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SCIENTIFIC INVESTIGATIONS

Nightmare frequency and nightmare distress during the COVID-19 pandemic

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Study Objectives: The current study investigated nightmare frequency and distress during the pandemic and associated factors.

Methods: Participants (n = 1,718) completed a survey, 747 of which were youth. The MADRE dream questionnaire was used to collect self-reported data on nightmare frequency and distress. In addition, personality traits, current stressors, and COVID-related anxiety were also measured. An ordinal regression model was used for statistical analysis, and $P < .05$ was considered significant.

Results: The findings from this study suggest (1) COVID-related anxiety is associated with the frequency of nightmares and the severity of nightmare distress experienced by a person, and (2) findings support the continuity hypothesis, which suggests waking life experiences are related to nightmares and (3) increased COVID-related anxiety contributes independently to nightmare frequency. COVID-related anxiety appeared to be more prevalent within adults ($P < .001$, effect size = 0.18) compared to youth. Similar results were found for nightmare distress.

Conclusions: The risk of nightmares may have increased due to disruptions in mental health and sleep caused by the COVID-19 crisis. These findings may be important in clinician efforts to understand nightmares and the risk of problematic sleep during the pandemic.

Keywords: nightmare frequency, nightmare distress, COVID-19 pandemic, psychopathology

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BRIEF SUMMARY

Current Knowledge/Study Rationale: Previous work has demonstrated that nightmare frequency and distress are more common among individuals who have elevated stress levels. Recent studies have shown that the COVID-19 pandemic has severely impacted mental health and increased stress, thereby resulting in problematic sleep.

Study Impact: The current findings add to the arising COVID-19 literature by identifying individuals who are at a higher risk for sleep problems such as nightmare disorders. In addition, the findings may help to identify stressors associated with the pandemic to improve our understanding of poor mental health and sleep during the COVID-19 pandemic.

INTRODUCTION

Nightmares are extremely dysphoric mental experiences that generally occur during rapid eye movement sleep and often result in distressful awakening.[1] As most people occasionally experience nightmares in their lifetime,[2] differentiating between nightmares and nightmare disorder is crucial. According to the *International Classification of Sleep Disorders*, nightmare disorders are not only defined by the frequency of nightmares but also by the clinically significant caused distress or impairment in social, occupational, or other areas of functioning.[1] Large-scale studies regarding the general population indicate that about 5% of the adult population experience distressing nightmares, compared to approximately 30% of patients with mental disorders like depression and anxiety disorders.[3] Moreover, studies have shown that women are at a higher risk of reporting frequent nightmares than men.[4]

There exist multiple theories regarding the etiology of nightmares. Levin and Nielsen[5] modified the well-known diathesis-stress model for nightmares and proposed a conceptual framework for understanding nightmares that included the concepts of affect distress and affect load. Affect distress is a trait factor that reflects a disposition to experience situations with highly reactive and distressing emotions.[5] Affect distress, closely linked to neuroticism, is a dominant personality trait in individuals who experience frequent nightmares.[6] In addition, Ernest Hartmann's theory of "thin boundaries" suggests that individuals with an unusual amount of openness to experience and vulnerability (eg, creative and highly sensitive individuals) are more likely to experience nightmares.[7] Affect load combines the impact of stressful and emotional events and the individual's capability to control their emotions.[5] Moreover, current stress levels are related to nightmare frequency and appear to mediate the relationship between neuroticism and nightmare frequency, meaning individuals with high neuroticism scores experience more stress during the day and hence more nightmares.[8] The mediation effect of stress is in line with the continuity hypothesis proposed by Schredl,[9] which states that experiences in our waking life (in this case, stressors) are reflected in our dreams.

The degree to which nightmares have a negative waking influence is referred to as nightmare distress.[10] Neuroticism also contributes to global nightmare distress, even though nightmare frequency is the primary risk factor for increased nightmare distress,[11] a finding that supports the neurocognitive model proposed by Levin and Nielson.[5] To summarize, vulnerable individuals have a disposition that increases the likelihood of their experiencing stress during the day, which thereby puts these individuals at high risk of experiencing more distressing nightmares when compared to others.[5,11]

One stressor affecting almost everyone worldwide is the COVID-19 pandemic and the measures that were introduced in many countries to counteract the spread of the virus. Several studies have demonstrated that during the COVID-19 pandemic nightmare frequency has increased.[12–15] One study demonstrated a 3-fold increase in the occurrence of nightmares, going from 9% reporting nightmares "once a week or more" before the pandemic to 25% after the pandemic.[16] During the COVID-19 lockdown in Italy, one study found that a factor characterizing dreams during the pandemic was an increase in negative emotions, which was more often observed in females, young adults, and participants experiencing anxiety and depressive symptoms.[14] In addition, emotional load and vividness of dreams also increased during lockdown compared to prelockdown.[14] Research demonstrated that those who were strongly affected by the pandemic reported the strongest negative effects on their dreams,[12,17] which was also found to be true for adolescents.[17] Moreover, the pandemic has been reported to have a particularly high impact on youth mental health.[18–21] Overall, the empirical data indicate that the pandemic had negative effects on dreaming. So far, the studies have not differentiated between the effect of general psychopathology and COVID-related anxiety on nightmare frequency and nightmare distress.

The aim of the present study was to investigate nightmare frequency and distress during the COVID-19 pandemic and explore COVID-related anxiety as an independent risk factor controlling for neuroticism and current psychopathology and distress. It was expected that COVID-related anxiety would be associated with more nightmares and greater nightmare distress.

METHODS

Research instruments

Dream variables were measured using the English version of the Mannheim Dream questionnaire (MADRE).[22] Nightmare frequency was measured using an 8-point rating scale ("How often have you experienced nightmares recently [in the past several months]?"): 0 = never, 1 = less than once a year, 2 = about once a year, 3 = about 2–4 times a year, 4 = about once a month, 5 = 2–3 times a month, 6 = about once a week, and 7 = several times a week.[18] In addition to this ordinal scale, an 8th category was included as "prefer not to say," which was not included in the original MADRE. The item included the following definition: "Nightmares are dreams with strong negative emotions that result in awakening from the dreams.[22] The dream plot can be recalled very vividly upon awakening." The retest reliability for 4 weeks was $r = .765$.[22] The time frame of the last several months for the MADRE nightmare frequency scale was chosen to elicit current nightmare frequency, as nightmare frequency can change in persons with frequent nightmares. On the other hand, for persons with infrequent nightmares, nightmare frequency does not change over time that much so the time intervals should not affect their estimates. The sufficient retest reliability supports the validity of this assumption.

Nightmare distress was measured using a 5-point scale ("If you currently experience nightmares, how distressing are the nightmares?"): 0 = not at all distressing, 1 = not that distressing, 2 = somewhat distressing, 3 = quite distressing, and 4 = very distressing. Retest reliability was slightly lower: $r = .673$.[22] Additionally, a 6th category was included, "Prefer not to say," for those who wished not to answer the question.

The Big Five personality factors were used to measure neuroticism, conscientiousness, extraversion, agreeableness, and openness.[23] The focus of this study will lay on the factors neuroticism and openness to experience using a 10-item version of the Big Five Personality Questionnaire. Studies have shown adequate reliability (Cronbach's alpha) ranging from .79 to .88 for the five subscales and .83 for the overall measure.[23]

Participants completed a 21-item version of the Depression Anxiety Stress Scale (DASS-21), a shortened version of the 42-item DASS. This shortened version of the DASS scale is comparable to the 42-item DASS.[24] The internal consistencies (Cronbach's alpha) computed for the DASS-21 subscale were .94 for depression, .87 for anxiety, and .91 for stress.[24] The normal score for Anxiety on the DASS-21 scale is between 0 and 7, mild 8–9, moderate 10–14, severe 15–19, and extreme severe 20 and above.[25]

The Pandemic Anxiety Scale containing 7 items was completed by participants to measure their subjective experiences of how they had been feeling during the COVID-19 outbreak. A 5-point Likert response scale ranging from 0 ("strongly disagree") to 4 ("strongly agree") was used.[26] Internal consistencies (Cronbach's alpha) values for the subscales ranged from 0.78–0.60.[26]

Participants

Overall, 1,718 participants (1,276 women, 440 men) completed the online survey between June 2020 and June 2021. The mean age was 35.1 ± 15.8 years (range: 15–88 years). From this population, 747 were youth with the mean age being 21.1 ± 2.6 (range: 15–25 years). The majority of the population (70%) identified as Caucasian, (13%) Asian, (8%) Black/African (4%), Indigenous, and (∼5%) as others. Participants were asked to name any mental health diagnosis received from a doctor or health care professional. Participants chose one or more of the 19 diagnoses listed. Additional categories included "Other," "I don't know," and "Prefer not to answer." The most common lifetime diagnosis was mood disorders (n = 607, 35.3%) and anxiety disorders (n = 461, 26.8%). The estimates for each variable in the "Prefer not to answer" category was not included in the statistical analysis and participants who experienced no nightmares were excluded from the data analysis of the nightmare distress data (n = 1,177).

Procedure

Participants were recruited through various means, including promoting the study through partner organizations, charities,

health authorities, clinics, hospitals, posters, social media (eg, Instagram, Twitter, and Facebook), and via Dalhousie University's experimental participation system (SONA). Recruitment was inclusive of participants with or without a diagnosis of a mental disorder or illness. Participants received a link to register for the study, where they could provide fully informed consent for participation in the study. REDCap, a secure web-based platform, was utilized to create and deliver the online dream questionnaire. Participants who completed the survey received financial compensation or university academic bonus points. The study protocol was approved by the Ethics Committee of Dalhousie University and the IWK Health Centre in accordance with the Declaration of Helsinki.

Data analysis

A cross-sectional design was used to investigate the relationship between nightmares and COVID-19–related anxiety during the pandemic, as well as their interactions. Statistical procedures were performed using the R statistical computing platform version 4.1.0. Ordinal regression was used to analyze the effects of different predictors (the Big Five personality factors, DASS-21, and COVID-related anxiety) on nightmare frequency and nightmare distress, controlling for age, sex, ethnicity, and current mental health diagnoses. For determining the model fit, we used Akaike information criterion (AIC). First, the regression analyses were conducted on the whole sample (youth and adults) and then additional analyses (supplemental material) were conducted on the youth only. Given that participants were recruited over the course of the pandemic, we aimed to ensure that the results were not affected by date or survey completion. Therefore, month of survey completion was initially included in the analyses but subsequently dropped as no effect was observed. The significance level was set to $P < .05$.

RESULTS

The distribution of nightmare frequency scores is presented in **Table 1**. About 21% of the participants never experienced nightmares, whereas 8% experienced nightmares several times a week; 352 participants (20%) reported experiencing nightmares about 2 or 4 times a year. **Table 2** presents the distribution of nightmare distress. About 10% of participants reported experiencing nightmares as not at all distressing, whereas 38% reported their nightmares as somewhat distressing.

Table 1—Nightmare frequency (n = 1,705).

Category	Counts	% of Total
Never	358	20.9%
Less than once a year	161	9.4%
About once a year	108	6.3%
About 2–4 times a year	352	20.6%
About once a month	244	14.3%
2–3 times a month	228	13.4%
About once a week	126	7.4%
Several times a week	128	7.5%

Thirteen participants checked "Prefer not to answer."

Table 2—Nightmare distress (n = 1,177).

Category	Counts	% of Total
Not at all distressing	115	9.7%
Not that distressing	217	18.4%
Somewhat distressing	449	38.1%
Quite distressing	283	24.0%
Very distressing	113	9.6%

Five hundred forty-one participants were excluded from distress data due to experiencing no nightmares and checking off "Prefer not to answer."

The means and standard deviations for the four main predictors (ie, Neuroticism, Openness to experience, DASS-21 scores, and COVID-related anxiety) are shown in **Table 3**.

An ordinal regression identified neuroticism as a highly significant predictor for nightmare frequency (see **Table 4**; AIC = 6,020.91). A current mood disorder diagnosis and age had a small effect on nightmare frequency and distress. As shown in **Table 5**, inclusion of the DASS-21 total scores showed an effect in the regression analysis ($P < .0001$, effect size = 0.34). Additionally, openness to experience had a small impact on nightmare frequency (see **Table 5**; AIC = 5,896.94). Current stress levels and COVID-related anxiety demonstrated an independent effect on nightmare frequency, as shown in **Table 6** (AIC = 5,854.46). When accounting for the DASS-21 and COVID-related anxiety, neuroticism was no longer a significant predictor for nightmare frequency. Additionally, ethnicity demonstrated a small effect ($P < .05$) on nightmare frequency as shown in **Table 6**.

A similar regression analysis was conducted for nightmare distress. Nightmare frequency was found to be a main factor for nightmare distress ($P < .0001$, effect size = 0.55) as depicted in **Table 7** (AIC = 3,118.23). Neuroticism, COVID-related anxiety, and current stressors contributed independently to nightmare distress. Neuroticism had a significant but smaller effect

Table 3—Means and standard deviations (SD) for four predictor variables (n = 1,548).

Predictor	Mean	SD
Neuroticism	6.61	2.27
Openness	7.04	1.93
DASS-21 total	39.19	14.02
COVID-related anxiety	26.64	6.23

Means exclude participants who checked off "Prefer not to answer." DASS-21 = 21-item Depression Anxiety Stress Scale.

Table 4—Ordinal regression for nightmare frequency (n = 1,548).

					Confidence Interval	
Predictor	***t* Value**	***P***	**Effect Size**	**Odds Ratio**	**Lower**	**Upper**
Age	−6.6	<.001	−0.18	0.73	0.66	0.80
Sex	0.7	.46	0.02	1.04	0.94	1.13
Non-White	−1.9	.06	−0.05	0.92	0.84	1.00
Mood disorder	3.1	.002	0.11	1.21	1.07	1.37
Anxiety disorder	1.5	.14	0.05	1.09	0.97	1.23
Other diagnosis	0.6	.52	0.02	1.03	0.93	1.15
Neuroticism	4.8	<.001	0.13	1.27	1.15	1.40
Openness	2.7	.007	0.07	1.13	1.03	1.24

Data exclude participants who checked off "Prefer not to answer."

on nightmare distress ($P < .05$, effect size = 0.09). DASS-21 total scores ($P < .0001$, effect size = 0.21) and COVID-related anxiety ($P = .0001$, effect size = 0.12) were found to have the biggest impact on nightmare distress. Moreover, age and having a current mood disorder diagnosis were related to heightened nightmare frequency and nightmare distress. Ethnicity did not have an effect until including DASS-21 and COVID-related anxiety. No significant effect was found for biological sex (see **Table 7**).

The same analysis procedure was repeated for the youth population (see **Table S1**, **Table S2**, **Table S3**, and **Table S4** in the supplemental material). Neuroticism ($P < .05$) showed some effect without accounting for other mental health diagnoses and COVID-related anxiety. Results for openness to experience demonstrated no significant effect on nightmares in youth. DASS-21 total scores and COVID-related anxiety results were significant but appeared to have less of an impact on both nightmare frequency and distress compared to the total sample that included adults and adolescents. Moreover, no differences were found in biological sex on nightmares, and no significant effect for ethnicity could be determined.

DISCUSSION

Overall, the data indicated that COVID-related anxiety is related to nightmare frequency and the level of nightmare distress experienced by an individual. Even when neuroticism, openness to experience, and current psychopathology were controlled for, COVID-related anxiety independently contributed to nightmare frequency. In addition to nightmare frequency, nightmare distress was also strongly related to current psychopathology and COVID-related anxiety. Moreover, the additional effect of current stress on nightmare frequency (in addition to neuroticism) found in the present study demonstrated a possible link between waking life experiences and dreaming, aligning with Schredl's[9] continuity hypothesis.

The results of the regression analysis demonstrated that the addition of COVID-related anxiety (eg, concerns about contracting the virus, family and friends contracting the virus, and job insecurity) was associated with a higher likelihood of experiencing nightmares. The results also showed that by factoring in COVID-related anxiety and DASS-21 factors (eg, depression,

Table 5—Ordinal regression for nightmare frequency adding current stressors (n = 1,548).

					Confidence Interval	
Predictor	***t* Value**	***P***	**Effect Size**	**Odds Ratio**	**Lower**	**Upper**
Age	−5.6	<.001	−0.15	0.76	0.69	0.84
Sex	0.2	.83	0.01	1.01	0.92	1.11
Non-White	−1.8	.08	−0.03	0.92	0.84	1.10
Mood disorder	1.7	.08	0.06	1.11	0.98	1.26
Anxiety disorder	0.8	.45	0.03	1.05	0.92	1.18
Other diagnosis	−0.1	.91	−0.00	0.99	0.89	1.10
Neuroticism	−0.5	.59	−0.02	0.97	0.87	1.08
Openness	3.0	.003	0.08	1.15	1.04	1.25
DASS-21 total	11.1	<.001	0.35	1.88	1.68	2.10

Data exclude participants who checked off "Prefer not to answer." DASS-21 = 21-item Depression Anxiety Stress Scale.

Table 6—Ordinal regression for nightmare frequency adding current stressors and COVID anxiety (n = 1,548).

					Confidence Interval	
Predictor	***t* Value**	***P***	**Effect Size**	**Odds Ratio**	**Lower**	**Upper**
Age	−5.2	<.001	−0.14	0.77	0.70	0.85
Sex	−0.2	.85	−0.01	0.99	0.90	1.09
Non-White	−2.5	.01	−0.06	0.89	0.81	0.97
Mood disorder	1.9	.06	0.07	1.13	1.00	1.28
Anxiety disorder	0.8	.40	0.03	1.05	0.93	1.19
Other diagnosis	−0.3	.73	−0.01	0.98	0.89	1.09
Neuroticism	−0.1	.34	−0.03	0.95	0.85	1.06
Openness	3.0	.003	0.08	1.15	1.05	1.25
DASS-21 total	9.3	<.001	0.30	1.72	1.53	1.92
COVID-related anxiety	6.6	<.001	0.18	1.39	1.26	1.53

Data exclude participants who checked off "Prefer not to answer." DASS-21 = 21-item Depression Anxiety Stress Scale.

anxiety, and stress), neuroticism was no longer a determining factor for nightmare frequency. Previous research has demonstrated that personality traits can affect the continuity between waking and life and dreaming.[9] As a result, individuals with high neuroticism scores may be more likely to have current psychopathology and, as a result, experience more nightmares. The direct influence of neuroticism was lost when current stressors were included. Nevertheless, as neuroticism is linked to current stressors, neuroticism had an indirect effect on nightmare frequency. Openness to experience contributed independently to nightmare frequency; this may be explained by Hartmann's theory of thin boundaries.[7] For instance, individuals with high openness to experience scores may have a greater disposition to experience more nightmares. The data also support the findings of previous studies suggesting that nightmare frequency is higher in patients with mood disorders. These findings are comparable to those of Swart et al,[3] which demonstrated that the prevalence of a nightmare disorder in patients with a mood disorder is substantially higher than the prevalence found in the general population (2–5%). The present findings indicate that during the pandemic COVID-19 related anxiety was related to a higher nightmare frequency. The effect of COVID-related anxiety on negative-toned dreams may not be specific to COVID-19, as health-related worries in general have been found to be related to more negatively toned dreams in a previous study.[27] Finally, since age, sex, and ethnicity were found to be associated with dream characteristics in previous literature,[8] they were included in the present study as covariates to control for any potential confounding effects.

Concurrent with previous reports,[11] nightmare frequency was found to be one of the major determinants of nightmare

Table 7—Ordinal regression for nightmare distress adding current stressors and COVID anxiety (n = 1,177).

					Confidence Interval	
Predictor	***t* Value**	***P***	**Effect Size**	**Odds Ratio**	**Lower**	**Upper**
Nightmare frequency	12.7	<.001	0.55	2.73	2.34	3.18
Age	−1.4	.17	−0.05	0.92	0.82	1.04
Sex	−0.3	.78	−0.01	0.98	0.88	1.09
Non-White	−0.3	.80	−0.01	0.98	0.88	1.10
Mood disorder	2.6	.01	0.10	1.20	1.04	1.38
Anxiety disorder	0.1	.91	0.00	1.00	0.88	1.15
Other diagnosis	−0.9	.35	−0.03	0.95	0.84	1.06
Neuroticism	2.7	.008	0.10	1.19	1.05	1.36
Openness	0.6	.58	0.02	1.03	0.92	1.15
DASS-21 total	5.6	<.001	0.21	1.46	1.28	1.67
COVID-related anxiety	3.8	<.001	0.13	1.26	1.12	1.41

Data exclude participants who do not experience nightmares and have those who have checked off "Prefer not to answer." DASS-21 = 21-item Depression Anxiety Stress Scale.

distress. Nightmare distress is not only related to nightmare frequency but also psychopathology and COVID-related anxiety, which additionally contribute to nightmare distress. The impact of these factors may be explained through a double effect. For instance, a person with symptoms of current psychopathology may experience more nightmares. In addition to this heightened nightmare frequency, nightmare distress was also increased. Ultimately, one might suggest that a person who is already anxious may be more stressed when experiencing nightmares in comparison to a person with the same number of nightmares but who may be less anxious in waking life. The present study found there was an association between nightmare distress and waking life, which supports the diathesis-stress model. The diathesis-stress model suggests that the interaction of current stressors (eg, current psychopathology and COVID-related anxiety) may reflect an individual disposition to perceiving situations as more distressing.[5] The results observed for the youth population could imply that neuroticism, current stressors, and COVID-related anxiety contribute to nightmare frequency and distress, but not to the extent experienced by adults. Although, it is worth noting that 21% of youth did not experience nightmares at all, which could suggest that COVID-related anxiety does not affect all people.

The COVID-related anxiety scale used in the present study encompassed various aspects. For one, an individual who worries more about either contracting the virus or has concerns over family and friends contracting the virus may experience more stress and anxiety, which may lead to a higher risk of experiencing nightmares. Other COVID-related anxiety may derive from the uncertainty of income and job prospects to sustain their lifestyle, which may explain why we found adults to be at a higher risk for nightmares than youth. It would be interesting to study which aspects of COVID-related anxiety are most strongly related to nightmares. Second, previous studies have shown that the pandemic has drastically impacted individuals mental and physical health. With the addition of COVID-related anxiety, individuals may thus find themselves to be in a more vulnerable position in their lives to experience problematic sleep.[27–30] Finally, personality traits, such as neuroticism, have been shown to correlate with nightmare frequency due to the experience of severe stressors.[8] Therefore, individuals with higher-than-usual neuroticism scores may experience more stress during the pandemic, which may increase their risk of experiencing nightmares. As such, the current findings reinforce Schredl's[9] continuity hypothesis.

Limitations and future directions

This study has some limitations. To begin, the online survey may have attracted a disproportionate number of participants who experience sleep issues or just had a greater interest in nightmares. With a larger sample, it may also be possible to study the effects of ethnicity and gender on nightmare frequency and the relationship between stress and nightmares in greater depth. Another limitation to consider is that we only assessed COVID-related anxiety at discrete time points throughout the pandemic, between June 2020 and June 2021. Thus, it could not be determined if COVID-related anxiety preluded nightmares, or nightmares preluded COVID-related anxiety. In order to establish causality between COVID-related anxiety and nightmares, longitudinal studies are necessary including baseline measurements. The present data had a high rate of psychopathology among its participants. This may be due to the recruitment techniques used, which emphasized the inclusion of both individuals with or without a mental health diagnosis. Finally, while the study focused primarily on the impact of COVID-related anxiety on nightmares, it would be fascinating to examine the impact of behavioral changes experienced during the pandemic (eg, the impact of restricting social contacts on nightmares).

To expand the present findings, it would be valuable to collect more objective data, (eg, contraction of the virus, family illness or death, changes in schooling [home schooling] or work [home office], financial effects of the pandemic on the family income), to gain a better understanding of the effects of the pandemic on problematic sleep. Although this may be labor-intensive, it would be compelling to see if objective sleep measures (eg, rapid eye movement sleep duration) are associated with having more nightmares during the pandemic. Heightened public health measures such as province-wide lockdowns and self-quarantines have severely disrupted individuals' everyday routines and behaviors. It would also be interesting to understand whether sleep duration has been impacted as a result of these measures. Extended sleep duration may provide opportunities for extended rapid eye movement sleep, during which nightmare occurrence is most likely.[31,32] With the addition of the insomnia severity index and the Pittsburgh Sleep Quality Index scales, it would be intriguing to study the association between sleep-related variables and nightmare frequency during the COVID-19 pandemic. Having both objective and self-reported data would help clinicians to better comprehend the impact the pandemic and public health measures can have on problematic sleep. Furthermore, collecting data at various stages throughout the continuing pandemic may aid us in better understanding the link between COVID-related anxiety and nightmare frequency and distress.

CONCLUSIONS

In sum, the current study demonstrates that COVID-related anxiety is independently associated with nightmare frequency and nightmare distress. These findings may help identify individuals who may be at a higher risk for problematic sleep (eg, nightmare disorders). Interventions aimed at reducing waking life anxiety, such as COVID-related anxiety, may decrease nightmare frequency and thus minimize the risk of an individual's acquiring a nightmare disorder. Nightmares are a sensitive marker for gauging the degree of stress experienced by a person in difficult times, such as the COVID-19 pandemic. As such, nightmare frequency and distress should be taken seriously in order to help those who are distressed.

ABBREVIATIONS

AIC, Akaike information criterion
DASS, Depression Anxiety Stress Scale

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