

A Study to Assess the Effectiveness of Oropharyngeal Muscle Exercise in Improving Sleep Patterns Among Adults Experiencing Sleep Disturbances in Selected Community Area at Durg District (C.G.)

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ABSTRACT

Oropharyngeal muscle exercises (OME) strengthen the tongue, throat, and soft palate, helping keep the airway open during sleep. Regular practice reduces snoring and improves sleep quality. Adequate sleep is essential for physical, mental, and emotional health. Sleep disturbances are common worldwide, with insomnia affecting 10–30% of people and OSA impacting millions of adults. main objective of the study to assess the effectiveness of OME on sleep patterns (pre- and post-intervention). Study was Quantitative, pre-experimental one-group pretest–posttest design, sample size was 45 adults (45–60 years) selected by purposive sampling from Kachandur and Kurud, Durg District. Data collected by use of tools one was socio-demographic Performa, standardized tool, 28-item Sleep Quality Index. result of the study was in pre-test: 71.11% very poor sleep, 28.89% poor sleep after 15 days intervention post- test was 84.44% good sleeps, 11.11% very good sleep. Paired t-test showed significant improvement ($t = 4.88, p < 0.05$). Significant association with weight, habits, and non-communicable diseases; no association with age, gender, education, occupation, income, height, marital status, or communicable diseases. researcher concluded the study Oropharyngeal muscle exercises are a simple, non-invasive, and effective method to improve sleep quality among adults with sleep disturbances. researcher recommended that study can conduct in larger samples and in different settings.

KEYWORDS: Oropharyngeal Muscle Exercise (OME), Sleep Quality Index (SQI), Obstructive sleep apnea (OSA), Pittsburg Sleep Quality Index (PSQI), Sleep Apnea, Epworth sleepiness scale (WSS).

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BACKGROUND OF THE STUDY

Sleep is important for our body. Even though we are not awake, our brain and body keep working to give us energy, help us grow, and keep us healthy. Without enough good sleep, we can feel tired and it can affect our health, mood, thinking, and daily activities. According to National Sleep Foundation most adults need about 7–9 hours of good sleep each night. A steady sleep schedule also helps improve sleep quality. However, many people don't get enough rest. About one-third of adults sleep less than they should, and only around **30%** of teens get eight hours of sleep on school nights. Not getting enough sleep can

hurt learning, focus, and overall health. Sleep is a basic need that keeps our body and mind healthy. Having a steady sleep routine helps the brain work well, supports mood, strengthens immunity, and improves overall health. Symptoms of obstructive sleep apnea (OSAS) such as loud snoring, choking or gasping during sleep, morning headaches, trouble staying asleep, frequent nighttime urination, and daytime sleepiness may not always be caused by OSAS alone. These signs can also appear due to common snoring combined with tiredness from poor lifestyle habits or other health conditions that disturb sleep (McNicholas, 2008).

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Snoring is the noise that happens when your breathing is partly blocked during sleep. Snoring is very common and happens more often in older adults and people who are overweight. When snoring is severe, it can interrupt sleep, cause frequent awakenings, and lead to daytime tiredness. It may also disturb others nearby. In some cases, snoring can be a sign of sleep apnea, especially if you wake up feeling unrefreshed or suddenly gasp or choke during sleep.

A 2024 Local Circles survey reports that India is the world's second most sleep-deprived nation. Before the pandemic, people slept for about 7 hours on average. Between **33%** and **50%** of adults deal with some form of insomnia. Another 2024 survey found that **61%** of Indians sleep less than six uninterrupted hours each night. The most common cause of disturbed sleep is frequent nighttime **urination (72%)**, followed by irregular daily routines and mobile phone use. Local information on sleep issues in Chhattisgarh and Durg is limited, but a few studies offer insight. In 2020 International Journal of Nursing Education and Research, at AIIMS Raipur showed that **53.04%** of security guards suffer from shift-work sleep disorder, suggesting their schedules affect their rest. A Bilaspur study found that while most people (**70.75%**) know sleep is important, only **25%** understand healthy sleep habits and sleep stages. Another study from Rajnandgaon reported that **41.4%** of medical students experience poor sleep quality.

Need of the study

Worldwide Prevalence of a study published in the journal Sleep estimated that approximately **31.4%** of males and **41.8%** of females worldwide experience sleep disturbances (American Academy of Sleep Medicine, 2015). The International Classification of Sleep Disorders (ICSD-3) reports that sleep disorders affect approximately **10-30%** of the general population worldwide (American Academy of Sleep Medicine, 2014). India Prevalence of a study published in the Indian Journal of Psychiatry estimated that approximately **23.6%** of males and **30.4%** of females in India experience sleep disturbances (Gupta et al., 2016). Another study published in the Journal of Clinical and Diagnostic Research reported that sleep disorders affect approximately **20-40%** of the Indian population (Kumar et al., 2018). Chhattisgarh Prevalence of the District Health Survey (2019) reported that approximately **25.9%** of males and **33.5%** of females in Chhattisgarh experience sleep disturbances. A study published in the Journal of Family Medicine and Primary Care reported that sleep disorders affect approximately **25-35%** of the population in Chhattisgarh (Singh et al., 2020).

REVIEW OF LITERATURE

SIMPONG, D. L., ET AL. (JUNE 2025), A study to evaluate sleep quality among university students by assessing

differences in key sleep parameters between sex and age groups. A cross-sectional quantitative study was conducted at the University of Cape Coast, Ghana, to evaluate sleep quality among 295 undergraduate students (aged 20–29 years) using the Pittsburgh Sleep Quality Index (PSQI). A purposive sampling technique was applied, and data were collected through a self-administered structured questionnaire. Descriptive and inferential statistics were used for analysis. Results showed that nearly half of the students experienced poor sleep quality, with differences noted across age and gender. Universities should implement awareness and wellness programs to educate students on healthy sleep practices. The study concluded that sleep duration and disturbances are key factors influencing overall sleep quality among university students. No intervention was applied since it was an observational cross-sectional study. In this present study oropharyngeal muscle exercises was applied to improve the sleep quality.

Objectives

1. To evaluate the effectiveness of oropharyngeal muscle exercises in improving sleep pattern pre-intervention among adults experiencing sleep disturbances in selected community area at Durg District.
2. To find out the association between pre-interventional sleeping patterns among adults experiencing sleep disturbances and selected demographic variables.

MATERIAL AND METHOD

The study adopted a quantitative evaluative research approach using a pre-experimental one-group pretest–posttest design to assess the effectiveness of Oropharyngeal Muscle Exercise (OME) on sleep quality. The target population consisted of adults from selected community areas, while the accessible population included those experiencing sleep disturbances. The study was conducted in the rural area of Kachandur and the urban area of Kurud in Durg District (C.G.). A non-probability purposive sampling technique was used to select a sample of 45 adults aged 45–60 years. The inclusion criteria included adults aged 45–60 years with sleep disturbances and those willing to participate, whereas the exclusion criteria consisted of adults with severe sleep disturbances or those undergoing sleep-related treatment. The dependent variable improving of sleeping pattern among adults and independent variable was the Oropharyngeal Muscle Exercise (OME), and data were collected using an interview schedule comprising Section A: socio-demographic variables (11 items) and Section B: a standardized Sleep Quality Index (SQI) tool (28 items). The collected data were analyzed adopted descriptive and inferential statistics such as mean, standard deviation, and paired t-test,

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and the findings were systematically presented in the research report.

Inclusion Criteria:

Adults age 45-60 years with sleep disturbance, Selected community area at Kachandur and Kurud of Durg District, Willing to participate, Those who known Hindi and Chhattisgarhi language.

Exclusion Criteria

Adult those were having severe sleep disturbances, any oral surgery/Lungs surgery and cardiac surgery and diseases, Dental surgery, Undergoing sleep related treatment.

Study Procedure: A standardized Sleep quality Index tool was administered to assess the sleeping pattern of adults. written individual consent obtained and pre-test done duration was 15 minutes. after pre-test started intervention each person took 20 minutes times initially after 3-4 days took time 15 minutes, total intervention duration was 15 days and post test conducted. theses are the steps of exercises. The participants were divided into groups, with 5–6 participants in each group. The sessions were conducted in the morning for 1–2 hours and in the evening for 1–2 hours, six days a week.

General instruction: - Before exercise do hand washing and use clean cloth.

1. Tongue Exercise 1: Tongue Slide (2 minutes):-
Place your tongue behind your upper front teeth and slide it back along the roof of your mouth 5–10 time.
2. Tongue Exercise 2: Tongue Stretch (2 minutes):-
Stick out your tongue, try to reach your chin while looking up, hold for 10–15 seconds, and repeat 5 times.
3. Tongue Exercise 3: Tongue Push Up (2 minutes):-
Press your tongue firmly against the roof of your mouth, hold for 10 seconds, and repeat 5 times.
4. Tongue Exercise 4: Tongue Push Down(2 minutes)
Place your tongue tip against your lower front teeth, press the back of your tongue flat on the mouth floor, hold for 10 seconds, and repeat 5 times.
5. Face Exercise 1: Cheek Hook (2 minutes): -
Gently pull your cheek outward with a hooked finger, then use your muscles to pull it back in; repeat 10 times on each side.
6. Face Exercise 2: Jaw Stretch (2 minutes.): -

Purse your lips tightly, then open your mouth to relax your jaw and lips; repeat 10 times.

Outcome measures and data analysis: the primary outcome was improvement of sleep quality of adults. Data were analyzed by descriptive and inferential statistics using IBM SPSS (version 25.0), chi-square test and paired t-test uses before and after intervention. A p value < 0.05 was considered statistically significant.

RESULT

Study included 45 adult population those were having sleeping problems. The results are presented under various domain, including demographic characteristics and sleep quality index. Table 1, 2 & 3.

DISCUSSION

The results revealed that the pre-test and post-test level of sleep quality majority 71.11% of adults had very poor sleep, 28.89% of adults had poor sleep, 0% had good sleep and 0% had very good sleep-in pre-test but in the post-test majority 0% had very poor sleep, 4.44% had poor sleep, 84.44% had good sleep and 11.11% had very good sleep. It shows that comparison of mean pre-test and post-test sleep quality level on sleep disturbances. The post-test standard deviation score (6.25) was high when compared to the pre-test score (5.28). the obtained 't' value (4.88) was greater than table value at 0.05 level of significant, which shows that there is significant difference between pre-test and post-test level of sleep quality regarding sleep disturbances among the adults. Hence, the formulated research hypothesis H1 was accepted.

There was significant association between pretest of selected demographic variables at 0.05 level for weight in kg chi-square value was 18.16 (df = 9), chi-square value of habits was 18.94(df=9), chi-square value of non-communicable disease was 17.16 (df=3) respectively and it was significant at 0.05 level so the H1 was accepted. Whereas hypothesis (H1) was rejected in regard to variables i.e; chi-square value of age was 5.18(df=6), chi-square value gender was 0.15(df=2), chi-square value of marital status was 14.39(df=9), chi-square value of Education status 4.32(df=15), chi-square value of Occupation status was 13.78 (df=15), chi-square value of monthly income was 2.95(9), , chi-square value of height in cm 10.56(9), chi-square value of communicable disease was 0(df=3), were lesser than table value at 0.05 level of significant respectively.

Table 1: Distribution of sample according to their pre-test and post-test level of sleep quality. (n=45)

S.no.	Level of Sleep Quality	Pre-test		Post-test	
		Frequency(f)	Percentage (%)	Frequency(f)	Percentage (%)

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1	Very poor sleep	32	71.11	0	0.00
2	Poor sleep	13	28.89	2	4.44
3	Good Sleep	0	0.00	38	84.44
4	Very good sleep	0	0.00	5	11.11

Table depicts that, the pre-test and post-test level of sleep quality majority 71.11% of adults had very poor sleep, 28.89% of adult had poor sleep, 0% of adults had good sleep and very good sleep in pre-test but in the post-test majority 0% had very poor sleep, 4.44% of adults had poor sleep, 84.44% had good sleep and 11.11% had very good sleep.

Table 2: Comparison of pre-test and post-test sleep quality level of adults regarding Pre-test and Post-test level of sleep quality.
n=45

S.no.	Sleep quality Score	Mean	Mean difference	Standard deviation (SD)	Paired 't' value	Degree of freedom (df)	Table value	Level of Significance
1	Pre-test	67.02	-31.6	5.28	4.88	44	2.01	P<0.05 *S
				6.25				
2	Post-test	35.42						

* Significant at the $p < 0.05$.

Table 2: Shows that comparison of mean pre-test and post-test sleep quality level on sleep disturbances. The post-test standard deviation score (6.25) was high when compared to the pre-test score (5.28). The obtained 't' value is (4.88) at the $df = 44$ at the $p < 0.05$ which shows that table value is 2.01 is lower than

calculated value of 't'. Thus H_0 is rejected and, hence proved that Exercise is significant difference in the sleep pattern of adults with sleep disturbances before and after the implementation of oropharyngeal muscle exercises in the selected community areas of Durg district.

Table 3: Association of pre-test Level of Sleep Quality of community people of age 45 – 60 years with their selected demographic variables.
n=45

S. No	Demographic variables	Level of Sleep Quality				Chi-square (χ^2)	df	Table value	Level of significance
		Very Poor Sleep	Poor Sleep	Good Sleep	Very Good Sleep				
1.	Age (in year)		1						
	a) 45-50 years	0	3	8	0	5.18	6	12.59	NS
	b) 51-55 years	0	1	12	3				
	c) 56-60 years	0		14	3				
2.	Weight in kg.								
	a) 45-50 kg	0	0	2	2	18.16	9	16.92	*S
	b) 51-55kg	0	2	5	0				
	c) 56-60kg	0	6	7	0				
	d) More than 61 kg	0	3	17	1				

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3.	Habits a) Alcohol b) Tobacco c) Smoking d) None	0 0 0 0	0 0 0 2	10 9 9 1	1 3 4 6	18.94	9	16.92	*S
4.	Do you have any non-communicable disease? a) Yes b) No	0 0	6 7	0 26	0 6	17.16	3	7.82	*S
5.	Gender a) Male b) Female	0 0	1 3	7 34	0 0	0.15	2	5.99	NS
6.	Marital Status a) Married b) Unmarried c) Divorce d) Widow	0 0 0 0	11 0 1 0	20 0 6 4	0 0 3 0	14.39	9	16.38	NS
7.	Education Status a) Illiterate b) Primary c) Middle d) High school e) Graduation f) Post-graduation	0 0 0 0 0 0	1 3 1 3 0 0	7 6 8 8 6 2	0 0 0 0 0 0	4.32	15	24.99	NS
8.	Occupation Status a) Farmer b) Housewife c) Private job d) Govt. job e) Unemployed f) Retired	0 0 0 0 0 0	1 1 3 3 2 2	6 8 9 6 0 2	0 0 2 0 0 0	13.78	15	24.99	NS
9.	Monthly Family Income a) 2000-5000/- b) 5001-10000/- c) 10001-15000/- d) >15000/-	0 0 0 0	0 1 2 1	3 13 11 9	1 2 1 1	2.95	9	16.92	NS
10.	Height in cm a) 121-137cm b) 140-152 cm c) 155-167cm d) More than 167 cm	0 0 0 0	3 2 2 1	4 16 7 3	1 0 4 2	10.56	9	16.92	NS

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11.	Do you have any communicable disease?	0	0	0	0	0	3	7.82	NS
	a) Yes	0	3	11	31				
	b) No								

*P<0.05 level of level of significance; NS: Non – Significance

COCLUSION

Erin Gray once remarked, “Once you are exercising regularly, the hardest thing is to stop it. This thought also applies to oropharyngeal muscle exercises. In the beginning, these exercises may look strange or difficult. People may find it hard to practice daily or may not see quick results. But with regular practice, changes slowly appear. The exercises make the tongue, throat, and soft palate stronger. This helps to keep the airway open while sleeping. As a result, snoring is reduced and sleep becomes more peaceful. Better sleep gives more energy, confidence, and freshness during the day. Slowly, the exercises do not feel like extra work. They become part of daily life, just like brushing teeth or walking. People begin to enjoy the benefits and do not want to stop. Regular practice turns these exercises into a healthy habit that supports better sleep and overall well-being. The study concludes that oropharyngeal muscle exercises serve as a simple, non-invasive, and effective method to enhance sleep quality among adults with sleep disturbances. This intervention can be incorporated into community-based health programs to support individuals in improving their sleep health. The study findings provide the statistical evidence which clearly indicate that oropharyngeal muscle exercise has significant effect on level of sleep quality in adults. Study can Replicate with larger samples, Conduct studies in different settings, Use experimental and control groups, Compare different age groups and modalities.

Ethical clearance: The ethical clearance was taken from the government College of Nursing, Durg, Chhattisgarh.

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Conflict of interest:there are no conflict of interest.

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