Reported Nightmares and Trait Anxiety Among Arab Children, Adolescents and Adults

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Abstract

Background: Research on the association between nightmares and anxiety has reached conflicting results. Further, the Arabic studies in this domain are scarce.

Objective: This study sought to investigate the relation between reported nightmares and trait anxiety among a large sample of Arab students.

Methods: A convenience sample of non-clinical 8,218 school and university Arab students took part in this study. They were classified into 13 age groups (from 12 to 24). A self-rating scale was used to assess nightmares based on the participant's perceived frequency during the last month. A 5-point Likert type scale was used as follows: 0: No; 1: A little; 2: Moderate; 3: Much and 4: Very much. The Kuwait University Anxiety Scale was also used.

Results: All the Pearson correlation coefficients between reported nightmares and trait anxiety were statistically significant and positive in all of the 13 age groups, and ranged between 0.38 and 0.53, with a median of 0.44.

Conclusion: On the basis of a large sample of Arab students, and two scales with good psychometric properties, we can suggest that anxiety level should be considered in participants who experiencing nightmares.

Keywords: Nightmares; Anxiety; Children; Adolescents; Adults; Arabs

Introduction

We spend one third of our life asleep. Sleep is an active state critical for our physical, mental, and emotional well-being. In fact, sleep is a basic necessity of life, as fundamental for the maintenance of human health as air, food, and water. Sleep disorders represent pathophysiology, which causes an overriding the active processes that are probably homeostatic and circadian [1]. More than 90 sleep pathologies have been identified, one of them is nightmares. It is important to differentiate between nightmares in the non-institutionalized samples and nightmare disorder with specific diagnostic criteria. The present study was carried out with non-clinical participants.

The ICSD-R [2] defined the nightmare as a long, complicated dream that becomes increasingly frightening toward the end. Similarly, the first diagnostic criterion of the nightmare in the DSM5 [3] is as follows: "repeated occurrence of extended, extremely dysphoric, and well- remembered dream that usually involve efforts to avoid threats to survival, security, or physical integrity and generally occur during the second half of the major sleep episode". Zadra and Donderi [4] define a nightmare as "a very disturbing dream in which the unpleasant visual imagery and/or emotions wake the person up". They indicated that there is a continuum between bad dreams (without awakening) and nightmares (with awakening) with nightmares exhibiting the strongest correlations to psychopathology measures.

Prevalence of nightmares increases through childhood into adolescence from 1.3% to 3.9% among preschool children. Then, prevalence increases from ages 10 to 13 for both boys and girls but continues to increase to ages 20-29 for females, while decreasing for males. Prevalence decreases steadily with age for both sexes, but the gender difference remains. Among adults, prevalence for frequent nightmares is 1% to 2% [3].

Schredl and Reinhard [5] carried out a meta-analytic research based on 111 independent studies to estimate the gender differences in nightmare frequency. Overall, the effect sizes of these gender differences differed significantly from zero in three age groups of healthy persons (adolescents, young adults, and middle-aged adults), whereas for children and older persons no substantial gender difference in nightmare frequency could be demonstrated. They found that women tend to report nightmares more often than men but this gender difference was not found in children and older persons. Studies with binary coded items showed a markedly smaller effect size for the gender difference in nightmare frequency compared to the studies using multiple categories in a rating scale.

Using a large non-clinical probability Arab sample (N=11,334) aged 10 to 55, the prevalence rates (Much+Very much) according to perceived severity during the past month ranged from 4.5% (male adults) to 14.3% (female adolescents) [6]. With another sample of Arab children and adolescents (N=6,727), it was found that in the ages 15 to 18, females obtained a significantly higher mean scores on reported nightmares than did their male counterparts [7]. Generally speaking, the Arabic studies in this domain are scarce.

Considerable controversy has surrounded the association between nightmares and both psychopathology and lack of well-being. As early as 1980, Kales et al. [8] found that frequency of nightmares has been related to high scores on the neurotic and psychotic scales of the Minnesota Multiphasic Personality Inventory. With a sample of 148 Australian school students aged 12 and 18 years, Roberts and Lennings [9] found that all psychopathology scores were associated with the nightmare measures. Anxiety was the most commonly reported correlate of all three nightmare measures. Nightmare sleeping distress was more likely to be associated with high levels of neuroticism and with lower levels of psychoticism, but not with extraversion.

Several studies have demonstrated the association between nightmares and both neuroticism and anxiety [4,10-16]. Schredl et al. [15] concluded from the association between nightmares and neuroticism that this relationship fits in the general continuity hypothesis of dreaming, i.e., current waking – life experiences (stress) is incorporated into subsequent dreams. Picchioni et al. [17] demonstrated a positive association between nightmares and coping with stress. This association bolsters the supposition that nightmares may help to alleviate stress. Krakov et al. [18] noted that nightmares are secondary to another disorder, e.g., PTSD or anxiety disorder. In this psychiatric view, nightmares are a symptom of a larger syndrome: a nightly symptom of anxiety [16].

On the other hand, some studies failed to find an association between nightmares and both anxiety and neuroticism [19-22]. Beullens [23] stated that there is no indication of an elevated anxiety level in the daytime or of psychopathology in nightmares. On the other hand, Lancee et al. [24] concluded that nightmare frequency is associated with subjective sleep quality but not with psychopathology.

Given the conflict in the literature, the main objective of the present study was to investigate the association between reported nightmares and trait anxiety among non-clinical Arab samples: an under studied and underrepresented population in the literature of sleep disorders. It was hypothesized that participants who experience nightmares would be more anxious, i.e., a positive correlation between reported nightmares and trait anxiety. In addition to this main objective, the present study sought to explore the sex-related differences in nightmares and trait anxiety.

Materials and Methods

Participants

A convenience sample of 8,218 school and university Arab students took part in this study (49% males). They were classified into 13 subgroups according to their ages from 12 to 24 years. This sample was selected from the regular schools and university. It is important to note that the participants in this study were not diagnosed institutionalized patients. No exclusion criteria on psychiatric or neurological grounds were applied.

Assessment tools

Reported nightmares: A self-rating scale item was used to assess nightmares. The statement was as follows. "I have nightmares that wake me up scared". Participants were requested to respond to this item on a 5-point Likert-type scale as follows, 0: No; 1: A little; 2: Moderate; 3: Much and 4: Very much, so the possible range of scores is 0-4. Participants were instructed to answer this item, according to their

subjective evaluation, on the basis of their perceived frequency during the past month, and not intensity.

It is important to note that the concept of nightmare is quite clear to, and assimilated by, Arab participants even young children in the present study (i.e., 12 years). The Arabic word to refer to this concept is well defined, i.e., "Kaboos". Unlike the "value neutral" English term, the "Kaboos" implies "pressure" or "stress" [6,7].

The Kuwait University Anxiety Scale (KUAS): It [25] consists of 20 brief statements, each answered on a four-point intensity scale, anchored by 1: Rarely, and 4: Always. The total score could range from 20 to 80, with a higher scores indicating higher anxiety. In previous studies on Arab samples, reliabilities of the scale ranged from 0.88 to 0.92 (Cronbach's alpha), and between 0.70 and 0.93 (test-retest), indicating good internal consistency and temporal stability. The criterion-related validity of the scale ranged between 0.70 and 0.88 (five criteria), while the loadings of the scale on a general factor of anxiety were 0.93 and 0.95 in two factor analyses, demonstrating the scale's criterion-related and construct validity. Discriminant validity of the scale has also been demonstrated. Factor analysis of the scale items yielded three factors labelled "cognitive/Affective", "Subjective", and "Somatic anxiety". The scale has displayed good psychometric properties in different Arabic and Western samples of college students [26]. The KUAS has four comparable Arabic, English, German, and Spanish versions.

Procedure

The Arabic versions of the nightmare item, along with the trait anxiety scale (KUAS) were administered to participants in group sessions of 30 to 35 students in their classrooms, during regular school and university hours. The scales were administered to each group in a single session of approximately 10 minutes in duration. Competent assistants carried out the administration of the tests. The university students provided verbal agreement to offer themselves as subjects, after the aims of the study were outlined. There were few refusals. As for the younger pupils, informed consent was obtained. Assurances were made that anonymity would be maintained. The response rate was 93%. The SPSS [27] was used to compute the descriptive statistics, the t rations, and the correlations between nightmares and anxiety.

Results

Regarding the psychometric characteristic of the self-rating scale of nightmares based on a single item, its 1-week test-retest reliability was equal to 0.75 for children, while it was 0.80 for adolescents, and 0.81 for adults, indicating acceptable temporal stability and corroborate the trait (not state)-like of the score. The Cronbach alpha reliability of the anxiety scale (KUAS) ranged between 0.81 and 0.89, indicating acceptable to good internal consistency.

Table 1 sets out the descriptive statistics and the t for the nightmare rating scale among males and females. Reference to this table reveals that the sex-related differences were found only in the ages 15 to 21 in favor of females.

Table 2 presents the descriptive statistics and the t ratio for the trait anxiety scale in males and females. Inspection of this table indicates that the sex differences in anxiety were statistically significant in nine out of the 13 age groups in favor of females, i.e., they were more anxious.

	Males			Females			t	p
Age	N	M	SD	N	M	SD		
12	267	0.94	1.29	231	0.73	1.14	1.89	-
13	261	1.07	1.33	261	0.93	1.24	1.26	-
14	351	0.84	1.11	454	0.96	1.17	1.41	-
15	645	0.82	1.03	606	1.03	1.19	3.4	0.001
16	654	0.79	1.05	570	1.11	1.23	4.85	0.0001
17	502	0.74	0.98	576	1.06	1.18	4.81	0.0001
18	450	0.72	0.93	578	1.06	1.13	5.16	0.0001
19	330	0.8	0.95	265	1.13	1.12	3.82	0.0001
20	219	0.89	1.02	235	1.14	1.13	2.43	0.02
21	144	0.62	0.82	167	0.99	0.95	3.65	0.0001
22	97	0.81	0.89	140	0.89	0.97	0.64	-
23	62	0.85	0.96	69	0.96	0.98	0.6	-
24	41	0.66	0.83	43	0.88	0.96	1.15	-

Table 1: Mean (M), standard deviation (SD), and t ratio for the self-rating scale item to assess nightmares in the past month among males and females in the ages 12-24.

	Males			Females			t	p
Age	N	M	SD	N	M	SD		
12	267	31.65	9.78	231	33.01	10.62	1.48	-
13	261	30.5	9.46	261	33.67	10.7	3.59	0.001
14	351	33.7	9.79	454	34.56	10.63	1.19	-
15	645	34.57	10.03	606	37.81	11.7	5.24	0.0001
16	654	35.28	10.64	570	38.59	11.92	5.08	0.0001
17	502	35.71	10.95	576	39.45	11.49	5.47	0.0001
18	450	37.24	10.3	578	40.39	11.22	4.68	0.0001
19	330	37.83	9.79	265	41.79	12.07	4.32	0.0001
20	219	38.45	9.99	235	40.71	10.93	2.3	0.02
21	144	38.6	11.61	167	40.39	11.34	1.37	-
22	97	36.19	10.3	140	38.93	11.31	1.93	-
23	62	36.6	10.48	69	41.83	12.5	2.6	0.01
24	41	31.5	9.94	43	37.22	10.91	2.51	0.02

Table 2: Mean (M), standard deviation (SD), and t ratio for the anxiety scale among males and females in the ages 12-24.

Table 3 sets out the Pearson correlation coefficients between nightmares and anxiety in the ages 12 to 24. Male and female samples in the same age group were combined because the differences between the correlations were trivial. Reference to this table indicated that all the correlations were statistically significant and positive. These correlations ranged from 0.38 to 0.53 and the median was 0.44.

Age	N	r	p
12	498	0.502	0.001
13	522	0.411	0.001
14	805	0.453	0.001
15	1251	0.426	0.001
16	1224	0.443	0.001
17	1078	0.405	0.001
18	1028	0.394	0.001
19	595	0.446	0.001
20	454	0.527	0.001
21	311	0.412	0.001
22	237	0.384	0.001
23	131	0.435	0.001
24	84	0.462	0.001
Median	8218	0.435	0.001

Table 3: The Pearson correlation (r) coefficients between nightmares and anxiety in the ages 12 to 24.

Discussion

The investigation of the association between nightmares and psychopathology is of great importance for the subjects of etiology, diagnosis, and treatment, as well as for comorbidity. Therefore, increasing attention is being given to this association. Over the last few decades, there has emerged an extensive body of empirical work dealing with this subject. However, a dearth of research with Arab participants exists.

Anxiety disorders and trait anxiety were among the main psychopathologies to study their relation with nightmares, using clinical and non-clinical samples. Unfortunately, the results of these studies have not been consistent. These discrepancies may be related to the sample (large versus small; age; clinical vis- à- vis non-clinical; duration and severity of the disorder; comorbidity, etc.), and the assessment tool (diagnostic criteria of the DSM; psychometric questionnaire; psychological interview, etc.), among other factors. However, it is particularly noteworthy that the positive results on the association between nightmares and anxiety outnumber the negative findings.

The statistically significant correlations found in the present study add to the majority of the existent literature, which suggests that there is a covariation between nightmares and anxiety. However, correlation is, ipso facto, does not mean causality. That is, the present results do not indicate that nightmare is the cause of anxiety or anxiety is the cause of nightmare. In particular, the investigation of causality needs an experimental design.

What is the link between nightmares and anxiety? It has been traditionally thought that the etiology of nightmares was related to a

person's daytime anxiety. Recent empirical research strongly supports the view that nightmares are related to psychological problems while awake [4,14].

Comorbidity of nightmares with other psychopathology is an important issue. However, Spoormaker et al. [16] stated that strong relationships and high comorbidities with other mental disorders would not mean that nightmares are not a separate sleep disorder. Comorbidities of nightmares with other mental disorders are high for depressive disorders, anxiety disorders, and psychophysiological insomnia. Because nightmares seem to be persistent, it is more valuable for professionals to diagnose and treat nightmares. Research indicated that nightmares and low well-being are associated [4,28], so treating nightmares would improve the level of well-being of the patient.

The other objectives of the present study have been adequately demonstrated. Consistent with previous studies, the sex-related differences in nightmares were statistically significant [5-7] in some age groups, as well as anxiety [29]. In all the significant differences in the two variables, females obtained the higher mean score than did their male counterparts.

Limitation

Notwithstanding specific strengths of the present investigation, namely using a large sample from an under-represented population in the domain of sleep disorders, from the Arabic context, and the good psychometric characteristics of the psychological tools, specific limitations are acknowledged. Foremost among them is the use of a convenience sample. Moreover, student samples mainly consist of intelligent, young and healthy persons who only represent a small sector of any population. Thus, it would be important to either use a probability sample of students or using older age groups or a clinical Arab sample. Further, it is important to study the association between nightmares and other psychiatric disorders, e.g., depression and insomnia. Further research appears warranted in this endeavor.

Conclusion

As far as the current study on Arab students is concerned, its salient result is the statistically significant and positive correlations between reported nightmares and trait anxiety in all the 13 age groups from 12 to 24 years. That is, participants with high nightmare frequency report themselves as having a higher trait anxiety. By and large, the present results suggest that anxiety level should be considered in participants who experiencing nightmares. Further, treating nightmares would increase the level of subjective well-being of the case.

Acknowledgement

References

1. Silva JAC (2006) Sleep disorders in psychiatry. Metabolism 55: S40-S44.
2. American Academy of Sleep Medicine (2001) International classification of sleep disorders, revised: diagnostic and coding manual. Chicago, Illinois, USA.
3. American Psychiatric Association (2013) Diagnostic and Statistical Manual of Mental Disorders. 5th edn. Arlington, VA, USA.
4. Zadra A, Donderi DC (2000) Nightmares and bad dreams: their prevalence and relationship to well-being. J Abnorm Psychol 109: 273-281.
5. Schredl M, Reinhard I (2011) Gender differences in nightmare frequency: a meta-analysis. Sleep Med Rev 15: 115-121.
6. Abdel-Khalek AM (2010) Prevalence rates of reported nightmares in a cross-sectional sample of Kuwaiti children, adolescents, undergraduates and employees. Sleep Hypn 12: 13-22.
7. Abdel-Khalek AM (2006) Nightmares: prevalence, age and gender differences among Kuwaiti children and adolescents. Sleep Hypn 8: 33-40.
8. Kales A, Soldatos CR, Caldwell AB, Charney DS, Kales JD, et al. (1980) Nightmares: clinical characteristics and personality patterns. Am J Psychiatry 137: 1197-1201.
9. Roberts J, Lennings CL (2006) Peronality, psychopathology and nightmares in young people. Pers Indiv Differ 41: 733-744.
10. Lang R, O' Connor KP (1984) Personality, dream content, and dream coping style. Pers Indiv Differ 5: 211-219.
11. Berquier A, Ashton R (1992) Characteristics of the frequent nightmare sufferer. J Abnorm Psychol 101: 246-250.
12. Ohayon MM, Morselli PL, Guilleminault C (1997) Prevalence of nightmares and their relationship to psychopathology and daytime functioning in insomnia subjects. Sleep 20: 340-348.
13. Köthe M, Pietrowsky R (2001) Behavioral effects of nightmares and their correlations to personality patterns. Dreaming 11: 43-52.
14. Levin R, Fireman G (2002) Nightmare prevalence, nightmare distress, and self-reported psychological disturbance. Sleep 25: 205-212.
15. Schredl M, Landgraf C, Zeiler O (2003) Nightmare frequency, nightmare distress and neuroticism. N Am J Psychol 5: 345-350.
16. Spoormaker VI, Schredl M, van den Bout J (2006) Nightmares: from anxiety symptom to sleep disorder. Sleep Med Rev 10: 19-31.
17. Picchioni D, Goeltzenleucher B, Green DN, Convento MJ, Crittenden R, et al. (2002) Nighmares as a coping mechanism for stress. Dreaming 12: 155-169.
18. Krakow B, Kellner R, Pathak D, Lambert L (1995) Imagery rehearsal treatment for chronic nightmares. Behav Res Ther 33: 837-843.
19. Hartmann E, Russ D, Oldfield M, Sivan I, Cooper S (1987) Who has nightmares? The personality of the lifelong nightmare sufferer. Arch Gen Psychiatry 44: 49-56.
20. Wood JM, Bootzin RR (1990) The prevalence of nightmares and their independence from anxiety. J Abnorm Psychol 99: 64-68.
21. Belicki K (1992) Nightmare frequency versus nightmare distress: relations to psychopathology and cognitive style. J Abnorm Psychol 101: 592-597.
22. Chivers L, Blagrove M (1999) Nightmare frequency, personality and acute psychopathology. Pers Indiv Differ 27: 843-851.
23. Beullens J (1996) Nightmares in psychiatry. Acta Neuropsychiatr 8: 12-16.
24. Lancee J, Spoormaker VI, van den Bout J (2010) Nightmare frequency is associated with subjective sleep quality but not with psychopathology. Sleep Biol Rhythms 8: 187-193.
25. Abdel-Khalek AM (2000) The Kuwait University Anxiety Scale: psychometric properties. Psychological Reports 87: 478-492.
26. Abdel-Khalek AM, Maltby J (2009) Differences in anxiety scores of college students from Germany, Spain, the United Kingdom, and the USA. Psychol Rep 104: 624-626.
27. SPSS, Inc. (2009) SPSS: Statistical data analysis : Base 18.0, Users guide. SPSS: Chicago, Illinois, USA.
28. Blagrove M, Farmer L, Williams E (2004) The relationship of nightmare frequency and nightmare distress to well-being. J Sleep Res 13: 129-136.
29. Abdel-Khalek AM, Alansari BM (2004) Gender differences in anxiety among undergraduates from ten Arab countries. Soc Behav Personal 32: 649-655.