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# ASSESSMENT OF KNOWLEDGE AND ATTITUDES REGARDING OBSTRUCTIVE SLEEP APNEA AMONG INTERNS, RESIDENTS AND MEDICAL DOCTORS OF KATHMANDU MEDIAL COLLEGE

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## ABSTRACT

**Background**: Obstructive sleep apnea (OSA) is a global health problem observed mostly among children and adults resulting in poor quality of life and increased cost of health care. Medical doctors should be familiar with OSA and be able to screen, diagnose and manage this condition. This study was aimed to assess the knowledge and attitudes regarding Obstructive Sleep Apnea among interns, residents and medical doctors of Kathmandu Medial College.

**Methods:** A descriptive cross-sectional study was conducted among interns, residents and medical doctors of Kathmandu Medial College. The study was conducted from September 2021 to October 2021.The previously validated Obstructive Sleep Apnea Knowledge and Attitudes (OSAKA) questionnaire was administered to the participants. The data obtained from the study was analyzed using descriptive statistics with SPSS 21.

**Results:** Among the study respondents, females comprised of 105 (55 %) and rest were males. Almost 178 (93.2%) of participants were aware of snoring habits of majority of OSA patients, while 173 (90.6%) of respondents knew that the large tonsils and adenoids was the most common cause of OSA in children. Majority of the respondents agreed on OSA as a clinical disorder and that it was important to be able to identify patients with possible OSA. More than half of the respondents felt confident to identify patients at risk for OSA.

**Conclusions:** This study showed that the participants lack adequate knowledge. However, they agreed that OSA is a clinical disorder. They need to update the knowledge about OSA. There is also a need of special training programs on OSA.

## INTRODUCTION

Obstructive sleep apnea is one of the most common sleep disordered breathing (SDB) which is caused by repetitive partial or complete collapse of upper airway. This leads to reduced airflow or complete airflow cessation along with oxygen desaturation and arousals from sleep.[1] It is a growing public health challenge that is subjected to a lot of risk factors such as male gender, age, obesity, family history and habits. Studies have shown its association with cardiovascular disease, metabolic syndrome, obesity and gastroesophageal influx.[2-4] The people with OSA have increased day time sleepiness which have also paved way for risk for motor vehicle accidents, poor quality of life.[2,5,6] OSA is diagnosed in patients with patient history, clinical examination. In addition to this morphometric analysis is also utilized. Polysomnography is also done for definite diagnosis.[3,7-11]

It was observed that in four university teaching hospitals, final year medical students and junior doctors had limited knowledge about the OSA diagnosis and management.[12] Wadhwa et al also reported poor knowledge among medical undergraduates about OSA.[13] Another recent study done in Nigeria also documented poor knowledge of OSA among medical doctors.[14] The burden of OSA is huge and its impact in daily quality of life is miserable.

Despite modern age with lot of advancement in medical science, majority of patients remain undiagnosed and untreated. With time doctors should be trained and update their knowledge and information in order to treat such patients. It is also useful to explore the current knowledge and attitude of doctors regarding OSA. Only few studies have been conducted related to OSA but study using OSAKA questionnaire has not been performed in Nepal. Hence this study aimed at assessing the knowledge and attitude of OSA of interns, residents and medical doctors of Kathmandu Medial College.

## METHODS

A descriptive cross-sectional study was designed and conducted among the interns, residents and medical doctors of Kathmandu Medial College. The study was conducted from September 2021 to October 2021

Based on the study of Wang et al,[15] taking p = 62 % =0.62, q =

(1 – p) = (1 – .62) = 0.38, d = allowable error which is kept at 7% and Z at 95% confidence interval, and using formula $N = Z^2pq/d^2$, the sample size was obtained as 184.633. However, in the study 190 participants were included. Convenience sampling was used to collect the data. Participants were interns, residents and medical doctors of Kathmandu Medial College.

Before starting the study, the study objectives were explained to the participants. In this study, a pre-validated, OSA knowledge and attitude (OSAKA) questionnaire was used.[16] There were four parts of the study. The first part dealt with the sociodemographic details, the second part was related to knowledge of OSA. There were in total 18 questions in this second part with 3 options 'True', 'False' and 'Don't know'. The third part was related to attitude consisting of only 2 questions with five-point scale ranging from 1 (not important) to 5 (extremely important). The last part of the questionnaire was related to confidence score which also hsd five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

The questionnaire was created on google form and was sent to the all the interns, residents and medical doctors of Kathmandu Medial College. through online media such as Viber, Facebook messenger, what's app. Consent was taken from each participant prior to the study initiation. The participants could access the questionnaire only after providing electronic consent. Confidentiality of information was assured to the participants. The ethical clearance to conduct the study was obtained from Institutional review Committee of Kathmandu Medial College (IRC NO: 2107202102).

Data was collected, compiled and subjected to statistical analysis using SPSS Software Version 21 using descriptive statistics. The knowledge, attitude and confidence score were calculated as median, interquartile ranges (IQR), frequency and percentages.

## RESULTS

In this study majority of participants were females 105 (55 %) while males were 86 (45%). Among them 117 (61.3 %) were interns. Almost all the participants 188 (98.4%) were of age group 21-30 years (Table 1).

**Table 1: Demographic parameters of study participants)**

| Variables | | Frequency (%) |
|---|---|---|
| Gender | Male | 86 (45) |
| | Female | 105 (55) |
| Level of participants | Intern | 117 (61.3) |
| | Medical officer | 33 (17.3) |
| | Resident | 41 (21.5) |
| Age groups | 21-30 years | 188 (98.4) |
| | 31-40 years | 3 (1.6) |

Table 2 depicts positive response given by the respondents. Regarding the knowledge questions, 178 (93.2%) of participants were aware of snoring habits of majority of OSA patients, while 173 (90.6%) of respondents knew that the large tonsils and adenoids was the most common cause of OSA in children. Few of the questions were scored less such as uvulopalatopharyngoplasty not being curative for majority of patients with OSA 7 (3.7%), laser-assisted uvuloplasty not being treatment for severe OSA 26 (13.6%) (Table 2).

**Table 2: OSAKA questionnaire responses**

| Knowledge Questions | Positive response Frequency (%) |
|---|---|
| Women with OSA may present with fatigue alone. (True) | 121 (63.4) |
| Uvulopalatopharyngoplasty is curative for the majority of patients with OSA. (False) | 7 (3.7) |
| The estimated prevalence of OSA among adults is between 2 and 10%. (True) | 70 (36.6) |
| The majority of patients with OSA snore. (True) | 178 (93.2) |
| OSA is associated with hypertension. (True) | 117 (61.3) |
| An overnight sleep study is the gold standard for diagnosing OSA. (True) | 137 (71.7) |
| CPAP (continuous positive airway pressure) therapy may cause nasal congestion. (True) | 78 (40.8) |
| Laser-assisted uvuloplasty is an appropriate treatment for severe OSA. (False) | 26 (13.6) |
| The loss of upper airway muscle tone during sleep contributes to OSA. (True) | 143 (74.9) |
| The most common cause of OSA in children is the presence of large tonsils and adenoids. (True) | 173 (90.6) |
| A craniofacial and oropharyngeal examination is useful in the assessment of patients with suspected OSA. (True) | 152 (79.6) |
| Alcohol at bedtime improves OSA. (False) | 158 (82.7) |
| Untreated OSA is associated with a higher incidence of automobile crashes. (True) | 99 (51.8) |
| In men, a collar size 17 in. or greater is associated with OSA. (True) | 68 (35.6) |
| OSA is more common in women than in men. (False) | 64 (33.5) |
| CPAP is the first line therapy for severe OSA. (True) | 77 (40.3) |
| Less than 5 apneas or hypopneas per hours is normal in adults. (True) | 79 (41.4) |
| Cardiac arrhythmias may be associated with untreated OSA. (True) | 115 (60.2) |

Majority of the respondents reported OSA as a clinical disorder and that it was important to be able to identify patients with possible OSA. More than half of the respondents felt confident to identify patients at risk for OSA (Table 3).

**Table 3: Response to the attitude and confidence questions**

| Attitude and confidence questions | Median | IQR |
|---|---|---|
| **Attitude questions** | | |
| As a clinical disorder, OSA is | 4 | 3-4 |
| Identifying patients with possible OSA is | 4 | 3-4 |
| **Confidence questions** | | |
| I feel confident identifying patients at-risk for OSA | 3 | 2-4 |
| I am confident in my ability to manage patients with OSA | 2 | 2-3 |
| I am confident in my ability to manage patients on CPAP therapy | 2 | 2-3 |

The mean knowledge score for all the respondents was 9.75±3.72, while the median total attitude score for the two questions was 7 (6-8) and the total confidence score was 8 (6-10) (Table 4).

**Table 4: Total scoring of knowledge, attitude and confidence of respondents**

| | |
|---|---|
| Mean total knowledge score | 9.75±3.72 |
| Median total attitude score | 7 (6-8) |
| Median total confidence score | 8 (6-10) |

## DISCUSSION

Many factors such as gender, race, ethnicity, obesity is blamed to increase the prevalence of OSA.[10,17] Ultimately the patients will have to compromise with the quality of life and the end result is increase in mortality. Due to this increased prevalence there is also need of trained medical personals for the identification and treatment of such patients. OSAKA questionnaire was developed to measure physician's knowledge and attitude about OSA. It also aimed to observe the confidence of physicians to identify and manage patient with OSA.[16] This study also used OSAKA questionnaire to access knowledge, attitude of interns, medical officers and residents.

Studies performed to assess the knowledge of OSA among medical professionals using OSAKA questionnaire have obtained variable results revealing the gap in the knowledge and awareness regarding OSA.[12-14] Experienced doctors and specialists have yielded higher score while interns, recent graduates and medical students have got lower score.[12,15,18] In the present study, the respondents obtained mean total knowledge of 9.75 out of 18. Ozoh et al in their study obtained knowledge score of 7.6 which was lower than our study.[18] However, using the same tool, Solanki et al obtained mean knowledge score of 12.01 out of 18.[19] In a similar study Corso et al, also reported lack of knowledge.[20] The lower scores thus obtained may be due to less exposure and experience.[19]

Majority of the questions yielded less than 50% positive response in this study. Questions related to uvulopalatopharyngoplasty not being curative to patients with OSA, prevalence of OSA, CPAP therapy, laser assisted uvuloplasty, collar size, gender association for OSA obtained less than 50 % response. This also revealed the paucity of information among the respondents regarding OSA and hence the information should be upgraded in medical academic curriculum.[21] Similar to the present study, respondents from Nigeria and Kenya were also unaware of the gender association with OSA.[22] The same study participants were unaware about CPAP as first line of treatment therapy in OSA.[22] In this study more than 50 % of the respondents did not know CPAP cause nasal congestion. This was similar to the study performed by Corso et al.[20]

Majority of the respondents have day time sleepiness due to which there is more chances of vehicular accidents.[2,3] More than 50 % of the respondents were unaware about it. This was in line with other studies where more than half of the participants did not give positive response.[18,23,24]

Snoring is regarded as a cardinal sign of OSA. However, all the snorers may not be necessarily having OSA.[25] Majority of the study participants of the present study agreed that most of the OSA patients snore.

OSA has shown to be associated with cardiovascular disease.[26] It is considered as a risk factor for hypertension and other cardiovascular diseases such as stroke, coronary artery disease and heart failure.[3,8] Kario et al showed the association of increased blood pressure in about 50% of OSA patients.[27] More than half of the participants knew the relationship between hypertension and OSA. This was similar to the study reported by Embarak et al.[28] In contrast to the present study and study reported by Embarak et al, another study from Pakistan showed that 45% of physicians were unaware of association of OSA and cardiovascular disease.[29]

Polysomnography is considered as gold standard for the diagnosis of OSA. Nearly three-fourth of the respondents agreed on it. Similar findings was also reported by Embarak et al.[28] However, respondents from Pakistan were in support of clinical history for the diagnosis of OSA instead of polysomnography.[29]

The study also has limitations. The first limitation is that it has been conducted among the interns, medical officers and residents of Kathmandu Medial College, so the results cannot be generalized. The small sample size and convenience sampling

was another limitation. Information bias and response bias were also additional limitation though the authors had tried to limit the information bias by making participant anonymous and maintaining the confidentiality.

## CONCLUSION

This study showed that the participants lack adequate knowledge. However, most of them accepted that OSA is a clinical disorder and such patients have to be identified. With time there is need of updating the knowledge about OSA. Collectively, it is important to develop special training programs on OSA which will help to increase the knowledge and boost the confidence.

**CONFLICT OF INTEREST:** None

**FINANCIAL DISCLOSURE:** None

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