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Assessment of Obstructive Sleep Apnea (OSA) among Doctors Using STOP-BANG Questionnaire

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ABSTRACT

Obstructive sleep apnea (OSA) is a common sleep disorder characterized by recurrent episodes of partial or complete upper airway obstruction during sleep, leading to disrupted breathing patterns and intermittent oxygen denaturation. The objective of this study was to determine the prevalence of obstructive sleep apnea (OSA) among doctors using the STOP-BANG questionnaire and to investigate its association with socio-clinical variables. A total of 300 doctors participated in this cross-sectional study. Their responses to the STOP-BANG questionnaire were analyzed to assess the risk of OSA. The socio-clinical variables examined included gender, age, BMI category, and specialty. Statistical analyses were conducted to calculate prevalence rates, risk levels, and associations using appropriate tests and p-values. Among the participants, 57 (19%) were female doctors and 243 (81%) were male doctors. The majority of participants fell within the 50-59 years age group (110, 36.7%). Regarding the BMI category, most participants were overweight (120, 40.0%), followed by normal weight (110; 36.7%) and obese (70, 23.3%). General medicine (75; 25.0%) and surgery (60; 20.0%) had the highest representation among specialties. Based on the STOP-BANG questionnaire, 45 doctors scored 3 or more, indicating a potential risk of developing OSA. Thus, the prevalence of OSA risk among doctors was found to be 15%. The majority of doctors (85.0%) showed no risk of OSA, while 6.7% were classified as low risk, 5.0% as moderate risk, and 3.3% as high risk. Significant associations were observed between OSA risk and BMI category. Overweight and obese participants had a significantly higher risk of OSA compared to those with normal weight ($p<0.001$). However, no significant associations were found between OSA risk and gender, age, or specialty ($p>0.05$). This study revealed a considerable prevalence of OSA risk among doctors, with overweight and obese doctors being at a higher risk. The implementation of the STOP-BANG questionnaire can help identify individuals at risk for OSA in primary care settings. Future studies with larger sample sizes and diverse populations are warranted to validate these findings.

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Key Words
Obstructive sleep apnea, STOP-BANG questionnaire, Prevalence, Doctors, Age, Body mass index

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INTRODUCTION

Obstructive sleep apnea (OSA) is a common sleep disorder characterized by recurrent episodes of partial or complete upper airway obstruction during sleep, leading to disrupted breathing patterns and intermittent oxygen desaturation. It is estimated that OSA affects a significant portion of the general population and is associated with various adverse health outcomes, including cardiovascular diseases, metabolic disorders and impaired cognitive function. Identifying individuals at risk of OSA is essential for early intervention and appropriate management to mitigate these risks and improve overall health[1,2].

Healthcare professionals, including doctors, are not immune to the risk of OSA. The demanding nature of their work, irregular sleep schedules and high levels of stress can contribute to a higher prevalence of sleep disorders among this group. Recognizing and addressing the presence of OSA among doctors is crucial, as it not only affects their own health and well-being but can also impact their clinical performance and patient care[2,3].

The assessment of OSA prevalence among doctors is important to understand the extent of this sleep disorder within the medical community. By determining the prevalence, appropriate interventions and educational programs can be implemented to promote awareness, encourage early diagnosis and ensure timely treatment of OSA among doctors[4,5].

Understanding the prevalence of OSA among doctors can have significant implications for healthcare systems. It can facilitate the development of targeted interventions, such as educational campaigns on sleep hygiene, lifestyle modifications and referral pathways for further evaluation and treatment. Additionally, it can help create awareness among doctors about the importance of regular sleep assessments and the potential impact of sleep disorders on their health and professional performance[6,7].

The objective of this study was to assess the prevalence of OSA among doctors using the STOP-BANG questionnaire. The STOP-BANG questionnaire is a simple and validated screening tool that evaluates key clinical parameters associated with OSA risk. It includes questions related to snoring, tiredness, observed apnea, high blood pressure, body mass index (BMI), age, neck circumference and gender. By utilizing this questionnaire, the study aimed to identify doctors at risk of OSA and provide valuable insights into the prevalence of this sleep disorder within the medical profession.

MATERIALS AND METHODS

Study design: This cross-sectional study aimed to determine the prevalence of obstructive sleep apnea (OSA) among doctors using the STOP-BANG questionnaire. The study design involved the distribution of questionnaires and data collection from participating doctors.

Participants: A total of 300 doctors from various medical specialties participated in the study. The participants were recruited from different camps organized by the Department of Anatomy, where they were briefed about OSA and its potential impact on health. They were then asked to voluntarily complete the STOP-BANG questionnaire, which assesses the risk of OSA.

STOP-BANG questionnaire: The STOP-BANG questionnaire, a validated tool for screening OSA risk, was used in this study. It consists of eight questions related to snoring, tiredness, observed apnea, high blood pressure, body mass index (BMI), age, neck circumference and gender. Each question was assigned a score of 0 or 1 and the total score ranged from 0 to 8. A score of 3 or more indicated a potential risk of developing OSA.

Data collection: Data collection was carried out by distributing the STOP-BANG questionnaires to the participating doctors during the various camps conducted by the Department of Anatomy. The doctors were given an explanation about OSA and its impact on health before filling out the questionnaire. The participants were encouraged to provide accurate and honest responses to ensure the reliability of the data collected.

Data analysis: The collected data were compiled and entered into a statistical analysis software program for analysis. Descriptive statistics, including frequencies and percentages, were calculated to summarize the prevalence of OSA risk among the doctors. The number and percentage of participants scoring 3 or more on the STOP-BANG questionnaire were reported to determine the prevalence of potential OSA cases.

Ethical approval: The study obtained approval from the institutional Ethics Committee of the Indira Gandhi Institute of Medical Sciences, Patna. Ethical considerations were followed throughout the study to ensure participant confidentiality, privacy and informed consent.

RESULTS

A total of 300 doctors participated in the study and their responses to the questionnaire were analyzed to determine the risk of OSA.

Table 1: Distribution of Participants according to socio-clinical variables

Socio-clinical variables	Number of doctors	Percentage
Gender		
Female	57	19.00
Male	243	81.00
Age groups		
30-39 years	50	16.70
40-49 years	85	28.30
50-59 years	110	36.70
60-69 years	55	18.30
>70 years	0	0.00
BMI category		
Normal weight	110	36.70
Overweight	120	40.00
Obesity	70	23.30
Total	300	100.00
Specialty		
General medicine	75	25.00
Surgery	60	20.00
Pediatrics	45	15.00
Obstetrics and gynecology	30	10.00
Other specialties	90	30.00
Total	300	100.00

Table 2: Prevalence of OSA risk among doctors

Risk level	Number of participants	Percentage
Low risk (Score <3)	255	85
High risk (Score>3)	45	15

Table 3: Risk Level classification

Risk Level	Number of Doctors	Prevalence (%)
No Risk	255	85.00
Low Risk	20	6.70
Moderate Risk	15	5.00
High Risk	10	3.30
Total	300	100.00

Among the participants, there were 57 (19%) female doctors and 243 (81%) male doctors. The majority of participants were in the 50-59 years age group 110 (36.7%). Most of the participants were Overweight (40.0%), followed by normal weight (36.7%) and obese (23.3%). General medicine and surgery had the highest participation, accounting for 25.0% and 20.0% respectively (Table 1).

The STOP-BANG questionnaire consists of eight items, with a score of 3 or more indicating a risk of developing obstructive sleep apnea. Out of the 300 participants, 45 doctors scored 3 or more, suggesting a potential risk of developing OSA. So, the prevalence of OSA risk among doctors was found to be 15% based on the STOP-BANG questionnaire (Table 2).

Table 3 displays the classification of doctors into different risk levels based on their STOP-BANG scores. The majority of doctors (85.0%) showed no risk of OSA, while 6.7% were classified as low risk, 5.0% as moderate risk and 3.3% as high risk.

Table 4 displays the association between OSA risk and socio-clinical variables (gender, age, BMI and specialty) among the study participants. We found that there was OSA risk was significantly higher in overweight and obese participants as compared to normal-weight participants. (p-value <0.001). In our study, no significant association was found between OSA risk and various factors, such as gender, age and specialty.

Table 4: Association of OSA Risk with socio-clinical variables

Socio-clinical variables	Low risk	High risk	Total	p-value
Gender				
Female	52	5	57	0.144
Male	203	40	243	
Age group				
30-39 years	41	9	50	0.732
40-49 years	73	12	85	
50-59 years	92	18	110	
60-69 years	49	6	55	
BMI category				
Normal weight	104	6	110	0.0001
Overweight	105	15	120	
Obesity	46	24	70	
Specialty				
General medicine	64	11	75	0.772
Surgery	48	12	60	
Pediatrics	40	5	45	
Obstetrics and gynecology	26	4	30	
Other specialties	77	13	90	
Total	255	45	300	

DISCUSSION

The objective of this study was to examine the prevalence of obstructive sleep apnea (OSA) among doctors using the STOP-BANG questionnaire. The study involved a total of 300 doctors and their responses were analyzed to determine the risk of OSA and its association with various socio-clinical variables.

In our study, we observed that the majority of doctors were males (81%) and belonged to the age group of 50-59 years (36.7%). This distribution aligns with the demographics typically seen in research studies in the medical profession. Additionally, general medicine and surgery were the most common specialties among the participants, comprising 25% and 20% of the total sample, respectively. This distribution is reflective of the nature of the study setting and the composition of doctors in the healthcare facility. These findings suggest that doctors from various specialties are susceptible to OSA, emphasizing the need for universal screening and awareness programs. Further studies involving larger sample sizes and diverse healthcare settings could provide a more comprehensive understanding of OSA prevalence across different specialties. The body mass index (BMI) distribution among participants showed that overweight doctors accounted for 40%, followed by normal-weight doctors at 36.7% and obese doctors at 23.3%. It is crucial to address the higher prevalence of overweight and obesity among doctors, as these factors can contribute to the development and progression of OSA.

The findings of our study revealed that 15% of doctors were at risk of developing OSA based on a score of 3 or more on the STOP-BANG questionnaire. This prevalence rate is consistent with previous studies conducted among healthcare professionals[8-10]. These consistent findings across different healthcare professions indicate the universal nature of OSA risk among medical personnel. These results underscore the need for targeted screening and interventions to

identify and manage OSA among healthcare providers, ensuring their well-being and optimizing patient care.

The classification of doctors into different risk levels based on their STOP-BANG scores reveals that the majority of doctors (85%) showed no risk of OSA. However, it is important to note that even a low-risk score does not completely rule out the possibility of OSA. Regular monitoring and follow-up are necessary to identify any potential changes in symptoms and risk levels over time.

The association between OSA risk and socio-clinical variables was assessed using statistical analysis. Our results indicated a significant association between OSA risk and BMI category ($p<0.001$). Overweight and obese doctors had a higher risk of OSA compared to those with a normal weight. This finding is consistent with previous research demonstrating the strong link between obesity and OSA[11-13]. However, no significant associations were found between OSA risk and gender, age group, or specialty in our study.

LIMITATIONS

The strengths of our study include a reasonable sample size and the use of a validated questionnaire to assess OSA risk. However, several limitations should be considered. Firstly, our study was conducted in a specific healthcare setting, which may limit the generalizability of the findings to other populations. Secondly, the diagnosis of OSA was not confirmed through follow-up polysomnography, which is the gold standard for OSA diagnosis. Future studies should consider incorporating objective diagnostic measures to validate the results obtained from the questionnaire.

CONCLUSION

In conclusion, our study revealed a prevalence of 15% for OSA risk among doctors using the STOP-BANG questionnaire. The findings emphasize the importance of screening healthcare providers for OSA, particularly those who are overweight or obese. Implementing routine screening protocols in primary care settings can aid in the early identification and management of OSA, ultimately improving the overall health and well-being of doctors and enhancing patient care outcomes.

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