Sleepless in Makkah City, Saudi Arabia: Prevalence and Risk Factors among Visitors of Primary Health Care Centers

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Introduction

- Insomnia is the most common sleep disorder.
- Insomnia is defined as difficulty in falling asleep, difficulty in staying asleep or nonrestorative sleep, which is awakening feeling unrefreshed.
- Insomnia is a risk factor of depression, higher rates of absenteeism and health care utilization.
- The direct costs of insomnia have been estimated to be $13.9 billion annually in the U.S.
- Rates of insomnia reported worldwide range from 11.9% in Finland to 21% in Japan. In the United States, a study showed that 35% of adults aged 18 to 79 experienced difficulty falling asleep or staying asleep. In the Kingdom of Saudi Arabia (KSA), neither the prevalence nor the risk factors have been studied.

Objectives

1. To describe the general sleep habits of those attending primary health care centers (PHCCs).
2. To characterize the prevalence of insomnia among visitors to PHCCs in Makkah.
3. To measure the sleep quality among visitors to PHCCs in Makkah based on their Pittsburgh Sleep Quality Index (PSQI) score and to study related risk factors.
4. To investigate the extent of sleep problems in relation to the frequency of treatment and find a simple, useful screening tool for PHCC physicians to manage the cases.

Methods

- This study is a cross-sectional analytic study. The main tool used to collect data was an interview using a Pittsburgh Sleep Quality Index (PSQI) questionnaire.
- The study was conducted in five primary health care centers (three urban and two rural) in the metropolitan area of Makkah, Saudi Arabia, during the first three weeks of July 2012.
- Inclusion criteria was being 18 years and above.
- One-fourth of the visitors were interviewed.
- The study population totaled 463 (233 males and 230 females).
- The dependent variables were sleep quality based on PSQI score and insomnia. Bad sleepers scored > 5 on the PSQI assessment and insomniacs took over 30 minutes to fall asleep.

Results

- Out of 463 participants, 61.8%, were classified as good sleepers, while 38.2% were classified as bad sleepers. The prevalence of insomnia was 29.4%. This figure is very close to that of the United States.
- 80% of the study population slept less than 7 hours a night.
- Half of the study population went to bed between 11 p.m. and 1 a.m., while 30% went to bed after 1 a.m.
- Females were at least twice as likely as males to be bad sleepers in all categories except widowers. (See Table 1).
- Fewer than 20% of bad sleepers received medical treatment for their sleep problems.
- Among those who self reported their sleep as bad, 100% were bad sleepers based on their objective PSQI score, while only about 6% of those who self reported their sleep as very good were bad sleepers. (See Tables 2 and 3).

Table 1. Percent of Females and Males who were Bad Sleepers, by Selected Characteristics, According to PSQI Scores, Makkah, July, 2012

Categories	Sub-categories	Percentage of bad sleepers among females	Percentage of bad sleepers among males	Female/Male Ratio
Age Groups	Early Young	39%	9%	4.3
	Young	50%	30%	1.7
	Middle Aged	54%	26%	2.1
	Senior and Above	52%	31%	1.7
Location	Urban	50%	30%	1.6
	Rural	50%	17%	3
Chronic Illness	No Chronic Illness	40%	19%	2.1
	Chronic Illness	60%	34%	1.8
Marital Status	Single	42%	26%	1.6
	Married	51%	26%	2
	Divorced	36%	17%	2.1
	Widowed	61%	80%	0.8
Financial Status	Below Average	69%	37%	1.9
	Average	48%	23%	2.1
	Above Average	42%	31%	1.3
Gender Overall		65%	35%	1.9

Table 2. Self-Reported Responses and Their Association with Overall PSQI Scores

	# of Bad Sleepers (PSQI score 6-21)	# of Good sleepers (PSQI score 0-5)	
Self-reported bad sleep quality	36	0	36
Other responses (average, good, very good)	141	286	427
Total participants	177	286	463

Table 3. Diagnostic Statistics of Sleep Quality Question

Sleep Quality Question		95% CI
Sensitivity	0.21	0.15 - 0.27
Specificity	1.00	0.98 - 1
Positive predictive value	0.99	0.86 - 1
Negative predictive value	0.67	0.62 - 0.71

Discussion

Sleep problems are common and undertreated in Saudi Arabia. Females in KSA were more affected by bad sleep habits than males. Males and females shared having chronic diseases as a risk factor for sleep problems. Financial status more strongly influenced females than males. Being a rural resident is a protective factor for males. Asking the visitors about their sleep quality was a quick and useful tool to pick up on the cases needing more medical attention.

Recommendations

1. There should be a Saudi Center for Sleep Medicine concerned with medical and epidemiological aspects of sleep. This center can be under authority of the Ministry of Health in collaboration with Saudi universities and counterparts international centers.
2. Sleep quality should be considered as a public health measure.
3. Special attention should be paid to insomnia and other sleep problems in females in Saudi society to look for underlying factors.
4. PHCC doctors need to be trained effectively to evaluate insomnia and other sleep problems in patient encounters and be trained on simple non-pharmacological treatments
5. PHCC doctors should ask for patients to report their sleep quality and treat them accordingly, as self-reported sleep quality has been shown to closely reflect actual sleep quality.

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