

Nightmare Disorder, Psychopathology Levels, and Coping in a Diverse Psychiatric Sample

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Objective: Nightmares are associated with psychopathology and impaired coping in the general population. However, little is known about this association in a psychiatric population. In this study, we investigate whether patients with diverse psychiatric disorders have increased symptomatology and different coping styles if they suffer from comorbid nightmare disorder. **Method:** Participants were 498 patients with diverse moderate to severe psychiatric disorders. As part of a standard assessment procedure, they filled out questionnaires regarding nightmares, psychopathology, personality pathology, and coping. **Results:** A multivariate analysis of covariance and post hoc tests showed that patients with nightmare disorder scored higher on psychopathology ($\eta_p^2 = .03$; $p = .001$) and personality pathology ($\eta_p^2 = .01$ – $.03$; $p < .05$). No significant differences were found with regards to coping strategies. **Conclusion:** Nightmare disorder is associated with higher levels of psychopathology and personality pathology in a sample of patients with diverse psychiatric disorders. © 2016 Wiley Periodicals, Inc. *J. Clin. Psychol.* 73:65–75, 2017.

Nightmares are defined as complex and story-like series of dream images that inflict dysphoric emotions. They are well recalled and can be reproduced in detail on awakening (American Psychiatric Association [APA], 2013). Nightmare disorder is diagnosed if these nightmares cause severe distress and impair daily functioning (APA, 2013). Nightmares are relatively common: About 2% to 5% of the general adult population has one or more nightmares a week. It is estimated that a similar number also suffers from nightmare disorder (Bixler, Kales, Soldatos, Kales, & Healey, 1979; Li, Zhang, Li, & Wing, 2010; Sandman et al., 2013; Schredl, 2010; Spoomaker, Verbeek, van den Bout, & Klip, 2005).

Nightmares are associated with serious problems (Levin & Nielsen, 2007; Spoomaker, Schredl, & van den Bout, 2006). For example, nightmares disturb sleep (Simor, Horvath, Gombos, Takacs, & Bodizs, 2012); affect cognitive functioning (Simor, Pajkossy, Horvath, & Bodizs, 2012), emotional functioning, and overall well-being (Kales et al., 1980; Lancee & Schrijnmaekers, 2013; Levin & Nielsen, 2007); and are associated with impaired coping skills in the general population (Köthe, Lahl, & Pietrowsky, 2006).

Furthermore, nightmares are correlated with mental health problems (Li et al., 2010; Robillard et al., 2015; Sandman et al., 2015) and associated with severe psychiatric disorders such as

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posttraumatic stress disorder (PTSD; Germain, 2013; Levin & Nielsen, 2007; Spoomaker et al., 2006; Wittmann, Schredl, & Kramer, 2007), psychosis (Fisher et al., 2014), personality pathology (Kales et al., 1980; Köthe & Pietrowsky, 2001), and personality disorders (Semiz, Basoglu, Ebrinc, & Cetin, 2008; Simor, Csoka, & Bodizs, 2010), as well as suicide risk and suicidal ideation (Bernert, Kim, Iwata, & Perlis, 2015; Pigeon, Pinguart, & Conner, 2012) and substance abuse (Levin & Nielsen, 2007; Simpson, Stappenbeck, Varra, Moore, & Kaysen, 2012; Spoomaker et al., 2006; Vandrey, Babson, Herrmann, & Bonn-Miller, 2014).

Because of its proposed association with psychopathology, we investigated the prevalence of nightmare disorder in a sample of patients with diverse psychiatric diagnoses. In a previous study we administered several validated questionnaires to patients drawn from a diverse psychiatric population in secondary mental healthcare, and observed that 30% met the criteria for nightmare disorder according to the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR)* (APA, 2000; Swart, van Schagen, Lancee, & van den Bout, 2013). It was notable that none of the patients had a diagnosis of nightmare disorder in their medical files. This can be explained by the fact that at the time of the study clinicians followed the *DSM-IV-TR* guidelines (APA, 2000) and therefore had to exclude a diagnosis of nightmare disorder when other psychiatric disorders were present. The *DSM-5* (APA, 2013) allows nightmare disorder to be classified alongside comorbid disorders, so that nightmare disorder may now be diagnosed more often.

However, another explanation might have been that clinicians simply did not pay enough attention to nightmare disorder, perhaps because mental healthcare providers are not well informed about the consequences of nightmares and the available treatment options to deal with them (Nadorff, Nadorff, & Germain, 2015; Thünker, Norpoth, von Aspern, Özcan, & Pietrowsky, 2014).

If nightmares are indeed not sufficiently recognized by healthcare professionals, and if nightmares are associated with other psychopathologies, this is a missed opportunity because there are very effective treatments for nightmares. Imagery rehearsal therapy (IRT) is the most extensively studied treatment option. With IRT, patients rescript the story of their recurring nightmare into a new dream with another ending, and the new dream is rehearsed by imagining it in the daytime (Krakow & Zadra, 2006). Several reviews (e.g. Lancee, Spoomaker, Krakow, & van den Bout, 2008) and meta-analyses (Augedal, Hansen, Kronhaug, Harvey, & Pallesen, 2013; Hansen, Hofling, Kroner-Borowik, Stangier, & Steil, 2013) have concluded that IRT is effective and proposed it as the treatment of choice for nightmares. Recently the efficacy of IRT in a general psychiatric population was demonstrated (van Schagen, Lancee, de Groot, Spoomaker, & van den Bout, 2015). Interestingly, it was found that IRT ameliorated nightmares *and* overall psychopathology symptoms and specific traumatic stress symptoms, with effects also noticed among patients without a PTSD diagnosis (van Schagen et al., 2015).

In summary, nightmares are associated with various forms of psychopathology and may be underrecognized in mental healthcare, even though there is effective treatment available. However, most known associations are based on investigations of general population samples (e.g. Blagrove & Fisher, 2009; Kales et al., 1980; Lancee & Schrijnemaekers, 2013; Sandman et al., 2015) or specific psychiatric samples, such as people with PTSD (Germain, 2013) or borderline personality disorder (Semiz et al., 2008). Even though we found that nightmare disorders are more prevalent in a psychiatric sample, we do not know whether nightmare disorder is related to the psychopathology of patients with diverse psychiatric diagnoses. To our knowledge, there is no study to date that has investigated the association between nightmare disorder and psychopathology severity scores in a sample of patients with diverse psychiatric disorders.

To bridge this gap in the literature, we investigated whether nightmare disorder is associated with higher psychopathology symptom scores and personality pathology scores in a patient sample with diverse psychiatric diagnoses. In addition, we studied coping styles associated with psychopathology. In accordance with previous studies, we also looked at the correlations between nightmare measures and psychopathology and coping. We administered questionnaires regarding psychopathology, coping strategies, and nightmares to all patients who enrolled for outpatient treatment at a secondary mental healthcare trust in the period 2008–2010. Consistent with earlier studies, we expected that patients with nightmare disorder (compared to patients

without nightmare disorder) would have (a) higher psychopathology scores, (b) increased personality psychopathology, and (c) less adaptive coping styles. In addition, we expected to find a correlation between nightmare severity and psychopathology severity and maladaptive coping.

Method

Participants

Study participants were patients who received psychiatric treatment at GGz Centraal de Merregaard, a secondary mental healthcare trust that provides mental health services for patients with moderate to severe psychiatric disorders in Almere (191,000 inhabitants, The Netherlands). Patients were referred for psychiatric treatment by their general practitioners. After initial clinical assessment they filled out a standard assessment, including questionnaires regarding psychopathology symptoms, personality pathology and coping styles.

Of the 962 patients who were approached, 91 patients did not meet the inclusion criteria because of acute psychiatric crisis or insufficient mastery of the Dutch language. Of the eligible 871 patients, 29 did not give consent to participate and 331 did not complete the questionnaires. The overall response rate was 59%, with 511 completers. Across different diagnostic categories we found an equally distributed response rate of 65%, except for a much lower response rate among patients with a psychotic disorder (response rate 19%). Therefore, this group ($n = 13$) was excluded from the analyses. No differences were found on any of the sociodemographic variables between respondents and nonrespondents (all $\chi^2 < 4.64$ and p -values $> .05$), except for ethnicity. The proportion of nonrespondents was bigger in the group classified as immigrants ($n = 97$; 39.8%) $\chi^2(1) = 11.14$, $p < .01$.

The final group of 498 patients had a mean age of 35.7 years (standard deviation [SD] = 11.8). There were 139 men (27.9%) and 359 women (72.1%). The educational levels were as follows: 35.3% with low level education, 37.6% with middle level education, 24.7% with high level education, and 2.4% unknown. Of the group, 77.3% were Dutch inhabitants, 19.9% had a non-Western background, and the background of 2.8% was unknown; 54.6% were single and 45.4% were married or in a relationship. Most patients ($n = 317$; 62.0%) had more than one *DSM-IV-TR* diagnosis (APA, 2000). The *DSM-IV-TR* diagnoses were retrieved from the clinical files, and the diagnosis with the most severe symptoms (based on an unstructured clinical interview) was designated as the "primary diagnosis." Instead of including PTSD in the group of anxiety disorders, we analyzed PTSD as a separate diagnosis because of its known association with nightmares.

Measures

To determine whether participants met the criteria for nightmare disorder, the Nightmare subscale of the SLEEP-50 (Spoormaker et al., 2005) was used. This questionnaire was designed to detect sleep disorders as listed in the *DSM-IV-TR* (APA, 2000). The items are rated on 4-point Likert-type scales ranging from 1 (*not at all*) to 4 (*very much*), with high scores indicating more severe sleep problems. The SLEEP-50 has a sensitivity of .84 and a specificity of .77 for nightmares in relation to clinical diagnosis (Spoormaker et al., 2005).

To measure the "distress criterion" of the *DSM-IV-TR* (APA, 2000), the following question "Do nightmares have an effect on your well-being?" was used in addition to the SLEEP-50. Nightmare frequency was assessed with the following questions: "How many disturbing dreams did you have in the last seven days?"; "How many nights with disturbing dreams did you have in the last seven days?"; and "How many disturbing dreams did you have in the last month?" Patients were considered to have nightmare disorder if the nightmares were present at least once a week, caused awakening, and affected well-being; and if the patients remembered the storyline of their nightmares and could orientate themselves rapidly upon awakening. Criterion D of the *DSM-IV-TR* (APA, 2000)—"The nightmares do not occur exclusively during the course of another mental disorder"—was not taken into account as we were interested in nightmares as a phenomenon occurring in a population with diverse psychiatric diagnoses.

Nightmare distress was assessed with the Nightmare Distress Questionnaire (NDQ; Belicki, 1992). The NDQ has an internal consistency ranging from .83 to .88; in this study, Cronbach's α was .88. The Nightmare Effects Survey (NES; Krakow et al., 2000) was used to assess the effect of nightmares on daily life. The NES has an internal consistency (Cronbach's α) of .90 (Krakow et al., 2000); in this study, Cronbach's α was .92. On both questionnaires the items are rated using a 5-point Likert-type scale ranging from 0 (*not at all*) to 5 (*very much*), with high scores indicating more nightmare distress and more significant negative effects of nightmares on daily life. The NDQ and the NES were translated into Dutch by the first author.

General psychopathology was assessed using the Dutch version of the Symptom Check List (SCL-90; Arrindell & Ettema, 2003), a questionnaire with good reliability and validity (Cronbach's α = .88, test-retest reliability ranging from .74 to .80) which is frequently used for several mental complaints. The items are rated on 5-point Likert scales ranging from 1 (*not at all*) to 5 (*very much*), with high scores indicating more severe mental health problems. The global score (the summed score of the 90 item scores) provides in a single numerical value summary of the overall distress level. The Dutch SCL-90 comprises nine subscales: Anxiety, Phobic Anxiety, Depression, Somatization, Cognitive Performance Deficits, Interpersonal Sensitivity-Mistrust, Acting-Out Hostility, Sleep Difficulties, and Other problems (Arrindell & Ettema, 2003).

Personality pathology was assessed using the Severity Indices of Personality Problems (SIPP; Verheul et al., 2008). The SIPP is a self-report questionnaire that aims to measure the severity of the generic and changeable components of personality disorders. The SIPP-118 comprises 118 items. The respondent is asked to answer on a four-point scale, indicating the extent to which he or she agrees with the statement presented when thinking about the last 3 months. The 118 items are assigned to 1 of 16 facets, which are clustered into five higher order domains: self-control (emotion regulation, effortful control); identity integration (self-respect, stable self-image, self reflexive functioning, enjoyment, purposefulness); responsibility (responsible industry, trustworthiness); relational capacities (intimacy, enduring relationships, feeling recognized); and social concordance (aggression regulation, frustration tolerance, cooperation, respect). High facet scores indicate more adaptive personality functioning. Test-retest reliability Pearson correlations range from .83 to .95 (with a median of .93). The instrument has good construct validity and seems sensitive to change. Overall it has good psychometric properties (Verheul et al., 2008).

Coping strategies were assessed using the Dutch version of the Coping Inventory for Stressful Situations (CISS; de Ridder & van Heck, 2004). The CISS consists of 48 items assessing three types of coping styles: task-oriented coping, emotion-oriented coping, and avoidance-oriented coping (distraction and social diversion). Each item represents a certain coping activity, and individuals rate items on 5-point Likert-type scales ranging from 1 (*not at all*) to 5 (*very much*), indicating how much they engage in each activity when they encounter a difficult, stressful, or upsetting situation. High scores indicate a preference for a specific coping style. The Dutch version of the CISS has been found to discriminate between individuals who have been diagnosed with psychiatric disorders and those who have not, and it has good psychometric properties with an internal consistency (Cronbach's α) ranging from .80 to .87 and a test-retest reliability ranging from .78 to .90 (de Ridder & van Heck, 2004).

Procedure

From October 2008 to April 2010, all adult patients (aged 18 to 75 years) who were accepted for treatment after a clinical interview ($n = 962$) were asked to complete an assessment using questionnaires to investigate psychopathology symptoms, personality pathology, coping styles, and nightmares. Individual support from a research assistant was offered on site. All participants received written information about the study and written informed consent was obtained before the data collection. The research protocol met the standards of the World Medical Association Declaration of Helsinki on ethical principles for medical research involving human subjects (World Medical Association, 2013), and the Medical Research Ethics Committee of the Isala Clinics, Zwolle, The Netherlands, ruled that because of the study's low intensity and impact, official ethical approval was not needed.

Statistical Analyses

A one-way between-groups multivariate analysis of covariance was conducted with nightmare disorder as the independent variable. The dependent variables were: general psychopathology, personality pathology, and coping. Gender, primary diagnosis, and the *Global Assessment of Functioning Scale* (GAF) score (*DSM-IV-TR*; APA, 2000) were used as covariates in the analysis. The subscales of the SCL-90 were not included in the multivariate analysis of covariance (MANCOVA) because of the high correlations among the subscales ($r > .50$). We did perform separate ANCOVAs for all SCL-90 subscales (with a Bonferroni corrected value of $p = .0055$), and we include these in the Appendix Table A1. We analyzed the nightmare frequency for the nightmare disorder group versus the group of patients without nightmare disorder.

Furthermore, we calculated the correlations between nightmare frequency, nightmare distress and effects, (personality) psychopathology, and coping levels for the participants with at least one nightmare per month. Because of the skewness of the nightmare frequency distribution, the data for the nightmare frequencies per week and per month were log transformed before analysis of the correlation between the frequency measures and the psychopathology and coping measures. With the exception of the Bonferroni corrected values, an α -level of $p < .05$ was used throughout the study (two-sided).

Results

Primary diagnoses

There were no differences on any of the demographic variables between the nightmare disorder group and the patients without nightmare disorder, with the exception of gender. There was a higher proportion of women with nightmare disorder (80.5%; $\chi^2 = 6.96$, degree of freedom [df] = 1, $p < .01$). Of the total sample, 62.3% ($n = 310$) reported at least one nightmare in the past month (see Table 1 for the nightmare frequencies). The proportion of nightmare disorder by diagnostic criteria is displayed in Table 1. A chi-square test for independence indicated differences in the proportion of nightmare disorder between the diagnostic categories ($\chi^2 = 32.8$, df = 4, $p < .001$, $\phi = .26$). Ten subsequent chi-square tests for independence (with Yates's continuity correction) with a Bonferroni corrected α -value of .005 were performed.

For the PTSD group, the proportion of nightmare disorder was greater compared to all diagnosis groups (66.7%; $\chi^2 = 12.32$ –28.85, df = 1, $p \leq .001$, $\phi = -.48$ –.27), except the mood disorder group (37.3%; $\chi^2 = 6.51$, df = 1, $p = .011$, $\phi = -.26$). The mood disorder group also showed a higher nightmare disorder proportion compared to the anxiety disorder group (37.3% vs. 15.6%; $\chi^2 = 10.76$, df = 1, $p = .001$, $\phi = -.25$). In the nightmare disorder group, ANOVA tests indicated no differences between the different diagnoses in terms of weekly nightmare frequency, $F(4, 143) = 1.23$, $p = .30$, and nights with nightmares in a week, $F(4, 139) = 1.43$, $p = .23$.

Psychopathology Levels and Coping

Table 2 shows the observed means and standard deviations for all measures in terms of “nightmare disorder” and “no nightmare disorder.” After adjusting for gender, primary diagnosis and GAF score, the MANCOVA demonstrated a statistically significant difference between patients without nightmare disorder and patients with nightmare disorder on the combined dependent variables, $F(11, 450) = 2.46$, $p = .005$; Wilks' Lambda = .94; partial $\eta^2 = .06$. When the results for the dependent variables were considered separately there was a significant difference on the SCL-90 total psychopathology symptom scores between nightmare disorder and no nightmare disorder ($F = 11.83$; df = 1; $\eta_p^2 = .03$; $p = .001$). As discussed in the statistical analysis section, the subscales of the SCL-90 are reported in the Appendix Table A1.

With regard to personality psychopathology, the nightmare disorder group had significantly higher scores (Bonferroni adjusted α -value of $p = .01$), indicating more maladaptive personality functioning on self-control ($F = 13.12$; df = 1; $\eta_p^2 = .03$; $p < .001$), identity integration ($F = 9.25$; df = 1; $\eta_p^2 = .02$; $p = .002$), responsibility ($F = 7.59$; df = 1; $\eta_p^2 = .02$; $p = .006$), and social concordance ($F = 6.60$; df = 1; $\eta_p^2 = .01$; $p = .01$). There was no difference between

Table 1
Demographic and Clinical Characteristics of the Study Population

	Nightmare disorder		Analysis			
	No (<i>n</i> = 349)	Yes (<i>n</i> = 149)	<i>X</i> ²	<i>t</i> test	<i>df</i>	<i>p</i>
<i>Clinical features</i>						
Nightmare frequency: mean (<i>SD</i>), median						
Nights with nightmares per week	1.11 (1.68), <i>Mdn</i> < .01	3.23 (1.47), <i>Mdn</i> = 3.00	7733.50 ^a	-12.43 ^b		<.001
Number of nightmares per week	1.30 (2.34), <i>Mdn</i> < .01	3.81 (2.55), <i>Mdn</i> = 3.00	7969.50 ^a	-12.54 ^b		<.001
Number of nightmares per month	5.01 (10.87), <i>Mdn</i> = 1.00	14.51 (12.93), <i>Mdn</i> = 10.50	7528.00 ^a	-11.94 ^b		<.001
Primary diagnosis, <i>n</i> (%)			32.75		4	<.001
Personality disorder	111 (68.9%)	50 (31.1%)				
Mood disorder	52 (62.7%)	31 (37.3%)				
Anxiety disorder	92 (84.4%)	17 (15.6%)				
PTSD	10 (33.3%)	20 (66.7%)				
Other	84 (73.0%)	31 (27.0%)				
DSM-IV-TR GAF score, mean (<i>SD</i>)	51.66 (7.56) (<i>n</i> =331)	49.52 (7.69) (<i>n</i> =145)		2.84	474	.005
On psychoactive medication, <i>n</i> (%)	175 (50.1%)	81 (54.4%)	0.54		1	.462
Antidepressants	115 (65.7%) ^c	58 (71.6%) ^d				
Antipsychotics	10 (5.7%) ^c	6 (7.4%) ^d				
Anxiolytics (benzodiazepin) or hypnotics	81 (46.3%) ^c	34 (42.0%) ^d				
Other	15 (8.6%) ^c	4 (4.9%) ^d				
Type of treatment (<i>n</i> , %)			0.55		1	.457
Outpatient treatment	347 (99.4%)	146 (98.0%)				
Day treatment	2 (0.6%)	3 (2.0%)				

Note. *df* = degree of freedom; *SD* = standard deviation; *Mdn* = median; PTSD = posttraumatic stress disorder; DSM-IV-TR = *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision*; GAF = *Global Assessment of Functioning Scale* from DSM-IV-TR.

^aMann-Whitney U Test.

^b*z*-score.

^cPercentage of *n* = 175.

^dPercentage of *n* = 81.

the nightmare disorder group and the no nightmare group in terms of relational capacities ($F = 2.33$; $df = 1$; $\eta_p^2 = .01$; $p = .13$).

Regarding coping strategies, there were no differences between the two groups (Bonferroni adjusted α -value of $p = .01$). There was a trend that nightmare sufferers scored higher on emotion-oriented coping ($F = 5.21$; $df = 1$; $\eta_p^2 = .01$; $p = .02$).

Correlations

Table 3 shows all correlations between the nightmare frequency, nightmare distress and nightmare effect, and general psychopathology, personality pathology and coping measures.

Discussion

In this study, we set out to investigate whether we could adapt the research question from earlier studies on the general population, to look at the association between nightmare disorder and the severity of general psychopathology, personality pathology, and coping strategies in an

Table 2
Psychopathology and Coping Measures, and Nightmare Disorder Compared To Non-Nightmare Disorder

	Nightmare disorder						
	No <i>n</i> = 349		Yes <i>n</i> = 149		<i>F</i> (<i>df</i>)	<i>p</i>	η_p^2
	Mean	<i>SD</i>	Mean	<i>SD</i>			
<i>SCL-90-R</i>	(1, 464)						
Global Score	213.67	67.27	248.70	60.56	11.83	.001	.025
<i>SIPP Domain scores</i>	(1, 464)						
Self-control domain	4.71	1.07	4.26	1.04	13.12	< .001	.028
Identity integration domain	3.83	0.89	3.45	0.75	9.25	.002	.020
Responsibility domain	4.67	0.81	4.45	0.87	7.59	.006	.016
Relational capacities domain	4.10	0.86	3.86	0.74	2.33	.128	.005
Social concordance domain	5.79	0.85	5.58	0.84	6.60	.010	.014
<i>CISS</i>	(1, 464)						
Task-oriented coping	48.33	12.17	49.18	10.79	0.70	.404	.002
Emotion-oriented coping	48.38	12.39	52.56	10.56	5.21	.023	.011
Avoidance-oriented coping	39.59	11.38	40.27	10.86	0.04	.835	< .001
Distraction	19.26	6.35	20.50	6.38	2.11	.147	.005
Social diversion	13.59	5.27	13.28	5.14	0.48	.491	.001

Note. *df* = degree of freedom; *SD* = standard deviation; *SCL-90-R* = *Symptom Check List -90- Revised*; *SIPP* = *Severity Indices of Personality Problems*; *CISS* = *Coping Inventory for Stressful Situations*. For *SCL-90-R* subscales, please see Appendix Table A1.

Table 3
Correlations Between Nightmare Frequency, Nightmare Distress and Effect, and Psychopathology, Personality and Coping Measures

	<i>NiNmpw</i>	<i>NoNmpw</i>	<i>NoNmpm</i>	<i>NDQ</i>	<i>NES</i>
Nights with nightmares per week (<i>NiNmpw</i>)		.89**	.76**	.52**	.47**
Number of nightmares per week (<i>NoNmpw</i>)			.82**	.48**	.43**
Number of nightmares per month (<i>NoNmpm</i>)				.52**	.43**
<i>SCL-90-R</i>					
Global score		.31**	.27**	.27**	.45**
<i>SIPP domain scores</i>					
Self-control domain		-.17**	-.17**	-.17**	-.20**
Identity integration domain		-.24**	-.25**	-.26**	-.29**
Responsibility domain		-.04	-.08	-.04	-.12*
Relational capacities domain		-.16**	-.15**	-.15**	-.23**
Social concordance domain		-.01	-.02	-.00	-.14*
<i>CISS</i>					
Task-oriented coping		-.01	-.04	-.03	.04
Emotion-oriented coping		.18**	.18**	.16**	.26**
Avoidance-oriented coping		.03	.05	.02	.09
Distraction		.06	.08	.03	.11*
Social diversion		-.02	-.01	-.04	.02

Note. *NDQ* = *Nightmare Distress Questionnaire*; *NES* = *Nightmare Effect Survey*; *SCL-90-R* = *Symptom Check List -90- Revised*; *SIPP* = *Severity Indices of Personality Problems*; *CISS* = *Coping Inventory for Stressful Situations*.

p* < .05. *p* < .01.

ecologically valid clinical sample with diverse psychiatric disorders. The prevalence of nightmare disorder in our sample was 30%. As expected, we found that patients with nightmare disorder had more severe psychiatric symptomatology and more severe personality pathology than patients without nightmare disorder. We also found that higher nightmare frequency was associated with aggravated nightmare distress and increased effects of nightmares on daily life. We did not find a statistically significant difference in terms of coping strategies.

These results are consistent with earlier observations that nightmares are associated with acute psychopathology symptoms (Chivers & Blagrove, 1999; Levin & Nielsen, 2007), anxiety (Roberts & Lennings, 2006), disturbed mood (Lancee & Schrijnemaekers, 2013; Sandman et al., 2015), and sleep problems (Sandman et al., 2015; Simor et al., 2014) in different populations.

For personality pathology, moderate effect size differences were found for self-control and identity integration and small effect sizes were observed for responsibility and social concordance. These data are in agreement with earlier studies that reported correlations between personality pathology and nightmares in healthy student samples (Blagrove & Fisher, 2009; Köthe & Pietrowsky, 2001).

For coping skills the results were not as pronounced as for the other constructs. We observed no effects on task-oriented coping and avoidance-oriented coping and only a trend for emotion-oriented coping, which is seen as an inadequate coping strategy and associated with dependency and emotional instability (de Ridder & van Heck, 2004; Wingo, Baldessarini, & Windle, 2015). The trend for emotion-oriented coping is in line with an earlier study in which frequent suffering from nightmares was correlated with more stress-enhancing coping strategies (Köthe et al., 2006). A possible explanation for this relationship is that nightmares can lead to increased distress in daytime (Antunes-Alves & De Koninck, 2012) due to the emotional level of the nightmare and the sufferer's lack of control. In turn, these high levels of emotional distress impair executive and cognitive control functions (Simor, Pajkossy et al., 2012), with the consequence that task-oriented coping can be compromised and emotion-focused coping becomes more prevalent.

In conclusion, the results of this study in a psychiatric sample are generally consistent with the literature on nightmare disorder in the general population or in specific subsamples. Thus the importance of the recognition of nightmares in mental healthcare is supported. However, the explanation for the association between nightmare disorder and psychopathology in a psychiatric population has yet to be investigated.

Limitations

Before we discuss possible implications, several limitations need to be mentioned. First and foremost, our correlations are cross-sectional, and we do not know whether nightmares contribute to higher psychopathology levels or vice versa. A longitudinal design could have tackled this issue. However, this design was not suitable for our study setting as patients in this study were receiving psychiatric treatment, and changes (or a lack of them) in symptomatology could therefore be attributable to either nightmares and/or treatment effects. Second, nightmare disorder was diagnosed using a self-report questionnaire; no clinical diagnosis of nightmare disorder based on a structured diagnostic interview was available. Third, our sample did not include all diagnostic categories according to *DSM-IV* (e.g., we had to exclude the group with psychotic disorders due to the very low response rate).

Finally, one could posit as a limitation that the sample comprised a heterogeneous population, which makes it difficult to compare to earlier studies and/or generalize the results to specific patient populations. However, we think that this heterogeneity is a major strength of this research because it entails increased ecological validity. This is a large sample of real-life patients with diverse psychiatric disorders and high comorbidity, and these are exactly the patients that clinicians encounter in secondary mental healthcare.

In that light, it is important to stress that there was no report of a diagnosis of nightmare disorder in any of the participants' medical files. The new *DSM-5* has increased the likelihood of classifying comorbid nightmare disorders (APA, 2013), and it is important that nightmares are recognized more often to arrange effective treatment (Nadorff et al., 2015; Thünker et al., 2014) such as IRT (Augedal et al., 2013; Hansen et al., 2013; Lancee et al., 2008; van Schagen et al., 2015).

Conclusion

In this study, we highlighted the importance of nightmares in relation to psychopathology. We extended findings from general populations and specific subsamples to a more generic psychiatric population. We found that nightmare disorder is associated with more severe psychopathology and with personality pathology. Nightmares seem to add to the already significant burden of psychiatric disorders. Therefore, in mental healthcare we advocate treating nightmares with an evidence-based symptom-specific treatment like IRT, which also has benign effects for the alleviation of comorbid psychiatric disorders (Germain & Nielsen, 2003; van Schagen et al., 2015).

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Appendix

Table A1

Observed means and standard deviations for all SCL-90 subscales with corresponding ANCOVAs

	Nightmare disorder				F	p	η_p^2
	No n = 349		Yes n = 149				
	Mean	SD	Mean	SD			
<i>SCL-90-R</i>							
Anxiety	24.91	9.71	29.01	8.53	7.27	.007	.015
Phobic Anxiety	14.25	7.16	15.89	7.01	0.92	.339	.002
Depression	43.91	15.43	50.65	13.00	6.88	.009	.014
Somatization	27.86	10.58	32.71	10.22	8.41	.004*	.018
Cognitive performance deficits	24.44	8.24	27.21	7.48	4.38	.037	.009
Interpersonal sensitivity	40.01	15.10	47.44	15.43	11.30	.001*	.023
Acting-out hostility	11.40	4.74	13.56	5.61	9.61	.002*	.020
Sleep difficulties	8.35	3.81	10.20	3.47	11.45	.001*	.024
Other problems	18.55	6.72	22.00	7.24	14.04	<.001*	.029

Note. ANCOVAs with nightmare disorder yes/no as independent variable. Because of multiple testing (nine dependent variables) we did a Bonferroni correction and used a significance level of $p = .05/9 = .0055$. SD = standard deviation; SCL-90-R = Symptom Check List -90- Revised; * = $p < \text{Bonferroni corrected } \alpha\text{-value} = .0055$.