, sleep-fragmentation factors, daytime impairment, sleep breathing, sleep movement, psychiatric comorbidity, medical comorbidity, and parasomnias. Statistical significance was obtained for 7 of 9 multivariate analyses of variance with nonsignificance for sleep-movement and sleep-breathing measures. Univariate testing yielded numerous significant findings, with consistently small to large effect sizes in comparing the factors likely to be most salient in a clinical sleep setting. Among those ranking nightmares, 85 patients also endorsed the connection that bad dreams disrupt sleep (n = 117) and all other sleep patients (n = 601).

Testing was conducted on variables for sleep indexes, insomnia and sleep quality, sleep-fragmentation factors, daytime impairment, sleep breathing, sleep movement, psychiatric comorbidity, medical comorbidity, and parasomnias. Statistical significance was obtained for 7 of 9 multivariate analyses of variance with nonsignificance for sleep-movement and sleep-breathing measures. Univariate testing yielded numerous significant findings, with consistently small to large effect sizes in comparing the nightmare-disturbance group with the no-nightmare-disturbance group (Table 2).

The significant findings included Sleep Indexes cluster (F<sub>5,706</sub> = 3.951, p = .002) with univariate tests for sleep-onset latency (p < .0001, d = .39) and sleep efficiency (p = .01, d = .25); Insomnia and Sleep Quality cluster (F<sub>5,706</sub> = 7.621, p < .0001) with univariate tests for sleep-quality ratings (p < .0001, d = .49); ISI (p < .0001, d = .73), waking a lot at night (p < .05, d = .19), number of awakenings (p < .05, d = .17 ), and hypnotic dependence (p < .0001, d = .45); Sleep Fragmentation cluster (F<sub>5,706</sub> = 12.303, p < .0001) with univariate tests for restless legs or leg jerks (p = .03, d = .21), reflux or indigestion (p = .01, d = .24), pain (p = .001, d = .32), thirst (p = .001, d = .32), racing thoughts/can’t turn off my mind (p < .0001, d = .57), and anxiety or fear (p < .0001, d = .85); Daytime Sleep-Related Impairment cluster (F<sub>5,706</sub> = 4.183, p = .001) with univariate tests for sleepiness (p = .001, d = .34), tiredness (p < .0001, d = .42), desire for napping (p < .0001, d = .41), and actual dozing off during the day (p = .03, d = .23); Psychiatric cluster (F<sub>5,703</sub> = 14.894, p < .0001) with univariate tests for any mood disorder (p < .0001, d = .54), any anxiety disorder (p < .0001, d = .67), past or current psychotropic drug usage (p < .0001, d = .69); Medical Comorbidity cluster (F<sub>5,700</sub> = 3.842, p < .0001) with univariate tests for any rheumatologic condition (p = .01, d = .28) or neurologic condition (p < .0001, d = .33); and Parasomnia cluster queried in a lesser subsample (n = 516) (F<sub>5,326</sub> = 26.228, p < .0001) with univariate tests for sleepwalking (p = .02, d = .24), acting out dreams (p < .0001, d = .76), and making disruptive body movements or noises during sleep (p < .0001, d = .97).

Disturbing Dream and Nightmare Severity Index

The DDNSI was administered to a large subsample (n = 571) of patients, and those who completed the scale and ranked nightmares (n = 144) showed significantly higher mean scores, compared with those not ranking nightmares (n = 427) (11.3 ± 8.5 vs 1.3 ± 3.1; F<sub>3,512</sub> = 430.39, p < .0001, d = 1.56). Among those patients who ranked nightmares, there was a progressive increase in DDNSI scores as rankings approached the first tier (F<sub>4,119</sub> = 9.127, p < .0001) (Figure). Of the 144 in this subsample who ranked nightmares, 85 patients also endorsed the connection that bad dreams or nightmares disrupted sleep, and their mean DDNSI was greatly increased (15.27 ± 8.3) in comparison with those with nightmare rankings but no link to disrupted sleep (n = 59, mean = 5.57 ± 4.6). This difference was large and highly significant (p < .0001, d = 1.45). This large mean score for these 85 patients was well above 10, the cut-off for a clinically salient nightmare condition. And, among those ranking nightmares in the first or second tiers, the DDNSI scores were markedly higher than the other rankings (Figure). Last, the DDNSI was correlated with significant sleep symptoms (Table 2) to test concurrent validity. Twenty-five of the correlations were statistically significant, with small to medium coefficients.

DISCUSSION

Chronic nightmares were common among patients seeking care at 2 sleep medical facilities. One quarter of patients ranked nightmares as a relevant sleep complaint, and 16% of all sleep patients appeared to suffer from a clinically salient nightmare condition, based on a self-report that nightmares or bad dreams disrupted their sleep. Interestingly, slightly more than one third of patients with nightmares (37%) did not view bad dreams as disruptive to sleep. Most importantly, the 16% of the total sample with a likely salient nightmare complaint showed a consistent pattern of worse sleep and health outcomes, in comparison with those with less-severe nightmare complaints (no reported sleep disruption) or those

SLEEP, Vol. 29, No. 10, 2006

Nightmare Complaints in Sleep Patients—Krakow
The largest effects for sleep and health outcomes were present for disruptive body movements, anxiety or fear, acts out dreams, anxiety disorder, insomnia severity, traumatic exposure, psychotropic medication use, racing thoughts, mood disorder, sleep quality, hypnotic dependence, daytime tiredness, desire to nap, sleep onset latency, daytime sleepiness, neurological condition, thirst interferes with sleep, pain interferes with sleep, rheumatologic condition, sleep efficiency, indigestion/reflux, dozing or napping, restless legs syndrome, and wakes a lot at night.

As Means (SD) for dichotomous variables are based on 0/1 response, the means are equivalent to proportions (0-100%) of affirmative answers.

The best explanation for the nightmare group with the most severe outcomes (n = 117) is that they also suffer from a much greater prevalence of anxiety symptoms, anxiety disorders, psychotropic medication use, mood disorders, and traumatic exposure, as compared with all other sleep patients. Technically, many of these patients would not meet criteria for a nightmare disorder because these mental health conditions would be designated as primary and nightmares as secondary.26,27 This conceptualization aligns with the view that treating the primary condition should alleviate the secondary symptom. Interestingly, while this view is widely held among mental health professionals and embedded within the psychiatric nosology of nightmares, the scientific literature contains no randomized controlled trials demonstrating the validity of this perspective. In contrast, the more recent American Academy of Sleep Medicine sleep disorders nosology aligns with the newer conceptualization that some patients may not technically meet criteria for a nightmare disorder, but their nightmares are sufficiently problematic to warrant “independent clinical attention.” This nosology supports the diagnosis of nightmare disorder in these cases and recognizes the need for direct treatment with evidence-based therapies.26

Our clinical and research experience aligns with the newest sleep medicine nosology. Our primary clinical concern is not whether patients meet criteria for nightmare disorder but, rather, whether or not a nightmare complaint functions as a comorbid symptom that impacts adversely upon sleep and psychiatric symptoms and that might benefit from “independent clinical attention.” We presume that many of our patients’ nightmares function on some independent level, which could arguably be labeled comorbid, and focused nightmare treatments may be important adjunctive therapy to other sleep or psychiatric therapies.

Although we have treated many patients with nightmares in research studies, we have been intrigued by our clinical experience with patients who do not report nightmares but who do present with indications of a more clinically salient condition, which can be identified with a few clinical guideposts incorporated into a sleep medicine intake.

The largest effects for sleep and health outcomes were present for disruptive body movements, anxiety or fear, acts out dreams, anxiety disorder, insomnia severity, traumatic exposure, psychotropic medication use, racing thoughts, mood disorder, sleep quality, hypnotic dependence, and daytime tiredness, all of which showed medium to large effect sizes. Among the large subsample completing the DDNSI, the scale showed reliable and consistent effects in identifying those individuals who made the bad dreams-bad sleep connection. The upshot of this study is that certain patients with nightmares present with significantly worse symptoms and that might benefit from “independent clinical attention.”

Table 2—Mean (SD) Differences between No Nightmare Disturbance Group and Nightmare Disturbance Group for Significant Sleep and Health Variables and their Correlation Coefficients with DDNSI, Arranged in Descending Order of Effect Sizes (d).

<table>
<thead>
<tr>
<th>Variable</th>
<th>No Nightmare Disturbance Group (N=614)</th>
<th>Nightmare Disturbance Group (N = 124)</th>
<th>Cohen’s d</th>
<th>Between Group P-Value</th>
<th>DDNSI Correlation w/Variable</th>
<th>Correlation Coefficient P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disruptive noises or motions</td>
<td>0.27 (0.45)</td>
<td>0.71 (0.46)</td>
<td>0.97</td>
<td>&lt;.0001</td>
<td>0.31</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Anxiety or fear</td>
<td>0.25 (0.43)</td>
<td>0.64 (0.48)</td>
<td>0.85</td>
<td>&lt;.0001</td>
<td>0.34</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Acts out dreams</td>
<td>0.18 (0.39)</td>
<td>0.52 (0.50)</td>
<td>0.76</td>
<td>&lt;.0001</td>
<td>0.30</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Anxiety disorder</td>
<td>0.23 (0.42)</td>
<td>0.57 (0.50)</td>
<td>0.74</td>
<td>&lt;.0001</td>
<td>0.31</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Insomnia Severity Index</td>
<td>13.93 (6.61)</td>
<td>18.22 (5.08)</td>
<td>0.73</td>
<td>&lt;.0001</td>
<td>0.27</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Traumatic exposure</td>
<td>0.23 (0.42)</td>
<td>0.55 (0.50)</td>
<td>0.69</td>
<td>&lt;.0001</td>
<td>0.30</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Psychotropic medication</td>
<td>0.39 (0.49)</td>
<td>0.71 (0.46)</td>
<td>0.67</td>
<td>&lt;.0001</td>
<td>0.32</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Racing thoughts</td>
<td>0.58 (0.49)</td>
<td>0.83 (0.38)</td>
<td>0.57</td>
<td>&lt;.0001</td>
<td>0.21</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Mood disorder</td>
<td>0.37 (0.48)</td>
<td>0.63 (0.49)</td>
<td>0.54</td>
<td>&lt;.0001</td>
<td>0.25</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Sleep quality</td>
<td>4.23 (1.53)</td>
<td>4.97 (1.47)</td>
<td>0.49</td>
<td>&lt;.0001</td>
<td>0.20</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Hypnotic dependence</td>
<td>1.16 (1.98)</td>
<td>2.15 (2.28)</td>
<td>0.45</td>
<td>&lt;.0001</td>
<td>0.25</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Daytime tiredness</td>
<td>6.54 (2.36)</td>
<td>7.50 (2.24)</td>
<td>0.42</td>
<td>&lt;.0001</td>
<td>0.21</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Desire to nap</td>
<td>6.07 (3.20)</td>
<td>7.31 (2.87)</td>
<td>0.41</td>
<td>&lt;.0001</td>
<td>0.16</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Sleep onset latency</td>
<td>33.12 (40.00)</td>
<td>51.57 (52.44)</td>
<td>0.39</td>
<td>&lt;.0001</td>
<td>0.16</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Daytime sleepiness</td>
<td>5.72 (2.50)</td>
<td>6.52 (2.18)</td>
<td>0.34</td>
<td>&lt;.0001</td>
<td>0.13</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Neurological condition</td>
<td>0.10 (0.30)</td>
<td>0.22 (0.42)</td>
<td>0.33</td>
<td>&lt;.0001</td>
<td>0.13</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Thirst interferes with sleep</td>
<td>0.20 (0.40)</td>
<td>0.34 (0.48)</td>
<td>0.32</td>
<td>&lt;.0001</td>
<td>0.14</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Pain interferes with sleep</td>
<td>0.29 (0.45)</td>
<td>0.44 (0.50)</td>
<td>0.32</td>
<td>&lt;.0001</td>
<td>0.13</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Rheumatologic condition</td>
<td>0.38 (0.49)</td>
<td>0.52 (0.50)</td>
<td>0.28</td>
<td>&lt;.0001</td>
<td>0.15</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Sleep efficiency</td>
<td>0.83 (0.17)</td>
<td>0.78 (0.18)</td>
<td>0.25</td>
<td>&lt;.0001</td>
<td>0.14</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Indigestion/reflux</td>
<td>0.18 (0.38)</td>
<td>0.28 (0.45)</td>
<td>0.24</td>
<td>&lt;.0001</td>
<td>0.14</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Dozing or napping</td>
<td>2.19 (1.68)</td>
<td>2.58 (1.75)</td>
<td>0.23</td>
<td>&lt;.0001</td>
<td>0.12</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>RLS interferes with sleep</td>
<td>0.33 (0.47)</td>
<td>0.43 (0.50)</td>
<td>0.21</td>
<td>&lt;.0001</td>
<td>0.12</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Wakes a lot at night</td>
<td>0.67 (0.47)</td>
<td>0.76 (.409)</td>
<td>0.19</td>
<td>&lt;.0001</td>
<td>0.09</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Number of awakenings</td>
<td>3.09 (2.28)</td>
<td>3.61 (3.76)</td>
<td>0.17</td>
<td>&lt;.0001</td>
<td>0.22</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

As Means (SD) for dichotomous variables are based on 0/1 response, the means are equivalent to proportions (0-100%) of affirmative answers.
ence in which most patients with nightmares are nonplussed by the idea of treatments for nightmares. They do not believe nightmares can be treated and do not imagine treatment could prove to be effective.\textsuperscript{3,21} Juxtaposed to this “no-treatment” orientation, the current findings indicate that a sizeable number of patients with a clinically salient nightmare condition might benefit from treatment, and these findings may have bearing on the emerging field of behavioral sleep medicine. In the setting of sleep medicine centers, clinical trials are needed to determine why patients with nightmares may or may not seek treatment and what is needed to engage patients to consider the potential value of nightmare therapies.

Several limitations are relevant to this study. These patients did not complete a personal interview to delineate further history and information about nightmare complaints, as would be conducted in a diagnostic psychiatric or sleep medicine interview; the findings could have underestimated or overestimated the frequency of nightmares or their relationship to mental health conditions; and other parasomnias, such as sleep terror disorder, rapid eye movement behavior disorder, or nocturnal seizure disorders, might have been missed or confused with the complaints of nightmares. Future studies must include personal interviews and appropriate objective sleep testing to discern those nightmares that stem from primary parasomnias or other conditions. Objective testing also would overcome the limitations from exclusive use of self-report data, as was done in this study. Some researchers make distinctions between nightmares and disturbing dreams, based on whether or not the dreamer awakens,\textsuperscript{28} and, by not adhering to that paradigm, patients with nightmares might have been overestimated here. Last, our research team has a local reputation for nightmare assessment and treatment, based on prior community-based studies both in Albuquerque (site of MSAS) and in Los Alamos (site of LAMC); thus, the sizeable proportion of patients with nightmares in the sample might reflect a bias among those seeking care at our facilities. However, not a single patient presented exclusively with a nightmare complaint or a request for nightmare treatment.

This study presented information about nightmares from a large clinical sample of patients with sleep disorders who sought care at a private sleep medical center and a hospital-based sleep laboratory, providing generalizability about the prevalence of this condition among treatment-seeking sleep patients. Nightmares were commonly reported, and 63% of these patients with nightmares linked them to disturbed sleep, a potential marker of a more salient clinical condition. Ranking nightmares as the first or second sleep disorder, making a bad dreams-bad sleep connection, or completing a validated scale (DDNSI) for nightmare complaints were simple clinical guideposts for identifying patients most likely to be in need of further evaluation and possibly intervention.

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REFERENCES

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Nightmare Complaints in Sleep Patients—Krakow


