

Effective factors on Sleep Satisfaction and Chronobiology Among Rural Adults

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Received: 2018/9/24 Accepted: 2018/11/6 Published: 2018/12/15

Abstract

Background: Regarding this, the present study was conducted to identify the effective factors of sleep satisfaction and chronobiology among rural adults. **Materials and Methods:** This cross-sectional study was conducted on 385 adults who living in 31 rural areas of Fariman city, Iran, selected through a stratified sampling technique. The sample size was calculated using a conservative approach with the assumption of sleep disorder prevalence of 50% and a confidence interval of 95%. The sampling in each rural area was performed through systematic sampling using household records. Data collection was accomplished using a researcher-made questionnaire. The validity of this questionnaire was confirmed by two Neurologist and one Social medicine specialist. Reliability was calculated by Cronbach 0.65. Data were assumed and analyzed by SPSS 16. We used Chi-Square, and Exact Fisher test for analysis and P-value \leq 0.05 was significant. **Result:** According to the results, 264 (68.8%) subjects were female. The mean age of the female and male participants were 36.63 \pm 15.20 and 43.63 \pm 17.49 years, respectively. Furthermore, 75.1% of the subjects expressed that they easily fell asleep at night. However, for 73.4% of the participants, it took 30 min to fall asleep. People who had a midday nap felt more satisfied with their sleep (P-value $<$ 0.001). **Conclusion:** Sleep disorder is a predisposing factor for social problems and a threat to physical and mental health. Consequently, it is essential to adopt some plans facilitating the individuals to regularly evaluate their sleep status as a health component and try to improve the quality of their sleep.

Keywords: Chronobiology, Adults, Sleep

Introduction

Sleep is one of the basic needs of humans (1). However, sleep disorders and their serious effects on health status have been given inadequate attention from the researchers (2). Circadian rhythms are among the most important biological cycles occurring with a period length of almost 24 h (3). People's quality of life and activity during waking hours are influenced by the quality of sleep (4-6). Hyposomnia and hypersomnia have a direct impact on the mortality rate (7). Today, many factors caused by urbanization, such as work, school, television, and family, have reduced the sleep time in

different age groups (8-10). Among the factors related to lifestyle, the length and quality of sleep as potentially alterable factors play a very important role in individuals' physical and mental health (11). Sleep disorders, especially hyposomnia and hypersomnia, can lead to various physical and mental disorders (12-15). In the United States, sleep disorders are reported to indirectly result in an annual financial loss of 43-56 billion dollars (16, 17). Sleep disorders have a prevalence rate of 15-42% in the general population (18). Sleep disorders have a significant impact on the incidence of physical and psychological problems. Moreover, they can impose direct and indirect financial burdens to the econ-

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omy of countries. However, to the best of our knowledge, no study has investigated sleep pattern and quality among the rural population in Iran (19-22). Regarding this, the present study aimed to examine the factors affecting sleep satisfaction and chronobiology among the rural adult population, in Iran.

Materials and methods

The present cross-sectional, descriptive-analytic study was carried out on 385 adults residing in 31 villages in Fariman County, Razavi Khorasan Province, Iran, in 2015. The study population was selected through a stratified sampling technique. The sample size was calculated using a conservative method with the assumption of sleep disorder prevalence of 50%, accuracy of 0.05, and a confidence interval of 95%. An educational briefing session was conducted for questioners to inform them about the way of completing the questionnaire and sampling. Samples from each village were selected through systematic sampling method using the household records. The inclusion criteria were the age of 15 years or more and at least one year of residence in the village. On the other hand, the exclusion criterion was the reluctance to participate in the study. In the next stage, the researchers referred to the villagers' houses and provided them with the necessary explanations about the research objectives. After obtaining informed consent from the participants, they filled out the questionnaire. If the person was illiterate, the researcher completed the questionnaire by asking and answering.

In this study, a researcher-made questionnaire was used to collect data. The questionnaire was designed in two sections, the first part of which included demographic information, such as age, gender, marital status, income, and education level. The second part of the questionnaire was related to the sleep pattern of the individual covering such concepts as occupational and educational performance and its relationship with sleep quality, sleep delay and duration, mid-day sleep, consumption of sedatives, self-evaluation of sleep quality on working days, and rest periods. The validity of this questionnaire was confirmed by two neurologists and a social medicine specialist. Furthermore, the reliability of this instrument was determined using Cronbach's alpha coefficient ($r=0.65$). The data were analyzed in SPSS software (version 16, SPSS Inc., Chicago, IL). Fisher's exact and Chi-square tests were used to determine the relationship and difference between the variables. P-value less than 0.05 was considered statistically significant.

Result

Out of the 385 rural adults participated in this study, 264 (68.8%) subjects were female. The mean ages of the females and males were 36.63 ± 15.20 and 43.63 ± 17.49 , respectively. The youngest and oldest participants were a 15-year-old female and a 90-year-old male, respectively. In this study, married subjects had the highest frequency ($n=339$, 89.3%), while single individuals were less frequent ($n=46$, 10.7%, Table-1). The major-

Table 1. The association between sleep satisfaction and variables of sleep pattern of individual

Variables	Sleep satisfaction		P-value
	Yes n (%)	NO n (%)	
Daytime sleep	Yes	214 (73)	0.001
	No	44 (52.4)	
Use of sedatives	Yes	79 (27)	0.001
	No	40 (47.6)	
Waiting time for falling asleep	Yes	15 (5.1)	0.001
	No	17 (21.2)	
Length of night's sleep	Less than 30 min	248 (83.2)	0.001
	More than 30 min	50 (16.8)	
Length of night's sleep	Less than 7 h	104 (59.1)	0.004
	More than 9 h	53 (79.1)	
Length of night's sleep	Less than 7 h	104 (59.1)	0.004
	More than 9 h	72 (40.9)	

ity of the subjects had the education level of below diploma (n=312, 83.4%). In terms of occupational status, homemakers (n=220, 57.4%) and self-employed people (n=15, 3.9%) had the highest and lowest frequency, respectively. Regarding the economic status, 62.1% of the participants had an income level of below 500,000 Toman. The results of the present study revealed that men have more sleep satisfaction compare to women (Table-2). In the present study, insomnia was more common among the age group of 30-60 years–middle-aged people (Table-2). Furthermore, 75.1% of the respondents mentioned that they usually fell asleep easily at night, while 73.4% of them reported that it took less than 30 min for them to fall asleep. However, 26.6% of the subjects (18.2% of the males and 29.8% of the females) stated that they had to wait for over 30 min to fall asleep. This state was most prevalent among the males (54.5%) and females (51.9%) within the age range of 30-90 years. Only 56.7% of the respondents reported to usually feel refreshed and well-rested after a night's sleep in the mornings of the working days. On the other hand, 43.3% of the participants claimed to

wake up with a feeling of fatigue and lethargy. Regarding the consumption of sedatives, 91.5% of the subjects did not use such medications. Furthermore, 59.3% of the respondents reported that they have normal and adequate sleep. Nonetheless, 21.9% of the subjects felt that they got inadequate sleep, while 20% of them assumed that they have excessive daytime sleepiness. In general, 78.1% of the participants were satisfied with their sleep, while 21.9% of them were dissatisfied in this regard. Sleep satisfaction showed no significant relationship with population, marital status (P-value=0.724), education level (P-value=0.829), income level, and the number of households (P-value>0.05). In this study, people who had a nap at noon reported a higher level of satisfaction with sleep (P-value<0.001). Furthermore, the people who had less than 7 hours of sleep were more satisfied with their sleep, compared to those getting 9 or more hours of sleep (P-value=0.001). A significant relationship was observed between the non-use of sedatives and sleep satisfaction (P-value<0.001). In other words, the subjects who did not take any sedatives were more satisfied with their sleep than those using such

Table 2. The association between sleep satisfaction and demographic variables

Demographic data	Sleep satisfaction		P-value	
	Yes	No		
Age	Less than 30 years	103 (34.7%)	24 (28.9%)	0.213
	30-60 years	158 (53.2%)	43 (51.8%)	
	More than 60 years	36 (12.1%)	16 (19.3%)	
Marital status	Married	257 (88.9%)	74 (90.2%)	0.724
	Single	32 (11.1%)	8 (9.8%)	0.724
Gender	Female	201 (67.2%)	63 (75%)	0.174
	Male	98 (32.8%)	21 (25%)	
Education level	Below diploma	241 (82.8%)	69 (85.2%)	0.829
	Diploma and associate's degree	44 (15.1%)	11 (13.6%)	
	Bachelor's and above	6 (2.1%)	1 (1.2%)	

medications. Also, sleep satisfaction had a significant relationship with the time taking to fall asleep (P-value<0.001). In this regard, the subjects who had to wait for a shorter time to fall asleep were more satisfied with their sleep, than the others. Moreover, the participants who went to bed earlier on the holidays and wake up earlier in the morning reported a higher sleep satisfaction level (P-value=0.02). In this study, no significant relationship was observed between the item questioning whether educational and occupational stress or pressure can cause sleep disturbance and the waiting time for falling asleep (P-value=0.279). Likewise, there was no significant correlation between this item and gender (P-value=0.971, Table-2).

Discussion

The results of the present study revealed that men have more sleep satisfaction compare to women (Table-2). In line with this finding, in a study performed by Canelas *et al.*, sleep disorders were more prevalent in women, especially in the younger ones (23). In the current study, the problem of falling asleep was the most common sleep disorder, which showed a higher prevalence among the female participants, especially among those within the age range of 30-60 years. Likewise, Mahon and Yercheski, investigating the most common sleep disorder, reported that the difficulty in falling asleep was of particular importance in this respect (24). In the present study, insomnia was more common among the age group of 30-60 years. According to the evidence, sleep disorders increase with aging. The incidence of insomnia in middle-aged people may be related to such factors as midlife crisis and physical and psychological changes (25). Inconsistent with the results of a study conducted in Kashan, Iran (26), in our study, there was no significant difference between the married and single individuals in terms of the amount of satisfaction with sleep. In other words, being married does not reduce the sense of sleep satisfaction. Furthermore, we found no significant difference between the high- and low-income individuals regarding their level of satisfaction with sleep, which is not in congruence with the findings of the studies conducted inside and outside Iran (26-28). In a study performed in the United States, Moore *et al.* reported a direct relationship between income level and sleep quality (29). In the present study, the people who had a nap at noon had a greater sense of sleep satisfaction than the others. Also, the individuals who got less than 7 h of night's sleep were more satisfied with their sleep. In other words, the people with hypersomnia were less satisfied with their sleep quality, compared to those with hypsosomnia. Additionally, there was a significant relationship between the lack of sedative consumption and sleep satisfaction. In this regard, the people who did not use such medications felt more satisfied with their sleep. In the current study, 8.6% of the participants

used sedatives to treat their sleep disorders. However, in two studies conducted in Semnan and France, 20% and 20.1% of the subjects used sedatives for the management of sleep disorders, respectively (30, 31). Our results revealed a significant relationship between waiting time for falling asleep and sleep satisfaction. Accordingly, the subjects who had to wait for a longer time to fall asleep were more satisfied with their sleep. In this study, the individuals who went to bed early at night and woke up early in the morning felt more satisfied with their sleep than those staying up late at night and waking up late in the morning. We have included 31 villages that they were neighborhood and in the same geographic position. We suggest in future studies, included more village in several position of country.

Conclusion

As the sleep disorder is a predisposing factor for social problems and a threat to individual's physical and psychological health, it is essential to adopt some plans facilitating the individuals and to regularly evaluate their sleep status as a health component and motivate them to improve the quality of their sleep. As our findings of the significant positive correlation between the lack of using hypnotics or sedatives and the feeling of satisfaction with sleep, individuals should avoid the self-administration of these medications. Therefore, if people suffer from the sleep disorder, they should refer to a specialist who can prescribe the appropriate medicines by diagnosing the causes of this problem. Health centers are recommended to inform the people about the importance of taking sedatives and their implications.

Acknowledgment

The authors extend their gratitude to all participants, who sincerely cooperated in this project.

Conflict of interest

There are no conflicts of interest.

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