



SLEEP QUALITY AMONG ADULTS WORKING IN A PRIVATE SECTOR WITH DIFFERENT WORK SHIFTS: A COMPARATIVE STUDY

Occupational Therapy

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ABSTRACT

Aim: Sleep is an important part of our daily routine. Sleep disturbances can cause a broad range of clinical presentations that involve a variety of physiologic, emotional, and behavioral abnormalities. The current study aims to investigate the quality of sleep in adults working in a desk job in a private sector and compare the quality of sleep in adults with different working shifts.

Methodology: Unmarried males & females between the age group of 22 years to 27 years, having a desk job in a private working sector were included in the study. All the participants were asked to fill two questionnaires- Sleep Quality Scale and The Pittsburgh Sleep Quality Index. All the assessment tools were administered through use of Google forms. The participants were asked to send their responses over E-mails.

Results: There was a significant difference in the sleep quality of adults working in fixed shifts (Mean=7.13, S.D=4.10) and changing shifts (mean=4.10, S.D=1.768). The difference was found to be significant with a p-value of <0.05.

Conclusion: Adults working in changing shifts have poor quality of sleep as compared to adults working in fixed shifts.

KEYWORDS

Adults, Changing shifts, Fixed shifts, Sleep.

INTRODUCTION

Sleep is an important part of our daily routine. Without sleep we cannot form or maintain the pathways in our brain that let us learn, create new memories, concentrate and respond quickly. [1]

The circadian rhythm and homeostasis are the two internal biological mechanisms that work together to regulate when we are awake and asleep. Circadian rhythms cause us to be sleepy at night and to wake in the morning without an alarm. [1]

The changes in the society and the needs of industry have impacted upon working hour arrangements in the ways that indirectly influence individual lifestyles and sleep quality. Sleep disturbance can have a significant impact upon employee behavior, mental alertness, physical appearance, daytime physiology, emotional condition, health. [2]

Repetitive circadian shifts are particularly difficult to adapt to, and severity of symptoms is proportional to the frequency of shift changes, magnitude of each change, number of consecutive nights worked, length of shifts and frequency of counter clockwise (sleep advancing) changes. [3]

Night shift workers often have trouble falling asleep and also have trouble staying awake at work because their natural circadian rhythm and sleep-wake cycle is disrupted. A chronic lack of sleep, or getting poor quality sleep, increases the risk of disorders including high blood pressure, cardiovascular disease, diabetes, depression, and obesity. [1] It becomes important to study the effect of the nature of work on sleep hygiene as it can provide us with literature to help prevent diseases. The current study thus aimed at comparing the sleep hygiene in people working in rotating shifts and on fixed shifts.

METHODOLOGY

The current study was a cross-sectional study conducted during September 2019 to January 2020. Unmarried Males and females in the age group of 22-27 years and who had a desk job in a corporate sector with either a fixed hour shift or a changing shift (day/night duty) were included in the study. Males and females who were married or clinically diagnosed with any mental illnesses that may affect the sleep pattern or take sleep medications more than 3 times a week or having any physical disability were excluded from the study.

An informed consent was taken from the participants fulfilling the inclusion criteria. All the participants were assessed on Sleep Quality scale and Pittsburgh Sleep Quality Index, sent to them through Google forms.

SLEEP QUALITY SCALE (SQS) : [4-6]

It is a 28 item simple self-report, pencil-and-paper measure, requiring between 5 and 10 min for administration, that evaluates six domains of sleep quality: daytime symptoms, restoration after sleep, problems initiating and maintaining sleep, difficulty waking, and sleep satisfaction. All the questions are scored on a four point likert scale. Total scores can range from 0 to 84, with higher scores denoting more acute sleep problems.

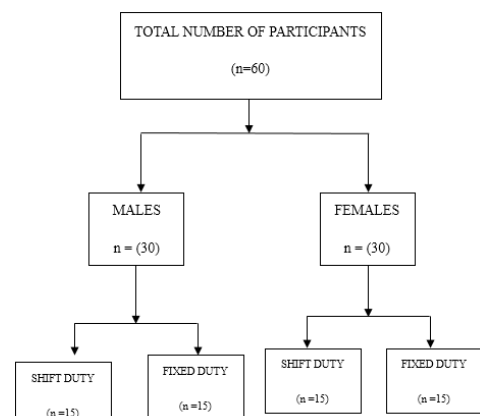
It has an internal consistency of 92 and a test-retest reliability of 81. The SQS is strongly correlated with results obtained on the Pittsburgh Sleep Quality Index. Scores achieved by the sample were significantly higher than those of controls, indicating good construct validity.

PITTSBURGH SLEEP QUALITY INDEX (PSQI) : [7-8]

The Pittsburgh Sleep Quality Index is a widely used self-reported 19-item questionnaire measuring sleep. The PSQI measures several different aspects of sleep, offering seven components scores and one composite score. Each item is weighted on a 0-3 interval scale. The global PSQI score is then calculated by adding the seven component scores, providing an overall score ranging from 0 to 21, where lower scores denote a healthier sleep quality. This tool has an internal reliability of $\alpha=0.83$, a test-retest reliability of 0.85 for the global scale, a sensitivity of 89.6%, and a specificity of 86.5%.

DATA COLLECTION

A total of 60 participants were enrolled for the study. Out of the 60 participants, 30 were males and 30 females. Also 30 participants were working in fixed shifts, while the remaining 30 were working in changing shifts.



All data was entered into Microsoft Office Excel (v 2010 Microsoft Redmond Campus, Redmond, Washington, United States) in a spreadsheet which was prepared and validated for the study data to avoid errors. Data was entered and checked for errors and discrepancies. Data was subjected to statistical analysis using Statistical SD Package for Social Sciences. (SPSS v 20 IBM)

RESULTS

Table 1: SQS Scores In Both The Groups.

	Group	N	Mean	Std. Deviation	T Value	P value
SQS	Changing Shifts	30	36.80	10.334	2.19	<0.05** (0.03)
	Fixed Shifts	30	30.97	10.213		

The study analyzed the SQS scores in both the groups. The sleep quality of participants in fixed shifts (30.97 ± 10.21) was better as compared to participants in changing shifts (36.80 ± 10.33). The results were significant with a $p < 0.05$.

Table 2: Psqi Scores In Both The Groups

	Group	N	Mean	Std. Deviation	t-value	P value
PSQI	Changing Shifts	30	7.13	1.995	6.23	<0.05** (0.001)
	Fixed Shifts	30	4.10	1.768		

Further the study analyzed the PSQI scores in both the groups. The sleep quality as compared on PSQI showed that the sleep quality was better in participants with a fixed working shift (4.10 ± 1.768) as compared to participants in changing shifts (7.13 ± 1.995). The results were significant with a $p < 0.05$.

DISCUSSION

The current study aimed to investigate the quality of sleep in changing shift and fixed shift workers. Working in changing shifts can not only disturb the biological clock of the body but also disturbs the mental functions of the body. The body's ability to recover and recuperate from the damage done during the daytime on a cellular level is affected by the night shift - because that's the purpose of sleep. If our sleep schedule is erratic or irregular, that synchrony of repair that's supposed to happen at nighttime doesn't get played out the way it's supposed to. In the current study when the results of participants in both the groups were analyzed for the quality of sleep, it was found that the participants in the changing shift had poor quality of sleep as compared to participants in fixed shifts. The current findings can be supported by the study conducted on Tae-Won-Jang, who in their study concluded that there is a significant association between sleep and shift-work. [9] Kecklund G et al. reported that worry about going to work the next morning resulted in a reduction of SWS. [10]

Chronic sleep deprivation can be dangerous. It can impact health, including heart health and proper digestive function. It can also increase the risk of cancer. Older workers and female workers are at risk for higher levels of sleep deprivation with this condition. [11]

Shift work is a vital component of our modern economy. Throughout the industrialized world, nearly a fifth of all employees are engaged in some form of non-traditional work pattern. Shift work interferes with the quality of sleep. [12]

Later in the study, when overall sleep disturbances in all the participants was analyzed, it was found that 30% of the participants had mild sleep disturbances, 67% of them had moderate sleep disturbances and only 3% of the participants showed severe sleep disturbances on SQS. While 78% of the participants showed moderate sleep disturbances and 22% showed mild disturbances on PSQI.

It is possible that different types of stressors may bring with them different impacts on sleep. diverse stressors that are commonly encountered in the daily environment resulted in several changes in sleep architecture. Everyday emotional stress might lead to less SWS. [10]

Duration of sleep and the circadian cycle are related to occupational fatigue and daytime sleepiness, which can lead to a variety of adverse medical outcomes. [10]

CONCLUSION

Sleep quality and the nature of work are significantly associated and can affect not only the individual but an organization in entirety.

RECOMMENDATIONS

Measures suggested for mitigating fatigue and the risk of sleepiness in the workplace include adequate staffing, correct shift scheduling, work environment design, employee fatigue training, sleep disorder screening and management, and sleepiness and fatigue monitoring.

Providing proper care to the employees and addressing their sleep problems not only benefits the employees but to the organization as a whole. [12]

One of the most popular ways of reducing the impact of shift work on occupational wellbeing is flexibility in organizing time schedules. In fact, flexibility/time reduction can be an advantage in sleep control and related health problems. [12]

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