

Prevalence Rates of Reported Nightmares in a Cross-Sectional Sample of Kuwaiti Children, Adolescents, Undergraduates, and Employees

Ahmed M. Abdel-Khalek, Ph.D.

Study Objective: To estimate the prevalence rates of self-reported nightmares in a large sample of Kuwaiti children, adolescents, college students, and employees and to examine the age and gender differences.

Methods: A sample of 11,334 school and college students and employees was recruited. Their ages ranged between 10 and 55 years. A self-rating scale item was used to assess frequency of nightmares. It was answered on a 5-point intensity scale with 0=No, 1=A little, 2=Moderate, 3=Much, and 4=Very much. This scale has acceptable temporal stability. Point prevalence rate was computed as the summation of the percentages of responses in the two options: "Much" and "Very much" during the most recent month.

Results: The prevalence rates of reported nightmares ranged between 4.5% (male undergraduates and employees) and 14.3% (female adolescents). The prevalence rates of boys (12.7%) and girls (12.3%) were similar as were male undergraduates and employees (4.5%). Female adolescents obtained around double of the rate of their male counterparts (14.3% vs. 7.5%), as well as female and male undergraduates (8.3% vs. 4.5%) respectively. Nightmares decreased markedly with age in both males and females, with one exception, i.e., the highest prevalence rate was among female adolescents. The sex-related differences in reported nightmares were significant favoring females in adolescent and undergraduate groups only. However, effect sizes were small.

Conclusions: Self-reported nightmares are common in a large Kuwaiti sample. There is a need for comprehensive programs of guidance, counseling, or therapeutic intervention. (*Sleep and Hypnosis* 2010;12(1-2):13-22)

Key words: Nightmare rates, epidemiology, prevalence, children, adolescents, undergraduates, employees, Kuwait

INTRODUCTION

Nightmares are common at all ages, for all races, and cultures. Frequent nightmares

From Department of Psychology, College of Social Sciences, Kuwait University, Kuwait

Address reprint requests to: Ahmed Abdel-Khalek, Department of Psychology, College of Social Sciences, Kuwait University, P. O. Box 68168 Kaifan, Code No. 71962, Kuwait. Email: aabdel-khalek@hotmail.com

Acknowledgment: The present research was supported by Kuwait University under Grant No. OP01/04. The author gratefully acknowledges the able assistance of Research Administration at that University.

Accepted May 17, 2010

are often an expression of a disturbance in the sleep structure. Nightmares may have serious consequences for health in certain conditions. They are closely related to several somatic and mental symptoms and also to impaired quality of life (1). Zadra and Donderi (2) found a strong negative correlation between nightmare frequency and well-being.

Nightmares usually last approximately 4–15 minutes (3). They usually terminate with an

awakening that is associated with a rapid return of full alertness, a lingering sense of fear or anxiety, and vivid recall of the dream context. These factors often lead to sleep disruption and difficulty returning to sleep (4). Most nightmares involve potential physical harm to the child or adolescent, including fears of attack, falling, or death, and in many patients the nightly themes occur. Stressful periods and traumatic events as well as some medications, including some beta blockers and antidepressants, are known to exacerbate the occurrence of nightmares (5,6).

The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) (7) defines the nightmare disorder according to the following criteria: (a) an extremely frightening dream, (b) that leads to awakening, (c) do not occur exclusively during the course of another mental disorder, and (d) lead to significant distress or functional impairments. The International Classification of Sleep Disorders (ICSD-2) (8) does not limit the range of negative emotions to fear alone, but it adds anger, sadness, or guilt. It is not necessary that nightmares leading to awakening. Moreover, the third and fourth criteria of the DSM IV-TR have been disputed.

Nightmares are associated with psychopathology. Ohayon and colleagues (9) found a high rate of psychiatric disorders in an adult insomnia population with frequent nightmares. Miro and Martinez (10) concluded that having nightmare on a weekly basis was strongly associated with depressed mood. Semiz and colleagues (11) provide support for a strong association between border personality disorder, distressing nightmares, and subjective sleep quality.

There is a significant association between nightmare and post-traumatic stress disorder (PTSD). Recurrent nightmares are the most defining symptoms of PTSD (12). Nightmares occur in around 75% of PTSD patients, particularly in stages 1 and 2 NREM sleep rather than REM sleep (13, p. 191). Davis and colleagues (14) found that trauma exposed, treatment-seeking participants reported their nightmares to be similar or dissimilar to their

traumatic experience rather than exact replications. Nightmare-related distress was positively related to the degree of similarity between their nightmares and their trauma, with replicative nightmares eliciting the greatest distress. However, they found that nightmares contribute to psychological distress above and beyond PTSD symptoms. Germain and Nielsen (15) found that PTSD nightmare sufferers had significantly more nocturnal awakenings than did idiopathic nightmare sufferers and control subjects.

Several research reports have found a relationship between nightmares and suicidality. Agargun and his colleagues (16,17) found that frequent nightmares are associated with suicidal behavior in depressed patients. Moreover, melancholic suicide attempters had higher rates of nightmares (18). In patients with dissociative disorder, those with nightmare disorder have a higher rate of self-mutilative behavior and a history of suicide attempt during the last year than do those without nightmare disorder (19). Sjostrom and colleagues (20) stated that nightmares associated with a 5-fold increase in risk for high suicidality. This relationship remained valid after adjustment for psychiatric diagnosis and psychiatric symptom intensity. In a general population study (21), an association between nightmares and suicide has been reported.

As for the prevalence rates of nightmares, the findings are quite different. It can be said that the rate ranges from 1% to 85% according to the methodology.

As early as 1954, MacFarlane et al (22) found the prevalence rates of the nightmares as follows: 29% of boys and girls at age 3, 33% of boys and 47% of girls at age 10, and 6% of boys and 4% of girls at age 14. In a sample of children and adolescents (N=309) aged 5-18 years, Simonds and Parraga (23) found an occurrence of at least 1 nightmare in the previous 6 months in 16.5% of the sample population. The frequency of nightmares diminished with increasing age. In their 4 age groups, 5-8; 9-11; 12-14, and 15-18, the

prevalence rates were 30.9%, 30%, 11.5%, and 8.9%, respectively.

Broughton (3) stated that approximately 40–50% of adults report at least occasional nightmares. Other studies found that about 85% of respondents reporting at least 1 episode within the past year. However, between 2% and 6% of these subjects report weekly nightmare attacks (24, 25, 26). In an insomniac French population, Ohayon et al (9) found that nightmares were reported in 18.3% of respondents, and were twice higher in women than in men.

Vgontzas and Kales (4) reached the conclusion that nightmares are a current problem for approximately 5% of the general population and a past problem for another 5%. Liu et al (27) studied the prevalence rate of nightmares among a sample of Chinese elementary school children aged 12–18. They found that 5.7% of the boys, and 8.5% of girls responded “often”, while 38.2% of boys and 48.0% of girls responded “sometimes”. Agargun and colleagues (28) found 7.5% prevalence of “often”, and a 58.2% prevalence of “sometimes” for nightmares among college students.

Regarding the gender differences in the prevalence of nightmares, a large range of investigations have revealed higher rates in women than in men (25,28–31). However, different rates were reported on the basis of gender. In the DSM-IV, females report having nightmares more often than do men at a ratio of approximately 2–4: 1 (7). Following a similar pattern, Ipsiroglu et al (32) found that girls were affected more frequently than boys by nightmares (64% vs. 52%, $p < 0.01$).

Contrary to this agreement about the gender differences, Schredl and Pallmer (33) stated that no gender-specific differences in prevalence rates can be pinpointed for sure. In the present researcher’s view, it is obvious that the last generalization contradicts the majority of findings in this area.

More recently, Schredl and colleagues (34) stated that the highest prevalence rates are between the ages of five and ten. They found

that nightmares occurred often in 2.5% (parental estimates) to 3.5% (self estimates) among 851 10–years–old children. Its stability is considerably high. Children with ‘chronic’ nightmares showed more psychopathological symptoms.

Sandoval and colleagues (35) carried out a meta analysis study and found that the results of the children studies show that there is a peak prevalence, 25–35%, of nightmares in 3–6 year olds. The prevalence of nightmares slowly decreases to about 20% by age 10 and down to about 9% by age 16. An important finding is that nightmares prevalence approaches zero, yet never reaches zero. The results of the adult studies show that approximately 50% of adult nightmare sufferers report an age of onset at less than age 20 with a peak onset at about age 10. Therefore, nightmare sufferers developed their nightmare problem in childhood.

As for adults, Asplund (1) stated that nightmares occurred rather often in 6.9% and very often in 2.1% of the men. The corresponding frequencies in women were 9.6% and 2.3% respectively. In elderly men and women increased nightmares were associated with an increase in irregular heart beats and spasmodic chest pain.

Reporting rates of nightmare occurrence in a university population were remarkably stable with females reporting significantly more nightmare attacks than males. Nightmare subjects rated their sleep quality as poorer, had greater dream recall, were more affected by their dreams and nightmares, and reported more aggression in their dreams than controls (36).

Nielsen, Stenstrom, and Levin (37) carried out a retrospective estimate of nightmares frequency for a sample of 23,990 respondents to an internet questionnaire. They found that female respondents reported more frequent monthly nightmares (4.44 ± 6.71) than did male respondents (3.39 ± 6.07), and this result was seen for all age strata younger than 60. For female respondents, nightmare frequency increased from ages 10–19 to 20–39 then

decreased monotonically to ages 50–59. For male respondents, nightmare frequency was stable from ages 10–19 to 30–39 then decreased to ages 50–59.

Studies in the Arab World in this field remain very scarce. In Kuwait, Abdel-Khalek (38) conducted an epidemiologic study of sleep disorders in non-institutionalized secondary school students (N=2,574; aged 11–18), including nightmares among other sleep disorders. It was found that the self-reported prevalence rates (“Much” + “Very much” in the scale) were 9.5% and 15.7% for boys and girls, respectively. In the aforementioned study, the prevalence rate of nightmare complaint was computed for the total male and female sample, regardless of separating them into subgroups according to age. To achieve this aim, Abdel-Khalek (39) recruited a large group (N=6,727) of Kuwaiti children and adolescents and found that the prevalence rates among males ranged between 6.1% (age 18) and 17.6% (age 13). As for females, the prevalence rates ranged from 9.5% (age 11) to 17.9% (age 18). Females in the four age groups 15 to 18 obtained significantly higher scores than did their male counterparts.

The objectives of the present study were three-fold: (a) to estimate the prevalence rates of self-reported nightmares in four samples of

knowledge, the previous studies on Kuwaiti subjects in the present point are scarce. This population is highly under-represented in the scientific literature. Therefore, there is a great need to carry out this study on the Kuwaiti population. In the interest of globalism this study contributes to cross-cultural understanding.

METHODS

Participants

Four samples of 11,334 male (n=5,712) and female (n=5,622) volunteer Kuwaiti children, adolescents, undergraduates, and employees were selected from various government primary, intermediate, secondary schools and Kuwait university, and different ministries in the different districts of the State of Kuwait. All of the subjects are Kuwaiti citizens. Their ages ranged from 10 to 55 years. Table 1 presents the descriptive statistics of their ages. It is important to note that the present sample was chosen from the regular schools, university and ministries, and they were not diagnosed institutionalized patients. No exclusion criteria on psychiatric or neurological grounds were applied.

Table 1. The sample size and the descriptive statistics of ages

	Males			Females			t	p
	N	M	SD	N	M	SD		
Children	1375	12.17	1.44	1407	12.33	1.49	2.98	.003
Adolescents	2597	16.68	1.35	2604	16.74	1.31	1.62	-
Undergraduates	1031	20.15	2.54	1077	19.91	2.35	2.27	.02
Employees	709	37.28	9.04	534	32.23	7.39	10.44	.0001

Kuwaiti children, adolescents, undergraduates, and employees, (b) to explore age differences, and (c) to examine the sex-related differences of self-reported nightmares between the four groups.

What is unique about the current study? The majority of published research in this field has been carried out on Western, mainly English-speaking, samples. Moreover, to the best of our

Assessment of 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. They were instructed to answer this

item, according to their subjective evaluation, on the basis of their perceived severity during the past month. The last mentioned self-rating item asked about frequency and not intensity, and this point was quite clear in the instructions to the participants. It is important to note that the concept of nightmare is quite clear to, and assimilated by, participants' even young children in the present study (i.e., 10 yrs). The Arabic word to refer to the concept is well defined, i.e., "Kaboos". Unlike the "value neutral" English term, "Kaboos" implies "pressure" or "stress".

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, indicating acceptable temporal stability and corroborate the trait (not state) – like of the score.

Procedure

The nightmare items, along with other questionnaires were administered to participants in group sessions of 30 to 35 students in their classrooms, during regular school or university hours. The scales were administered to each group in a single session of approximately 30 minutes in duration. Individual or small group sessions were used with the sample of employees. Competent assistants carried out the administration of the tests. The older pupils, the undergraduates and employees 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 of anonymity

were maintained. The response rate was 94%. The present investigation was carried out in the year 2006, in Kuwait.

Point prevalence rate was defined as the proportion of participants who complained of nightmares at a specific time (40,41). Therefore, the point prevalence was computed for this item, and the summation of the percentage of responses in the last two options, 3 and 4 (i.e., "Much" and "Very much") was combined to denote the highest frequency of the phenomenon in question during the previous month. This procedure is consistent with earlier studies that considered the selection of the options "Always" or "Often" as an indication that the subject has the problem (30,38,42–44).

RESULTS

Table 2 presents the percentage of responses to the nightmare self-rating measure among different male and female samples, i.e., the prevalence rates. Reference to this table indicates that the percentage of response alternatives 3 and 4 (i.e., "Much" and "Very Much") ranged from 4.5% (male undergraduates and employees) to 14.3% (female adolescents). This table indicates also the similarity between prevalence rates among boys and girls (12.7% vs. 12.3% respectively), and the compatibility of male undergraduates and employees (i.e., 4.5%). However, regarding adolescents, females obtained around double of the male percentage (14.3% v. 7.5%), as well as female and male undergraduates (8.3% v. 4.5%) respectively.

It is noteworthy that the percentage of respondents who denied suffering from

Table 2. Percentages of respondents by response options for nightmare item in different male and female groups

	Sex	N	No	A little	Moderate	Much	Very much	3 + 4
			0	1	2	3	4	
Children	M	1375	52.6	25.9	8.8	6.1	6.6	12.7
Children	F	1407	54.9	24.4	8.4	6.5	5.8	12.3
Adolescents	M	2597	50.2	32.4	9.9	4.5	3.0	7.5
Adolescents	F	2604	39.3	34.8	11.6	8.2	6.1	14.3
Undergraduates	M	1031	47.6	37.0	10.9	2.7	1.8	4.5
Undergraduates	F	1077	37.7	42.3	11.7	5.9	2.4	8.3
Employees	M	709	53.3	32.2	10.0	3.2	1.3	4.5
Employees	F	534	44.0	37.8	12.2	4.1	1.9	6.0

nightmares in the last month and responded “No” to the single item measure ranged from 37.7% (female undergraduates) to 54.9% (female children) (see Table 2). Regarding the age differences, there was a general trend for prevalence rates to decrease with age. Table 2 indicates that the self-reported nightmares in males began high among children and then decreased at last in employees. The same age trend was relevant to females with one exception, i.e., the highest prevalence rate was among adolescents.

Table 3 sets out the mean, standard deviation and t ratio for the self-rating scale to assess nightmares. The sex-related differences are statistically significant between all the groups, favoring females except in the case of children. However, effect sizes were significant only in adolescent and undergraduate groups indicating small effect size.

Table 3. Mean (M), standard deviation (SD), and t ratios for the self-rating scale item to assess nightmares in the past month among four age groups

	Males			Females			t	p	d
	N	M	SD	N	M	SD			
Children	1375	0.88	1.20	1407	0.84	1.81	0.98	-	-
Adolescents	2597	0.78	1.00	2604	1.07	1.18	9.71	0.0001	0.27*
Undergraduates	1031	0.74	0.89	1077	0.93	0.97	4.75	0.0001	0.20*
Employees	709	0.67	0.88	534	0.82	0.93	2.89	0.004	0.17

*small effect size.

Table 4 sets out the stepwise regression results in which the nightmare score was the dependent variable, whereas the sex and age were the predictors. Reference to this table indicates that the model was highly significant (F -ratio=43.8; $p < .0001$). Sex and age interpreted 8% and 4%, respectively, of the total variance in the dependent variable, i.e., nightmare score.

Table 4. Stepwise regression for predicting nightmare score

Variable	B	Beta	t	p
Sex	0.177	0.081	8.28	0.0001
Age	-0.005	-0.037	3.75	0.0001

$R^2 = .008$

F -ratio = 43.8, $p < 0.0001$

DISCUSSION

Frequent nightmares are often an indication of a disturbance in the sleep structure. Nightmares are always negatively related to subjective well-being and quality of life, while they are often positively associated with psychopathology, including PTSD, suicidality, depression, and border personality disorder, among others. The importance of the present results is based on the sample. The Kuwaiti population is highly under-represented in the scientific literature on parasomnias including nightmares.

As for the methodology, the present study has recruited a large number of participants ($N=11,334$). Every male and female sample of the four groups consisted of a large sample (from 534 to 2604). This sample incorporated a wide range of ages, i.e. from 10 to 55 years. On the

basis of these results, the single item self-rating scale to assess prevalence of nightmares is viable in large scale research projects and community surveys as well as epidemiological studies.

The three-fold objectives of the present investigation have been adequately fulfilled. That is, the prevalence rates of self-reported nightmares in four samples of Kuwaiti children, adolescents, undergraduates, and employees have been estimated. Point prevalence rate was computed as the summation of percentages of responses in the two options: “Much” and “Very much” during the most recent month. Present results indicate that the prevalence rates of the reported nightmares ranged between 4.5% and 14.3%. These rates lie in the previous studies ranges. However, the previous rates are

quite different up to the range from 1% to 85%. Different methodological aspects may elucidate this wide range of prevalence rates of nightmares. Foremost among these aspects are the characteristics of the sample: whether school-based, general population, or clinical, e.g., insomniacs or depressives, as well as the age group, and sample size. The measurement differences may play also an important role, e.g., the time period covered by the question: previous 1 week, 1 month, 6 month, or past year, the options / alternatives of the question: Yes / No; 3- or 5-point scale format, the phrasing of the options: Much, Very Much, Often, Always, Sometimes, etc, and asking about the severity versus frequency. Furthermore, the cultural differences have an impact on nightmare reporting.

There was a general trend for nightmare prevalence rates to decrease strongly with age in both males and females. This result was compatible with that of Schredl and Pallmer (33) among children. However, there was only exception in the present study, i.e. female adolescents obtained a higher rate than did children. The higher rate of nightmare prevalence among female adolescents might be elucidated on the light of stresses imposed on them as a result of the physical and psychological changes in puberty and adolescence among them. Why this result was not relevant to the male adolescents? One possible explanation is that Arab females in this stage of life faced more restrictions and less freedom than their male counterparts.

The present study showed an interesting result regarding age and gender similarities. Based on the age, there was a similarity in prevalence rates of nightmare among boys and girls, while on the basis of gender, there was a similarity in prevalence rates among male undergraduates and employees regardless of the age difference. It seems true here that age overshadowed gender in the young age, i.e., childhood, while the contrary was applied to gender which overshadowed age among undergraduates and employees. Both were adults at different stages on the adulthood

continuum (Mean ages=20.15 yr, and 37.28 yr. respectively).

All sex-related differences in reporting the nightmares in this study were significant favoring females in all groups except children (n. s.). However, effect sizes (small) were significant in adolescent and undergraduate groups only. A wide harvest of previous results supported these sex-related differences (e.g.,7,9,25,28-31). This finding is also compatible with the higher mean scores of Arab females than did males on neuroticism, fear, anxiety, depression, and pessimism (45-48).

It is interesting to note that female adolescents obtained around double of the prevalence rate of nightmares than did their male counterparts. This result was relevant also to female and male undergraduates. Therefore, it is safe to conclude that the stress imposed on both female adolescents and undergraduates was higher than that on their male peers. Shear and colleagues (49) focused on four areas of gender differences, i.e., gender roles, gender role-stress, social relationships, and gender differences in exposure to social adversity. As far as the Arab countries are concerned, both child-rearing practices and orthodox Arab traditions have an impact. Fakhr-El-Islam (50) stated that "tradition maintains a hierarchical order in the family in which dominance of male over female and older over younger is observed... A son is given more freedom, authority, and responsibility than a daughter ... The preference of Arabs for male children is surpassed by only a few cultures, for example, the Chinese, who have a saying: it is better to raise geese than daughters as stated by Tseng and McDermont in 1981, and who also share the belief that a woman determines the sex of her babies. The traditionally disadvantaged status of Arab women emphasizes submission and dependency as valuable feminine attributes in the upbringing of girls (p. 123).

The findings from the current study must be reviewed within the limitations imposed by the data. Foremost among them is the sample. Despite the large number of participants in this

study (N=11,334) it was not a representative sample. It would be of importance to use demographic, social and psychological variables as probable correlates of reported nightmares. These are points for further research.

CONCLUSIONS

This study was important in presenting cross-cultural estimates of the prevalence rates of self-reported nightmares in the present cross-sectional four samples of Kuwaiti children, adolescents, undergraduates and employees because the vast majority of research on this respect was carried out on mainly Western societies. Cross-cultural studies are urgently needed in this endeavor. It was found that the assessment of nightmare prevalence in this Kuwaiti sample of large size with a single item self-rating measure had acceptable test-retest reliability denoting temporal stability. This measure may well prove to be viable in future research projects using similar community surveys as a contribution to epidemiological studies.

The current investigation indicated that

approximately half of the present samples (from 37.7% to 54.9%) responded "No" to the presence of nightmares. The rest of percentages reported rates of presence of nightmares during the last month varying from 1 to 4, i.e., from "A little" to "Very much". Point prevalence rate was estimated as the summation of the percentages of responses in the two options: "Much" and "Very much". Based on this criterion the prevalence rates of reported nightmares ranged from 4.5% for male undergraduates and employees to 14.3% female adolescents. Nightmare frequency decreased markedly with age in both sexes with one exception, i.e., the highest rate among female adolescents. Sex-related significant differences in reported nightmares were found favoring females in three groups except in the rates of children which was not significant.

Because frequent nightmares are often positively associated with psychiatric disorders and are negatively related to subjective well-being and quality life, there is an urgent need for a comprehensive program of counseling particularly with female adolescents.

REFERENCES

1. Asplund R. Nightmares, sleep and cardiac symptoms in the elderly. *J Med* 2003;61:257- 261.
2. Zadra A, Dondori DC. Nightmares and bad dreams: their prevalence and relationship to well – being. *J Abn Psychol* 2000;109:273- 281.
3. Broughton RJ. Behavioral parasomnias. In: Chokroverty S, ed. *Sleep disorders medicine: basic science, technical considerations, and clinical aspects*, 2nd ed. Boston: Butterworth, Heinemann, 1999;635-660.
4. Vgontzas AN, Kales A. Sleep and its disorders. *Ann Rev Med* 1999; 50:387-400.
5. Mindell JA. Sleep disorders. In Goreczny AJ, Hersen M, ed. *Handbook of pediatric and adolescent health psychology*. Boston, MA: Allyn & Bacon, 1999;pp. 371-386.
6. Rosen CL. Sleep disorders in infancy, childhood, and adolescence. *Curr Opin in Pulmonary Med* 1997;3:449-455.
7. American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*, 4th ed. Text rev. TR. Washington DC: APA, 2000.
8. American Academy of sleep Medicine. *International classification of sleep disorders: diagnostic and coding manual*, 2nd ed. Westchester, IL: Author, 2005.
9. Ohayon M, Morselli P, Guilleminault C. Prevalence of night-mares and their relationship to psychopathology and daytime function-ing in insomnia subjects. *Sleep* 1997;20:340-348.
10. Miro E, Martinez MP. Affective and personality characteristics in function of nightmare prevalence, nightmare distress, and interference due to nightmares. *Dreaming* 2005;15:89-105.
11. Semiz U, Basoglu C, Ebrinc S, Cetin M. Nightmare disorder, dream anxiety, and subjective sleep quality in patients with borderline personality disorder. *Psychiatry & Clin Neurosciences* 2007;62:48-55.
12. Pagel JF. Nightmares and disorders of dreaming. *Am Fam Physician* 2000; 61:2037-2042.
13. Shneerson JM. *Sleep medicine: a guide to sleep and its disorders*, 2nd ed. Oxford, UK: Blackwell, 2005.
14. Davis JL, Byrd P, Rhudy J L, Wright DC. Characteristics of chronic nightmares in a trauma- exposed treatment- seeking sample. *Dreaming* 2007;17:187-198.

15. Germain A, Nielsen TA. Sleep pathophysiology in posttraumatic stress disorder and idiopathic nightmare sufferers. *Biol Psychiatry* 2003;54:1092-1098.
16. Agargun MY, Cilli AS, Kara H, Tarhan N, Kincir F, Oz H. Repetitive and frightening dreams and suicidal behavior in patients with major depression. *Compr Psychiatry* 1998;39:198-202.
17. Agargun MY, Kara H, Solmaz M. Sleep disturbances and suicidal behavior in patients with major depression. *J Clin Psychiatry* 1997;58:249-251.
18. Agargun MY, Besiroglu L, Cilli AS, Gulec M, Aydin R et al. Nightmares, suicide attempts, and melancholic features in patients with unipolar major depression. *J Affect Disord* 2007;98:267-270.
19. Agargun MY, Kara H, Ozer OA, Selvi Y, Kiran U, Ozer B. Clinical importance of nightmare disorder in patients with dissociative disorders. *Psychiatry Clin Neurosciences* 2003;57:575-579.
20. Sjostrom N, Waem M, Hetta J. Nightmares and sleep disturbances in relation to suicidality in suicide attempters. *Sleep* 2007;30:91-95.
21. Tanskanen A, Tuomilehto J, Viinamaki H, Vartiainen E, Lehtonen J, Puska P. Nightmares as predictors of suicide. *Sleep* 2001;24:844-847.
22. MacFarlane JW, Allen L, Honzik MR. A developmental study of the behavior problems of normal children between 21 months and 14 years. Berkeley, California: University of California Press, 1954.
23. Simonds JF, Parraga H. Prevalence of sleep disorders and sleep behaviors in children and adolescents. *J Amer Acad Child Psychiatry* 1982;21:383-388.
24. Bixler EO, Kales A, Soldatos CR, Kales JD, Healey S. Prevalence of sleep disorders: A survey of the Los Angeles metropolitan area. *Amer J Psychiatry* 1979;136:1257-1262.
25. Janson C, Gislason T, DeBacker W, et al. Prevalence of sleep disturbances among young adults in three European countries. *Sleep* 1995;18:589-597.
26. Levin R, Fireman G. Nightmare prevalence, nightmare distress, and self-reported psychological disturbance. *Sleep* 2002;5:205-212.
27. Liu X, Sun Z, Uchiyama M, Shibui K, Kim K, Okawa M. Prevalence and correlates of sleep problems in Chinese schoolchildren. *Sleep* 2000;23:1053-1062.
28. Agargun MY, Kara H, Ozer OA, Selvi Y, Kiran U, Kiran S. Nightmares and dissociative experiences: the key role of childhood traumatic events. *Psychiatry Clin Neurosciences* 2003;57:139-145.
29. Hublin C, Kaprio J, Partinen M, Koskenvuo M. Nightmares: familial aggregation and association with psychiatric disorders in a nationwide twin cohort. *Amer J Med Genetics* 1999; 88: 329-336.
30. Liu X, Uchiyama M, Okawa M, Kurita H. Prevalence and correlates of self-reported sleep problems among Chinese adolescents. *Sleep* 2000;23:27-34.
31. Wood J, Bootzin R. The prevalence of nightmares and their independence from anxiety. *J Abn Psychol* 1990;99:64-68.
32. Ipsiroglu O, Fatemi A, Werner I, Tiefenthaler M, Urschitz MS, Schwarz B. [Prevalence of sleep disorders in school children between 11 and 15 years of age]. *Wiener Klinische Wochenschrift* 2001;113:235-244.
33. Schredl M, Pallmer R. [Nightmares in children]. *Praxis der Kinderpsychologie und Kinderpsychiatrie* 1997;46:36-56.
34. Schredl M, Fricke- Oerkermann L, Mitschke A, Wiater A, Lehmkühl G. longitudinal study of nightmares in children: stability and effect of emotional symptoms. *Child Psychiatry Hum Dev* 2009;40:439- 449.
35. Sandoval D, Krakow B, Schrader R, Tandberg D. Adult nightmare sufferers: can they be identified and treated in childhood? *Sleep Res* 1997;26:256.
36. Levin R. Sleep and dreaming characteristics of frequent nightmare subjects in a university population. *Dreaming* 1994;4:127-137.
37. Nielsen TA, Stenstrom P, Levin R. Nightmare frequency as a function of age, gender, and September 11, 2001: findings from an internet questionnaire. *Dreaming* 2006;16:145- 158.
38. Abdel-Khalek AM. Epidemiologic study of sleep disorders in Kuwaiti adolescents. *Perceptual & Motor Skills* 2001;93:901-910.
39. Abdel-Khalek AM. Nightmares: prevalence, age and gender differences among Kuwaiti children and adolescents. *Sleep and Hypnosis* 2006;8:33-40.
40. Burke JD, Regier DA. Epidemiology of mental disorders. In: Hales R E, Yudofsky SC, Talbott JA, eds. *The American psychiatric press textbook of psychiatry*. 2nd ed. Washington, DC: American Psychiatric Press, 1994; pp. 81-104.
41. Streiner DL. Let me count the ways: measuring incidence, prevalence, and impact in epidemiological studies. *Canad J Psychiatry* 1998;43:173-179.
42. Foley DJ, Monjan AA, Brown SL, Simonsick EM, Wallace RB, Blazer DG. Sleep complaints among elderly persons: an epidemiologic study of three communities. *Sleep* 1995;18:425-432.
43. Simon GE, Vonkorff M. Prevalence, burden, and treatment of insomnia in primary care. *Amer J Psychiatry* 1997;154:1417-1423.
44. Abdel-Khalek AM. Prevalence of reported insomnia and its consequences in a survey of 5,044 adolescents in Kuwait. *Sleep* 2004;27:726-731.
45. Abdel-Khalek AM. Normative results on the Arabic Fear Survey Schedule III. *J Behav Thera Exp Psychiatry* 1994;25:61-67.

46. Abdel-Khalek AM, Alansari BM. Gender differences in anxiety among undergraduates from ten Arab countries. *Soc Behav Personality* 2004;32:649-655.
47. Abdel-Khalek AM, Lester D. Optimism and pessimism in Kuwaiti and American college students. *Int J Soc Psychiatry* 2006;52: 110-126.
48. Eysenck SBG, Abdel-Khalek AM. A cross-cultural study of personality: Egyptian and English children. *Int J Psychol* 1989; 24:1-11.
49. Shear M K, Feske U, Greeno C. Gender differences in anxiety disorders: clinical implications. In: Frank E ed., *Gender and its effects on psychopathology*. Washington DC: American Psychiatric Publishing Inc., 2000; 151-165.
50. Fakhr El-Islam M. Mental illness in Kuwait and Qatar. In: Al-Issa I, ed. *Al-Junun: mental illness in the Islamic world*, Madison: International Universities Press, 2000;121-137.