

# Knowledge and attitude of Primary Health Care Physicians towards sleep disorders

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## ABSTRACT

**Objectives:** Although sleep disorders are common, these are under-recognized and underestimated by many workers in the medical field due to lack of physician's education in sleep and sleep disorders. We conducted this survey to assess the general knowledge and attitude of Primary Health Care Physicians in Riyadh, Saudi Arabia towards sleep disorders.

**Methods:** A self-administered questionnaire was distributed to all Primary Health Care physicians working in Primary Health Care centers of the Ministry of Health in Riyadh. The following factors were assessed: demographic data of the participating physicians, their background about sleep disorders and their recognition of possible presentations, consequences and diagnostic tests for sleep disorders.

**Results:** Complete data was available from 209 physicians. Fifty three percent were males and 47% were females. Only 57% agreed that sleep disorders are a distinct medical specialty and 40% felt that sleep disorders are common medical problems based on their practice.

The recognition of some of the serious consequences of Obstructive Sleep Apnea Syndrome was poor; motor vehicle accidents (63%), ischemic heart disease (40%), hypertension (50%) and pulmonary hypertension (13%). Only 15% had attended lectures about sleep disorders during their postgraduate training or practice. Physicians who have attended lectures about sleep disorders referred significantly more patients than physicians who have not attended any ( $P=0.003$ ).

**Conclusion:** We conclude that Primary Health Care physicians in Riyadh do not completely recognize the importance and impact of Obstructive Sleep Apnea Syndrome and other sleep disorders. Education of Primary Health Care physicians about sleep disorders may increase detection of sleep disorders; and hence, the number of referrals, the provision of proper treatment and the prevention of complications.

**Keywords:** Sleep disorders, primary care, apnea.

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Sleep disorders are one of the new and rapidly growing specialties in the field of medicine. The importance of this specialty and the size of the problem are underestimated by many workers in the medical field due to lack of physician's education in sleep and sleep disorders.<sup>1</sup> In the United States, 40% of adults report some type of sleep disorder and 35% of adults complain of insomnia at some time in their life.<sup>2</sup> An estimated 40 million Americans are chronically ill with various sleep disorders, and 38,000 cardiovascular deaths annually are directly

related to Obstructive Sleep Apnea Syndrome (OSAS), yet the vast majority of Americans with sleep disorders remain undiagnosed and untreated.<sup>3</sup> Estimates from countries other than the United States showed similar prevalence.<sup>4-6</sup> A recent survey testing knowledge of OSAS in Alberta, Canada revealed wide variance of knowledge among physicians across all specialties.<sup>7</sup> Due to the under-recognition of sleep disorders, patients with these problems may be labeled with inaccurate diagnoses and may receive inappropriate treatment, which, in turn, may

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result in increased health care utilization.<sup>8</sup> Treating patients with OSAS resulted in significant reduction in health care utilization in this group,<sup>9</sup> which stresses the important role of primary health care (PHC) physicians in early detection and referral of these patients. The health system in Saudi Arabia relies on the referral system, where the patient's first exposure is usually to the PHC physician who assesses and decides the patient's plan of management. Hence, early detection and management of patients with sleep disorders depends to a significant degree on the knowledge and awareness of PHC physicians. This survey was conducted to assess the general knowledge and attitude of PHC physicians in Riyadh, Saudi Arabia towards sleep disorders.

**Methods.** This cross-sectional study was conducted in Riyadh, the capital of Saudi Arabia with a population of around 4 million.<sup>10</sup> Health care services in Saudi Arabia are provided by the Ministry of Health (MOH) and other government and private health care organizations. In this study, we only targeted PHC physicians in MOH, the main health care provider in the country. Around 290 physicians work in around 59 primary health care centers (PHCC) of the MOH in Riyadh. These PHCC are distributed throughout Riyadh and are readily accessible to all residents. Doctors working in the PHCC have different levels of postgraduate training but all work as general practitioners. Usually patients cannot avail higher levels of specialized medical care unless they are referred by one of the PHC centers.

**Study design.** A self-administered questionnaire (Figure 1) was distributed to all PHC physicians working in PHCC belonging to MOH in Riyadh. Questionnaires with incomplete data were eliminated from the final analysis. This questionnaire was adapted with modification from other survey questionnaires used in previous research.<sup>11-13</sup> The objectives of the study were explained to all participants. The questionnaire addressed 21 questions regarding the following factors: 1. Demographic data: Age, sex, qualifications, PHC center. 2. Background about sleep disorders: Assessing the following factors: participant's education in sleep disorders, the participant's attitude toward sleep disorders and perception of the importance and prevalence of these disorders. 3. Presentation, consequences and Diagnosis: The following factors were assessed: routine enquiry about symptoms pertaining to sleep disorders, evaluating possible complications of sleep disorders and referral of patients with sleep disorders to higher medical centers. The above items were assessed by direct questions and the answers were straight yes/no/I do not know. In some questions the respondents were given the opportunity to comment. Data was

1. Do you think that sleep disorders is a distinct medical speciality?
2. Did you receive any education or attend any lecture or scientific activity about sleep disorders during your postgraduate training or practice?
3. Based on your daily practice, do you think that sleep disorders are important medical problems?
4. Based on your daily practice, do you think that sleep disorders are common medical problems?
5. During patient interview, do you inquire about:
  - \* Excessive daytime sleepiness
  - \* Snoring
  - \* Insomnia
  - \* Bedtime and wake up time
  - \* Nocturnal chest pain
  - \* Witnessed apnea
6. Patients with sleep disorders may be at higher risk of which of the following complications:
  - \* Motor vehicle accidents
  - \* Angina and myocardial infarction
  - \* Depression and other psychological disorders
  - \* Hypertension
  - \* Pulmonary hypertension
7. Are there any sleep disorder centers in Riyadh?
8. Name the gold standard diagnostic test required to confirm the diagnosis of OSAS and in some occasions other sleep disorders: \_\_\_\_\_
9. Have you referred any patients with sleep disorders to a secondary or tertiary care center for further management?
10. If the answer is NO, give your reason:
  - \* I do not see patients with sleep disorders
  - \* I do not have any difficulty managing patients with sleep disorders
  - \* The head of my center will not approve such referral
  - \* I do not know to whom I should refer my patients
  - \* There are no sleep specialists in Riyadh
  - \* Others, please specify: \_\_\_\_\_

**Figure 1** - Summary of the self-administered questionnaire sent to Primary Health Care Physicians in Riyadh. The answers to the questions were straight yes/no/I do not know. OSAS - Obstructive Sleep Apnea Syndrome.

expressed as mean  $\pm$  standard deviation (SD). Answers to questions were evaluated by using the chi-square test and were expressed by the significance level. P value of  $\leq 0.05$  was considered significant.

**Results.** Two hundred and twenty PHC physicians returned questionnaires giving a response rate of (76%). Complete information was available on 209 questionnaires (72%). One hundred and eleven (53%) were males and 98 (47%) were females and the mean age was  $43.2 \pm 6.8$  years. One hundred and twenty physicians (57%) agreed that 'sleep disorders' is a distinct specialty in the medical field and 180 (86%) agreed that sleep disorders are important medical problems. However, only 83 (40%) felt that sleep disorders are common medical problems based on their daily practice. Only 32 (15%) have attended lectures about sleep disorders in their postgraduate training and practice.

**Symptoms inquiry.** One hundred and sixty four (78%) physicians admitted that they usually ask about excessive daytime sleepiness, 158 (75%) about

**Table 1** - Comparison between different groups in history taking, investigations and referral of patients with sleep disorders.

	The whole group n = 209 (%)	Group 1* n = 32 (%)	Group 2** n = 177 (%)	P-value (Group 1 versus Group 2)
Excessive daytime sleepiness	164 (78)	30 (94)	97 (57)	<0.001
Snoring	158 (75)	26 (81)	93 (55)	0.005
Insomnia	188 (90)	30 (94)	110 (65)	<0.001
Sleep-Wake up time	148 (70)	26 (81)	85 (50)	0.001
Nocturnal chest pain	155 (75)	25 (78)	88 (52)	0.006
Apnea during sleep	129 (61)	21 (66)	74 (44)	0.02
Polysomnography is needed	100 (48)	20 (63)	56 (33)	0.002
Referred patients with sleep disorders	141 (67)	25 (67)	85 (50)	0.003

\*Group 1 - physicians with sleep education; \*\* Group 2 - physicians with no education in sleep

snoring, 129 (61%) about witnessed apnea during sleep, 155 (74%) about nocturnal chest pain, 188 (90%) about insomnia and 148 (70%) about bedtime and wake up time (Table 1).

**Complications and consequences of sleep disorders.** Only 133 (63%) physicians recognized that patients with OSAS are at increased risk of motor vehicle accidents compared to the norm. The recognition of the other complications and consequences was as follows: ischemic heart disease (40%), depression and other psychological disorders (64%), hypertension (50%), and pulmonary hypertension (13%).

**Diagnosis.** Only 100 (48%) physicians stated that Polysomnography (PSG) is the gold standard test required to confirm the diagnosis of OSAS and other sleep disorders. One hundred and forty one (67%) physicians stated that they have referred patients with sleep disorders to higher medical centers for further management, however, only 18 (13%) of them realized that there are sleep disorder specialists in the Riyadh. The rest referred their patients to psychiatrists. Sixty-eight (33%) physicians have never referred any patients with sleep disorders. The reasons for not referring patients were as follows; I do not know to whom I should refer my patients (38%), there are no sleep disorders specialists in the city (29%), I do not see patients with sleep disorders in my center (28%), I do not have any difficulty managing patients with sleep disorders (26%), and finally, the head of our primary health care center will not approve such referral (10%). In a subsequent analysis, we divided the physicians into 2 groups. Group 1 (32 physicians) attended lectures about sleep disorders in their postgraduate training or practice (informal education in sleep disorders) and group 2 (177 physicians) who did not (Table 1). Male

physicians (75%) referred more patients with sleep disorders compared to female physicians (61%) (P= 0.05).

**Discussion.** Studies that examined the knowledge and attitude of primary health care physicians towards sleep disorders were all conducted in developed countries with well-established health care systems. To our knowledge, no study has examined this issue in PHC physicians in developing countries where the speciality of sleep disorders is still in the early stages. Our study demonstrates clearly that PHC physicians under-recognize the importance of sleep disorders and sleep medicine. Forty three percent of the participating physicians did not realize the existence of sleep disorders as a specialty. This mirrors the finding that only 40% felt that sleep disorders are common medical problems. Recognition of sleep apnea and other sleep disorders among PHC physicians has been reported previously to be low.<sup>14-16</sup> In a recent study, the participating physicians believed that OSAS is an unusual medical condition.<sup>16</sup> In our study, the recognition of some of the serious complications and consequences of OSAS and other sleep disorders among the participating physicians is seriously low. As a result, many of the PHC physicians in our group may not warn their patients with sleep disorders about the risk of driving cars or operating heavy machinery. The association between OSAS and the risk of traffic accidents is very strong.<sup>17</sup> Also many physicians may not realize the importance of checking the blood pressure of patients with OSAS. Systemic hypertension has been reported in up to 50% of patients with OSAS.<sup>18</sup> Primary health care physicians are essential to the

case finding and referral of patients with sleep disorders if they ask the right questions. When taking medical history, about one quarter to one third of our group admitted that they do not inquire about daytime sleepiness, snoring or bedtime and wake up time. Haponik and associates previously demonstrated that sleep history is typically neglected in the general history by primary care physicians.<sup>19</sup> There was a trend of more referrals among male physicians compared to female physicians. This finding may be explained by the fact that in PHCC's in Saudi Arabia, female physicians typically treat female patients only while male physicians treat male patients who usually have a higher prevalence of sleep disordered breathing. Among physicians who did not refer any patients with sleep disorders to higher medical centers, 38% did not know to whom they should refer their patients. This defect can be remedied by publicizing sleep disorders by specialists in the field. Sleep education for PHC physicians can make a difference. In the Walla Walla project, a weekend course developed by 2 physicians on sleep disorders resulted in an eight-fold increase in referral rate.<sup>11</sup> In our study no physician had formal education or training in sleep disorders. However, 15% attended lectures about sleep disorders during their postgraduate training or practice. Physicians who had that sort of education were more likely to refer patients with sleep disorders to higher medical centers than those who had not ( $P=0.003$ ) (Table 1). The present study has inherent limitations. In my view, bias may result from the fact that respondents to surveys may try to exaggerate their performance and image and their lack of knowledge could even be worse than indicated by our findings. Despite the limitations, the primary value of the study is that it provides important information about the knowledge and attitude of PHC physicians toward sleep disorders for the first time in Saudi Arabia.

We conclude that PHC physicians in Riyadh under-recognize the importance and impact of OSAS and other sleep disorders. Education of PHC physicians about sleep disorders may increase detection of sleep disorders; and hence, the number of referrals, the provision of proper treatment and the prevention of complications.

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