

BRIEF RESEARCH COMMUNICATION

Knowledge about obstructive sleep apnea among medical undergraduate students: A long way to go!

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ABSTRACT

Objective: The aim is to study the knowledge and attitude of medical undergraduate students regarding obstructive sleep apnea (OSA).

Materials and Methods: This cross-sectional study involved 324 medical undergraduate students in clinical semesters. Knowledge and attitude regarding adult OSA were assessed using the obstructive sleep apnea knowledge and attitude (OSAKA), and to evaluate the same about childhood OSA, OSAKA-KIDS was used.

Results: Results showed that the study population was not informed about OSA among adults as well as kids. Most of the participants could recognize that snoring was a common symptom of adult OSA but failed to identify the association between childhood OSA and hyperactivity. The participants had a good knowledge about the pathophysiology of OSA. More than 80% of students reported that OSA is an important disorder and that these patients should be identified.

Conclusion: Medical undergraduates are poorly informed about OSA.

Key words: Attitudes, knowledge, obstructive sleep apnea

INTRODUCTION


Sleep disorders are prevalent and are seen across all age groups. These disorders vary in clinical presentation and pathophysiology. However, all of them are known to disrupt sleep and have adverse consequences on health, functioning, and quality of life. For example, obstructive sleep apnea (OSA), which has a prevalence of 9.3% among adults and 7.5% among children, has been found to be a risk

factor for metabolic syndrome, diabetes mellitus, coronary artery disease, stroke, and cognitive impairment.^[1-3] Interestingly, treatment of OSA has been found to improve sleep, mood, cognition, glycemic control, and blood pressure.^[4-7]

Direct and indirect costs of untreated sleep disorders are huge and result from the disease itself, comorbid illness, work absenteeism, accidents related to sleep disorders, and reduced productivity.^[8] Despite such adverse health consequences and economic impact, awareness regarding these common sleep disorders among physicians is limited.^[9-16] Previous studies have assessed knowledge,

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attitude, and practice related to OSA among dentists,^[9] physicians,^[11] dental-hygienist, and^[17] anesthetists.^[18] These studies have reported that most of the medical students lacked knowledge important to diagnose and manage OSA among adults as well as kids.

Earlier studies have assessed knowledge and attitude regarding OSA among health professionals using validated tools-obstructive sleep apnea knowledge and attitude (OSAKA) and OSAKA-KIDS.^[19,20] These studies have included practicing health professionals and specialists, but only three studies have evaluated it among medical students.^[21-23]

The prevalence of OSA in the Indian population is much higher than other psychiatric disorders such as depression and anxiety, which have found a place in the curriculum for Indian Medical Graduates.^[24-27] Despite these facts, common sleep disorders are not included in the latest curriculum for Indian Medical Graduate.^[24-26] Further, as discussed above, OSA is associated with a number of negative health outcomes, including the metabolic, cardiovascular, decline in quality of life, and at times either mitigate or pave the way for psychiatric disorders.^[1-3,28] Timely recognition and optimal management of OSA can improve these health conditions and also prevent negative health effects.^[4-7] Hence, authors feel that the inclusion of sleep medicine topics in the medical undergraduate curriculum will be instrumental in providing help to a large chunk of patients suffering from these disorders.^[21]

Considering all these issues, the present study is aimed at assessing knowledge, attitude, and practice related to OSA (adults and kids). These disorders are missing from the recently revised curriculum by the Medical Council of India in both knowledge as well as skill domains.^[24-26]

MATERIALS AND METHODS

This study was done among final year medical graduates who were studying clinical subjects such as general medicine and otorhinolaryngology in addition to psychiatry. The sample size was not calculated, and study involved all students that were present in the class. The use of any material that could provide help in responding to items (books or mobile phone) was barred. Approval from the Institutional Ethics Committee was obtained. All students of clinical semesters were invited to participate in this study after explaining the rationale. Students were given questionnaires in their classrooms without having prior knowledge about the content of the questionnaire and, were requested to mark the most appropriate responses on each of the questionnaires. It was explained beforehand that responses on these questionnaires would not be included in their regular academic assessment. For assessing knowledge related to OSA, standardized questionnaires-OSAKA^[19] and OSAKA-Kids^[20] were used after obtaining permission.

Obstructive sleep apnea knowledge and attitude assessment:

OSAKA questionnaire contains 18 items that are scored as “yes, no” or “don’t know.” “Don’t know” is also considered as an incorrect response.^[19] These items gather information regarding epidemiology, pathophysiology, clinical presentation, diagnosis, and the management of OSA. In addition, it contains five other statements that assess the importance and ability to diagnose OSA. These items are scored on a five-point Likert’s scale. This has an internal consistency of 0.76.

Obstructive sleep apnea knowledge and attitude-KIDS

OSAKA-KIDS is a 23 - questionnaire that has been developed to assess physician’s knowledge related to childhood OSA syndrome.^[20] Similar to OSAKA, it has 18 items assessing knowledge, i.e., epidemiology, pathophysiology, clinical picture, diagnosis, and complications of pediatric OSA. These are scored as “yes, no” or “don’t know.” Similar to OSAKA, “don’t know” is considered an incorrect response. In addition, it contains five other statements that assess the importance and ability to diagnose OSA. These items are scored on a five-point Likert’s scale.

Statistical analysis

The analysis was done using SPSS version 23 (IBM Corp. Released 2015. IBM SPSS Statistics for Windows, version 23.0. Armonk, NY, USA: IBM Corp.) The frequency of each response on items of questionnaires was calculated. The proportion of subjects who provided correct responses was also calculated for various items of three questionnaires that were also computed. Chi-square test was used to calculate the significance of probability for categorical variables.

RESULTS

This study included a total of 324 medical students in the final year (clinical semesters) of undergraduate course (MBBS) in three institutes. Six students chose not to take part in this study. The mean age of students was 23.1 ± 2.6 years.

On the attitude items of OSAKA, 85.08% of students responded that OSA is important to extremely important as a clinical disorder, and 90.74% reported that identifying patients with possible OSA was important to extremely important. 22.53% of students were confident in identifying patients with OSA, 15.74% felt that they could manage patients with OSA, and 16.66% were confident that they could institute continuous positive airway pressure (CPAP) therapy. Interestingly, students considered OSA during childhood to be as important as adult OSA. 81.17% considered OSA among kids as important to extremely important disorder, 82.09% felt that identifying children with OSA was important to extremely important. 18.82% felt confident in identifying children with OSA, 16.66% opined that they could manage childhood OSA, and 17.90% responded that they could

manage CPAP therapy among children with OSA. Responses to individual items are shown in Tables 1 and 2.

DISCUSSION

This study showed that knowledge related to OSA [Tables 1 and 2] was limited among medical students, particularly regarding pathophysiology, risk factors, and management. Despite having limited knowledge, most of the students felt that OSA is an important disorder, and these patients should be identified.

Most of the students in the present study recognized that snoring was an important symptom for adult OSA; that polysomnography was required for diagnosis and that

craniofacial examination is important in these patients. Results of the present study corroborate with that of the previous studies from similar geographic regions, such as Ecuador and Nigeria.^[21-23] All the studies have shown that students have adequate knowledge regarding the pathophysiology of adult OSA; however, most of them were incorrect about the role of CPAP and uvulopalatoplasty in the treatment of OSA.^[21,22] Considering the prevalence and burden of OSA, medical graduates should be given training regarding basic principles of management of the same.

Students in a previous study appeared to have better knowledge about OSA among children, especially the role of adenotonsillar hypertrophy, role of muscle tone, and need for craniofacial examination, findings similar to which are

Table 1: Response to individual items on obstructive sleep apnea knowledge and attitude (n=324)

Item	Response			Correct response (%)
	Yes	No	Don't know	
Female present with fatigue	189	44	91	189 (58.33)
Uvulopalatoplasty is curative	166	50	108	50 (15.43)
OSA prevalence 2%-10%	109	52	163	109 (33.64)
OSA are snorers	237	45	42	237 (73.14)
OSA associated with HTN	150	55	119	150 (46.29)
PSG diagnoses OSA	208	49	67	208 (64.19)
CPAP causes nasal stuffiness	115	64	135	115 (35.49)
Laser-assisted uvulopalatoplasty	149	41	134	149 (45.98)
Loss of pharyngeal muscle tone causes OSA	189	55	80	189 (58.33)
Adenoid tonsil enlargement causes OSA in children	211	46	67	211 (65.12)
Craniofacial exam important in OSA	208	33	83	208 (64.19)
Alcohol improves OSA	51	156	117	156 (48.14)
OSA associated with accidents	182	45	97	182 (56.17)
Collar size >17 in OSA	90	54	180	90 (27.77)
OSA commoner in females	113	89	122	89 (34.87)
CPAP is first line therapy	135	54	135	135 (41.66)
AHI <5 is normal	80	109	135	80 (24.69)
OSA may cause arrhythmias	159	24	141	159 (49.07)

OSA – Obstructive sleep apnea; PSG – Polysomnography; HTN – Hypertension; CPAP – Continuous positive airway pressure; AHI – Apnea-hypopnea index

Table 2: Response to individual items on obstructive sleep apnea knowledge and attitude-KIDS (n=324)

Items	Responses			Correct response (%)
	Yes	No	Don't know	
Children with (OSA) may be hyperactive	172	53	99	172 (53.08)
10% of children snore	244	60	20	244 (75.30)
2% children have OSA	252	61	11	252 (77.77)
OSA in children may cause pulmonary hypertension	231	40	53	231 (71.29)
PSG is needed to differentiate primary snoring from OSA	268	30	26	268 (82.71)
Degree of snoring correlates with severity of OSA	102	141	81	141 (43.51)
Loss of upper airway muscle tone contributes to OSA	232	72	20	232 (71.60)
Adenotonsillar hypertrophy causes OSA	263	30	31	263 (81.17)
head and neck and oropharyngeal examination is required	251	42	31	251 (77.46)
OSA may cause learning defects	236	67	21	236 (72.83)
Snoring is most frequently reported at ages 2-8 years	169	106	49	106 (32.71)
Cardiac arrhythmias may be associated with untreated OSA	201	101	22	201 (62.03)
Sickle cell disease increases risk of OSA	143	100	81	143 (44.13)
PSG required before surgery for presumed OSA	218	96	10	218 (67.28)
OSA can occur without snoring	231	67	26	231 (71.29)
Failure to thrive is a frequent complication of OSA	221	51	52	221 (68.20)
Transient worsening of respiratory symptoms following adenotonsillar surgery	223	40	61	223 (68.82)
Cardiorespiratory monitor can reliably detect OSA and CSA	202	104	18	104 (32.09)

OSA – Obstructive sleep apnea; PSG – Polysomnography; CSA – Central sleep apnea

seen in the present study as well.^[21] In addition, students in the present study seemed to have better knowledge about the role of polysomnography in the diagnosis of childhood OSA. However, students in both the studies were unaware of hyperactivity as a symptom of OSA among children. This is an important issue as a meta-analysis suggested that the attention-deficit-hyperactivity-disorder (ADHD) symptoms may be causally associated with OSA.^[29] Interestingly, in this analysis, studies of either type were included-those that assessed ADHD among children with OSA as well as those evaluating OSA among children with ADHD.^[29] Further, it was concluded that children with ADHD should be screened for OSA and be treated before starting medications for ADHD.^[29]

All previous studies have argued that information regarding OSA should be included in the medical undergraduate curriculum.^[21,22] However, sleep medicine is not considered as important in the undergraduate curriculum by nearly half of the medical teachers in India.^[30] This could be one reason why this has not been included in the medical curriculum till now.^[30] The situation is not different across countries and even the most developed countries designate nearly 3 h to sleep medicine topics during undergraduate medical teaching.^[31] Situation in the residency program is also not better, and it has been found that in the pediatric residency program, only 4.4 h are dedicated to sleep medicine.^[32] This should be seen with the background that most of the medical students in the present study responded that OSA is an important medical condition and that identifying these patients is important, corroborating with the results of earlier studies.^[21,23]

Results of the present study are important in the context of patients with OSA being seen and often missed in clinics such as psychiatry, neurology, cardiology, internal medicine, surgery, endocrinology and anesthesia because of comorbidities.^[33-35] In addition, similar to Goyal *et al.*,^[21] we also opine that considering the high prevalence of sleep disorders, at least the medical colleges must be equipped with sleep-laboratory and at least one faculty in each medical college should opt for sleep medicine.

Like any other scientific study, this study also had some methodological limitations. First, the study was cross-sectional. Results are likely to change after the study participants gather information regarding these disorders. Second, results show the present situation in three institutions and may not be applicable to other institutes where module for sleep medicine has already been included in the medical undergraduate curriculum.

CONCLUSION

The present study suggested that undergraduate students in clinical semesters have inadequate information regarding OSA.

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Conflicts of interest

There are no conflicts of interest.

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