

Knowledge, Attitude, and Practice of General Practitioners to Sleep Disorders in Qazvin, Iran

Zohreh Yazdi^{1*}, Ziba Loukzadeh², Shabnam Jalilolghadr³, Shima Rezaian¹

¹. Social Determinants of Health Research Center, Qazvin University of Medical Sciences, Qazvin, Iran

². Department of Occupational Medicine, Industrial Disease Research Center, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

³. Department of Pediatric Medicine, Social Determinants of Health Research Center, Qazvin University of Medical Sciences, Qazvin, Iran

Received: 06 Jan. 2015 Accepted: 20 Feb. 2015

Abstract

Background and Objective: Sleep disorders are common medical problems in most of the communities. However, medical students and general practitioners (GPs) do not have enough information about sleep disorders. The aim of this study was to assess the level of knowledge, attitude, and practice of GPs in the field of sleep disorders in Iran.

Materials and Methods: In this cross-sectional questionnaire-based study, all physicians working in the private sector of Qazvin were invited to participate in this study. A comprehensive questionnaire was used including questions about knowledge, attitude, and practice of GPs about sleep disorders. Univariate logistic regression was used for calculation of odds ratio and 95% confidence intervals for demographic factors.

Results: A total of 243 GPs participated including 123 (50.6%) females. A mean age of participants was 39.5 ± 8.2 years. The prevalence of sleep disorders among their patients was 25.2% and they believed that nearly 30% of cases of sleep disorders have been occurred following somatic disease. The average of knowledge, attitude, and practice in GPs was 63.8%, 49.4%, and 56.5%, respectively. There were lower levels of knowledge with increasing years after graduation.

Conclusion: Attitude and practice of the current study sample were unsatisfactory regarding managing sleep disorders. More specialized training about sleep disorders and teaching appropriate methods of the diagnosis and treatment of sleep disorders for GPs are needed.

© 2016 Tehran University of Medical Sciences. All rights reserved.

Keywords: Sleep disorders; General practitioners; Knowledge; Attitude; Practice

Citation: Yazdi Z, Loukzadeh Z, Jalilolghadr S, Rezaian S. **Knowledge, Attitude, and Practice of General Practitioners to Sleep Disorders in Qazvin, Iran.** *J Sleep Sci* 2016; 1(2): 80-86.

Introduction

Sleep disorders are common medical problems in most of the communities (1). Several studies have shown that sleep disorders affect 20-60% of the population in many countries, and the prevalence increases with age and female gender; furthermore, many cases of sleep disorders remain undiagnosed, and

therefore, receive no appropriate treatment (2, 3).

Medical students receive no special training about sleep disorders, or main symptoms of sleep disorders such as insomnia, excessive sleepiness, and snoring. Even specialists such as cardiologists, neurologists, and otolaryngologists that deal more with sleep problems do not have enough information about sleep disorders (4-6). Many sleep problems such as obstructive sleep apnea present with symptoms such

Corresponding author: Z. Loukzadeh, Department of Occupational Medicine, Industrial Disease Research Center, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.
Tel: +982833359503, Fax: +982833359503
Email: loukzadehziba@yahoo.com

as morning headache, muscle pain, depression, hypertension, cardiovascular disease, heart attacks, and strokes that do not seem to be related to sleep disorders; therefore, physicians do not pay attention to these symptoms as the findings resulting from sleep disorders (7-9).

Patients with sleep disorders encounter several social and occupational consequences. Every year, car accidents and work injuries cause many deaths worldwide; many of these are associated with sleep disorders.

There are many jobs that require full alertness throughout working hours such as professional drivers, nurses, and specific machine operators. If the worker is not enough alert during work, this will lead to accidents (10-12). On the other hand, sleep disorders increase absenteeism and job fatigue and reduce productivity (10, 12).

Many patients visit general practitioners (GPs) for their disease assessment. GPs are at the first line in dealing with patients and correct management or referral of these patients is very important, therefore, GPs' knowledge about the etiology and proper treatment of sleep disorders is a very important. However, some studies indicate that their knowledge is not sufficient (7-9, 13, 14). A study conducted in Norway reported that the prevalence of sleep disorders in patients of Norwegian GPs is about 11%. Most GPs used blood test to evaluate sleep disorders in the patients and a very small number of them referred the patient for polysomnography. Furthermore, a high percentage of these doctors offered sleep hygiene recommendations to their patients; meanwhile, they believed prescribing hypnotics are the best immediate

treatment for sleep disorders (15).

In another study on 580 primary care physicians in the USA, a level of knowledge in none of the participants was excellent. The level of knowledge of 10% of them was good and 60% and 30% of participants had moderate and weak levels of knowledge, respectively. Factors that increase the level of knowledge in this study included articles at scientific congresses, training at medical school, and information provided by specialists (16).

Considering the limited available studies about level of knowledge, attitude, and practice of GPs in the field of sleep disorders in Iran, this survey was conducted in Qazvin.

Materials and Methods

In this cross-sectional study, all GPs working in the private sector of Qazvin were invited to participate in this study. The questionnaire was mailed to all physicians' offices. Filling of questionnaires was followed up with a phone call.

The questionnaire consisted of four sections. In the first section, demographic information - including age, sex, work duration, and workplace (urban/rural) - was asked. The next three sections included questions about knowledge, attitude, and practice of GPs about sleep disorders. The level of knowledge about sleep disorders was evaluated by 10 questions. The third part of the questionnaire had 5 questions about attitude to sleep disorders, and responses for the second and third part of the questionnaire were on a 5-degree Likert scale (1 = strongly disagree to 5 = strongly agree). Six questions assessed practice of physicians in the field of diagnostic and therapeutic methods used in sleep

disorders. All questions applied in the survey are included in the Appendix.

The questionnaire was prepared after a literature review in this area and its validity was confirmed by specialists dealing with sleep disorders. Five different medical specialists reviewed the questionnaire including a sleep medicine specialist, an occupational medicine specialist, a neurologist, a psychiatric specialist, and a pulmonologist. These specialists confirmed that all necessary concepts have been appropriately included in the prepared questionnaire. Furthermore, they believed that this questionnaire is valid for detecting knowledge, attitude, and practice of GPs about sleep disorders. The reliability of the questionnaire was evaluated using re-completing this questionnaire by 20 physicians after two weeks. Cronbach's alpha coefficient of 0.82 was calculated. Data were analyzed using SPSS software (version 15; SPSS, Inc., Chicago, IL, USA). Five option responses were categorized into zero (Likert scale of 1, 2, and 3) and one (Likert scale of 4, and 5). The univariate analysis was used to calculate the effect of demographic factors on the responses through crude odds ratios and 95% confidence intervals using

logistic regression. The significance level was considered as $P < 0.05$.

Results

A total of 270 questionnaires were sent to physicians and 243 questionnaires were returned to the project manager. In this study, 243 GPs participated including 123 (50.6%) females. The mean age of participants was 39.5 ± 8.2 years and their average work duration was 12.1 ± 7.4 years. The prevalence of sleep disorders among their patients was 25.2%, and they believed that nearly 30% of cases of sleep disorders had occurred following somatic disease. The prevalence of sleep disorders in their patients was detected by GP's opinion.

The average scores of knowledge, attitude, and practice among GPs were 63.8%, 49.4%, and 56.5%, respectively. Table 1 presents the results of univariate analysis of questions relating to the level of knowledge about sleep disorders in GPs. In most of the questions, with increasing age, the amount of knowledge in GPs reduced. A greater level of knowledge was found in females and physicians worked in the urban area in 5 out of 10 questions. There were lower levels of knowledge with increasing years after graduation.

Table 1. Knowledge of GPs about sleep disorders (% of GPs who answered completely agree and agree)

Question number	Percent	Age	Sex (Female/male)	Workplace (urban, rural)	Years after graduation
Q1	74	0.91 (0.89-0.93)*	0.81 (0.51-0.94)	1.87 (1.13-2.5)*	0.95 (0.94-0.98)*
Q2	70.0	0.93 (0.87-0.96)*	0.95 (0.87-1.12)	1.75 (1.26-2.3)*	0.94 (0.93-0.98)*
Q3	67.1	0.97 (0.92-0.99)*	1.92 (1.25-2.51)*	0.86 (0.73-1.03)	0.97 (0.9-0.98)*
Q4	78.6	0.87 (0.82-1.01)	2.32 (2.19-2.64)*	1.63 (1.28-2.3)*	1.01 (0.91-1.03)
Q5	66.2	0.99 (0.94-1.02)	1.03 (0.86-1.34)	1.41 (1.23-1.75)*	0.98 (0.96-1.02)
Q6	51	0.97 (0.94-1.05)	0.87 (0.76-1.21)	1.06 (0.87-1.2)	0.98 (0.96-1.001)
Q7	48.1	0.92 (0.86-0.94)*	0.89 (0.87-1.09)	0.87 (0.74-0.95)*	0.94 (0.92-0.97)*
Q8	76.1	0.98 (0.96-1.2)	1.21 (0.97-1.27)	0.79 (0.69-0.85)	0.97 (0.95-0.98)*
Q9	55.1	0.97 (0.92-1.04)	2.21 (1.9-2.53)*	0.81 (0.75-0.91)	0.95 (0.93-0.97)*
Q10	51.8	0.95 (0.91-1.04)	1.09 (0.89-1.12)	0.87 (0.72-0.95)	0.99 (0.97-1.12)

Results of univariate logistic regression, *P value was significant. GP: General practitioners

Table 2. Attitude of GPs about sleep disorders (% of GPs who answered completely agree and agree)

Question number	Percent	Age	Sex (female/male)	Workplace (urban, rural)	Years from graduation
Q1	45.7	0.93 (0.84-0.98)	3.4 (2.7-3.9)*	2.3 (1.87-3.2)*	1.02 (0.94-1.05)
Q2	52.3	0.97 (0.85-1.03)	2.5 (1.9-2.8)*	2.6 (1.62-4.1)*	0.97 (0.96-1.011)
Q3	48.9	0.87 (0.78-1.2)	2.3 (1.7-2.8)*	0.95 (0.67-1.25)	0.98 (0.96-1.14)
Q4	39.9	0.56 (0.43-0.76)	0.86 (0.78-0.91)	0.84 (0.73-0.92)*	1.02 (0.97-1.04)
Q5	60.5	1.2 (0.91-1.29)	1.06 (0.87-1.12)	0.79 (0.71-0.93)	0.96 (0.87-1.02)

Results of univariate logistic regression. *P value was significant. GP: General practitioners

In table 2, the attitude of GPs about sleep disorders is presented by univariate analysis. Female physicians and physicians with urban workplace believed more that the sleep medicine should be considered as a specialized field of medicine. There was no significant difference in physicians' attitudes in terms of age and years after graduation.

In table 3, the practice of GPs about diagnostic procedures and treatment methods used by GPs in patients with sleep disorders is demonstrated by univariate analysis.

The physicians were asked about the effectiveness of different treatments for sleep disorders, 41.2% of GPs considered that benzodiazepine is "often" effective and 30.5% of them thought that hypnotics other than benzodiazepine were "often" effective; while 36.2% and 42.8% of GPs "considered that sleep hygiene recommendations and non-pharmacological treatments such as stimulus control and sleep restriction are 'sometimes' effective," respectively. 117 of GPs reported that they had referred patients suspected to have sleep disorders to sleep disorders

specialists and 126 of GPs, never referred any patient for a suspected sleep disorder. Thirty physicians had no patient complaining of sleep disorders. Twenty nine GPs had no difficulty in treating patients with sleep disorders, 33 physicians did not know where to refer these patients and 37 GPs reported that the reason of low referral is a lack of experts in sleep medicine in their city.

Discussion

The results showed that 25.2% of GPs believe that their patients have complaints associated with sleep disorders, GPs stated that 25.9% of patients suffer from sleep disorders secondary to a somatic disease which is consistent with the study conducted in Norway (15).

In this study, only 45.7% of physicians reported that sleep disorder is a medical specialty and female physicians considered sleep disorders as a specialized field more than male ones, whereas in a similar study conducted in 2001 in Riyadh, 57% of physicians considered sleep medicine as a specialized branch of medicine (4).

Table 3. Practice of GPs about sleep disorders (% of GPs who reported doing that)

Question number	Percent	Age	Sex (Female/male)	Workplace (urban, rural)	Years from graduation
Q1	95.1	0.91 (0.84-0.95)	0.87 (0.79-0.92)	0.96 (0.77-1.15)	0.89 (0.72-1.06)
Q2	54.7	0.89 (0.81-1.03)	0.86 (0.79-0.97)	0.89 (0.72-0.98)	0.98 (0.81-1.03)
Q3	21.4	0.97 (0.92-1.04)	1.05 (0.84-1.11)	1.04 (0.85-1.12)	0.98 (0.92-1.05)
Q4	66.6	0.96 (0.91-1.03)	2.8 (1.7-3.1)*	2.85 (1.76-3.3)*	0.98 (0.86-1.02)
Q5	52.3	0.81 (0.74-0.95)*	1.06 (0.89-1.31)	0.81 (0.72-0.91)	0.78 (0.63-0.98)*
Q6	49	0.66 (0.43-0.76)	0.85 (0.61-0.96)	1.02 (0.85-1.14)	1.03 (0.91-1.05)

Results of univariate logistic regression. *P value was significant. GP: General practitioners

The most common diagnostic method used by physicians was taking a medical history from their patients and about half of physicians used blood tests as next step. Other methods such as sleep questionnaires and polysomnographic recordings were not often used. In a study carried out in 2009 in Norway, blood testing was used as the most diagnostic method (15).

The most common treatment used by physicians in the present study was recommendations for sleep hygiene and this was more used than prescription of hypnotics such as benzodiazepines and similar drugs (Zolpidem and Zopiclone). Female physicians and physicians who worked in town significantly used more sleep hygiene methods. Most physicians did not use light and melatonin therapy in patients. In a study conducted at the University of Bergen, the most common treatment used was sleep hygiene recommendations (15).

On the other hand, in assessing the rate of response to different treatments, 41.2% and 30.5% of physicians considered that benzodiazepine and similar hypnotics, respectively, are “often” effective, but 36.2% and 42.8% of them reported that sleep hygiene recommendations and non-pharmacological treatments such as stimulus control and sleep restriction are “sometimes” effective, respectively. This means that in practice the effect of drug treatments was more than non-drug treatment. In a similar study carried out by Sivertsen et al., physicians believed hypnotics are the more effective in short-term and antidepressants are in long-term. Despite what is in the literature that non-pharmacological treatments are preferred for management of sleep disorder, the current study shows that GPs believe that

hypnotics are the most effective treatment, similar to the reports by Sivertsen et al. (15).

Prescribing benzodiazepines were more common in younger physicians and the ones with lower work duration. Contrarily, in a study performed by Sivertsen et al. (15), younger physicians prescribed non-pharmacological methods more, and older physicians had a greater desire to prescribe drugs such as benzodiazepines.

Physicians’ knowledge about sleep disorders in some of the questions was acceptable and in some other questions was negligible (Table 1). In a study performed, in 2007, in the United States, the knowledge of physicians, on average, was reported to be 77% (6).

Physicians participated in this study were well familiar to the complications of sleep disorders namely depression and increased motor vehicle accidents, but their knowledge level about the occurrence of pulmonary hypertension and metabolic disorders following sleep disorders was not sufficient. Similarly, in a study in Saudi Arabia, knowledge of physicians regarding some serious complications of obstructive sleep apnea was reported to be weak (4).

Most physicians did not participate in any seminar on this issue. In a similar study conducted by Bahammam, only 15% of physicians after graduation searched sleep disorders to get more information (4). The explanatory reasons for these findings include holding few seminars, underestimation of the patients in the country and the lack of trained and educated personnel for holding these seminars. Unfortunately, 67.5% of physicians had no such training during their medical education. Therefore, these findings show necessity of planning for academic education in medical schools.

With the development of specialized training programs, the diagnosis and treatment of sleep disorders in these patients can be improved.

Despite training some specialists for better diagnosis and treatment of patients with sleep disorders in many countries, little attention has been paid to sleep medicine in our country. Due to a limited number of educated physicians as well as very little number of specialized centers for sleep disorders, it is difficult for most GPs to refer patients with sleep complaints to more specialized centers.

The results from the current study should be considered with some limitations. The present study was conducted in Qazvin, thereby; the results cannot be generalized to other cities of Iran. A second limitation was small sample size.

Conclusion

More training opportunities about sleep disorders and appropriate methods of diagnosis and treatment of sleep disorders for GPs are needed. Considering low knowledge of GPs about sleep disorders, it is recommended to improve knowledge, attitude, and practice of physicians about sleep disorders by including sleep medicine in general medicine curriculum.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

The authors would like to thank the general practitioners who participated in this study.

References

1. Soldatos CR. Guest editor's introduction: Diagnosis and treatment of insomnia at the start of the 21st century. *Prim Care Companion J Clin Psychiatry*

2002; 4: 3-7.

2. Bailes S, Baltzan M, Rizzo D, et al. A diagnostic symptom profile for sleep disorder in primary care patients. *J Psychosom Res* 2008; 64: 427-33.

3. Khawaja IT, Sayyed RT, Jaouni H. Obstructive sleep apnea: An unrecognized but prevalent condition. *Compr Ther* 2000; 26: 294-7.

4. Bahammam AS. Knowledge and attitude of primary health care physicians towards sleep disorders. *Neurosciences (Riyadh)* 2001; 6: 59-62.

5. Wang CL, Li XZ, Cai XL, et al. Anesthesiologist's knowledge and attitudes about obstructive sleep apnea: a survey study. *Sleep Breath* 2012; 16: 41-6.

6. Southwell C, Moallem M, Auckley D. Cardiologist's knowledge and attitudes about obstructive sleep apnea: a survey study. *Sleep Breath* 2008; 12: 295-302.

7. Bailes S, Baltzan M, Alapin I, et al. Diagnostic indicators of sleep apnea in older women and men: a prospective study. *J Psychosom Res* 2005; 59: 365-73.

8. Roth T, Zammit G, Kushida C, et al. A new questionnaire to detect sleep disorders. *Sleep Med* 2002; 3: 99-108.

9. Yazdi Z, Sadeghniaat-Haghighi K, Ziaee A, et al. Influence of sleep disturbances on quality of life of Iranian menopausal women. *Psychiatry J* 2013; 2013: 1-5.

10. Javadi HR, Jalilolghadr S, Yazdi Z, et al. Correlation between Obstructive Sleep Apnea Syndrome and Cardiac Disease Severity. *Cardiovasc Psychiatry Neurol* 2014; 2014: 1-5.

11. Yazdi Z, Sadeghniaat-Haghighi K, Loukazadeh Z, et al. Prevalence of sleep disorders and their impacts on occupational performance: A Comparison between Shift Workers and Nonshift Workers. *Sleep Disord* 2014; 2014: 1-5.

12. Yazdi Z, Sadeghniaat-Haghighi K, Javadi AR, et al. Sleep quality and insomnia in nurses with different circadian chronotypes: morningness and eveningness orientation. *Work* 2014; 47(4): 561-7.

13. Zozula R, Rosen RC, Jahn EG, et al. Recognition of sleep disorders in a community-based setting following an educational intervention. *Sleep Med* 2005; 6: 55-61.

14. Tamay Z, Akcay A, Kilic G, et al. Are physicians aware of obstructive sleep apnea in children? *Sleep Med* 2006; 7: 580-4.

15. Sivertsen B, Nordhus IH, Bjorvatn B, et al. Sleep problems in general practice: a national survey of assessment and treatment routines of general practitioners in Norway. *J Sleep Res* 2010; 19: 36-41.

16. Papp KK, Penrod CE, Strohl KP. Knowledge and attitudes of primary care physicians toward sleep and sleep disorders. *Sleep Breath* 2002; 6: 103-9.

17. Shiomi T, Arita AT, Sasanabe R, et al. Falling asleep while driving and automobile accidents among patients with obstructive sleep apnea-hypopnea syndrome. *Psychiatry Clin Neurosci* 2002; 56: 333-4.

Appendix

Knowledge

1. Medical history and physical examination are the most useful in diagnosing a sleep disorders
2. In the narcoleptic patients, sleep starts with rapid eye movement (REM)
3. The most characteristic wave form of stage II sleep is Delta waves
4. There is an inverse relationship between probabilities of patients' crash accidents with sleep apnea severity.
5. Cataplexy is one of the highly possible symptoms to observe in narcoleptic patients
6. Excessive daytime sleepiness is a prevalent symptom in insomniac patients
7. Systemic hypertension is a disorder resulting from oxygen desaturation in sleep
8. The most appropriate instrument for diagnosing sleep apnea is Berlin questionnaire
9. Tracheostomia is the most appropriate treatment for sleep apnea syndrome
10. All patients with obstructive sleep apnea have snoring.

Attitude

1. Identifying patients with sleep disorders is very important for patients' management
2. In my opinion, sleep disorders are serious medical disorders
3. I am completely confident for managing various types of sleep disorders
4. Education about sleep disorders should be included for medical students
5. I need more courses about diagnosis and management of sleep disorders in continuous medical education.

Practice

1. I always diagnose my patients with sleep disorder
2. I always treat my patients with sleep disorders
3. I refer my patients with sleep disorders to a sleep specialist
4. I always recommend proper sleep hygiene practices for my patients
5. I always use standard questionnaire for patients' screening that suffering from sleep disorders
6. I always use history taking, physical examination and paraclinic exams for managing my patients with sleep disorders.