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Assessment of Nutritional Status, Dietary Intake, Sleep and Stress Profile of Adults (23-50 Years) as Risk Factors of Obstructive Sleep Apnea (With Special Reference to Etah City, Uttar Pradesh)

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Abstract: ***Background: Obstructive Sleep Apnea (OSA) is a common sleep-related breathing disorder influenced by nutritional status, dietary intake, obesity, sleep quality, and stress. Objectives: The present study aimed to assess nutritional status, dietary intake, sleep profile, and stress levels among adults aged 23–50 years and evaluate their association with OSA risk. Methods: A descriptive cross-sectional study was conducted among 90 adults (45 males and 45 females) residing in Etah City, Uttar Pradesh. Anthropometric measurements, 24-hour dietary recall, Berlin Sleep Questionnaire, and Perceived Stress Scale were used. Results: Central obesity was observed in 52.2% participants. Significant associations were found between age and nutritional status (p<0.0001) and gender and OSA risk (p=0.048). Mean energy intake was 1826.6±417.4 kcal/day. Moderate stress was prevalent in 96.7% participants. Conclusion: Nutritional imbalance, central obesity, and lifestyle factors significantly contribute to OSA risk. Lifestyle-based preventive strategies are essential.***

Keywords: Obstructive Sleep Apnea; Nutritional Status; Dietary Intake; Sleep Profile; Stress Profile

1. Introduction

Obstructive Sleep Apnea (OSA) is characterized by recurrent episodes of partial or complete upper airway obstruction during sleep, resulting in intermittent hypoxia and sleep fragmentation. OSA is closely associated with obesity, cardiovascular diseases, metabolic disorders, and impaired quality of life. Rapid urbanization, sedentary lifestyle, poor dietary habits, and psychosocial stress have contributed to increasing OSA prevalence among Indian adults. Central obesity is considered the strongest predictor of OSA, while diet quality, sleep hygiene, and stress play important contributory roles. This study explores the combined influence of nutritional status, dietary intake, sleep, and stress among adults in Etah City, Uttar Pradesh.

2. Materials and Methods

a) **Study Design and Setting:** A descriptive cross-sectional study was conducted in Etah City, Uttar Pradesh.
b) **Sample Size and Sampling Technique:** A total of 90 adults aged 23–50 years were selected using stratified random sampling based on age group and gender.
c) **Data Collection Tools:** Anthropometric measurements included height, weight, BMI, waist circumference, and waist-to-height ratio. Dietary intake was assessed using a 24-hour dietary recall. Sleep profile was evaluated using the Berlin Sleep Questionnaire, and stress levels were assessed using the Perceived Stress Scale.
d) **Statistical Analysis:** Data were analyzed using descriptive statistics and chi-square tests to assess associations. A p-value <0.05 was considered statistically significant.

3. Results

The study population comprised equal numbers of males and females with equal representation across age groups. Based on BMI classification, 56.7% participants had normal BMI, while 28.9% were overweight and 14.4% obese. Central obesity was present in 52.2% subjects. A significant association was observed between age group and nutritional status (p<0.0001).

Mean energy intake was 1826.6±417.4 kcal/day, with carbohydrates contributing 55.8%, proteins 15.6%, and fats 28.6% of total energy. Intake of fruits, vegetables, calcium, and iron was below recommended levels in many participants.

Based on the Berlin Sleep Questionnaire, 41.1% participants were at high risk of OSA. Male gender was significantly associated with higher OSA risk (p=0.048).

Stress assessment revealed that 96.7% participants experienced moderate stress.

4. Discussion

The findings highlight the strong association between central obesity and OSA risk, consistent with existing literature. Inadequate dietary intake, poor diet quality, and sedentary lifestyle further increased vulnerability. Although stress levels were predominantly moderate, chronic stress may indirectly influence sleep quality and metabolic health. Gender differences in OSA risk may be explained by differences in fat distribution and airway anatomy. Lifestyle-based interventions focusing on nutrition education, weight management, and stress reduction may significantly reduce OSA burden.

5. Conclusion

The study demonstrates that nutritional status, dietary intake, sleep quality, and stress are interrelated risk factors for obstructive sleep apnea. Early identification of modifiable lifestyle factors and implementation of preventive strategies focusing on balanced nutrition, physical activity, and sleep hygiene are crucial for reducing OSA risk among adults.

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