



Original Research Article

RELATIONSHIP BETWEEN QUALITY OF SLEEP AND GENERAL HEALTH OF HEALTH CARE PROFESSIONALS

Hira Waqas Cheema¹, Farheen Masood², Aamna Khalil³, Minahil Haq⁴, Sidra Momal⁵, Anber Saleem⁶

¹Associate Professor of Anatomy, Bahria University College of Medicine, Islamabad, Pakistan

²Professor of Anatomy, Bahria University College of Medicine, Islamabad, Pakistan

³Senior Associate Professor of Anatomy, Bahria University College of Medicine, Islamabad, Pakistan

⁴Assistant Professor of Anatomy, Rawalpindi Medical University, Rawalpindi, Pakistan

⁵Assistant Professor of Pharmacology, Islamic International Medical College, Rawalpindi, Pakistan

⁶Associate Professor, Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad, Pakistan.

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Corresponding Author:

Dr. Hira Waqas Cheema,
Associate Professor of Anatomy,
Bahria University College of Medicine,
Islamabad, Pakistan.
Email: hirawagas.buhsci@bahria.edu.pk

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ABSTRACT

Background: Sleep is a fundamental biological process essential for optimal physical, psychological, and social well-being. Healthcare professionals are particularly vulnerable to sleep disturbances due to demanding schedules, shift duties, and occupational stress, which may adversely affect their overall health and work performance. **Objective:** To assess the quality of sleep and general health status among healthcare professionals and to determine the relationship between sleep quality and general health.

Materials and Methods: A cross-sectional study was conducted from January to June 2024 in tertiary care hospitals of Islamabad and Rawalpindi, Pakistan, after ethical approval. A total of 100 healthcare professionals aged 25–50 years were recruited through random sampling. Data were collected using validated questionnaires: the Pittsburgh Sleep Quality Index (PSQI) to assess sleep quality and the RAND 32 (SF-36) Health Survey to evaluate general health status. A PSQI score ≥ 5 indicated poor sleep quality. Data were analyzed using SPSS version 27. Chi-square test was applied to determine associations, with significance set at $p < 0.05$.

Results: The mean global PSQI score was 7, indicating overall poor sleep quality among participants. Subjectively, 20% reported very good sleep quality, 39% fairly good, 16% bad, and 20% poor. Regarding general health, 11.2% rated their health as excellent, 27% very good, 43.9% good, and 17.8% fair. Approximately 45% reported reduced work time due to emotional problems, while 10% experienced severe body pain interfering with work. Participants with better sleep quality demonstrated improved general health perception, greater work productivity, fewer emotional disturbances, and better social functioning. Statistical analysis showed a significant association between sleep quality and general health status.

Conclusion: A significant relationship exists between sleep quality and general health among healthcare professionals. Poor sleep is associated with reduced work efficiency, increased emotional distress, and diminished social functioning. Strategies aimed at improving sleep hygiene and occupational scheduling may enhance both personal well-being and professional performance in healthcare settings.

Keywords: Sleep Quality, General Health, Healthcare Professionals, PSQI, SF-36, Occupational Health.

INTRODUCTION

Sleep is essential for health and well-being. For adults ages 18 to 45, the recommended sleep duration is 7 to 8 hours per night on a regular basis. Sleep greatly influences a person's mental function, performance and overall health.^[1] Acute and chronic sleepless ultimately leads to impaired physical, mental, and emotional functioning in humans. Additionally, circadian physiology requires wakefulness and alertness to be at their peak during daylight hours, while sleepiness is at their peak.^[2] During the middle of the night Failure to comply with this requirement results in increased sleepiness, exhaustion, and loss of wakefulness. This is likely to be important for everyday tasks, particularly in the workplace.^[3]

Sleep habits, as well as chronic deprivation and sleep disorders, have a strong impact on productivity, according to the International Labor Organization.^[4] In hospitals, health professionals remain at work 24 hours a day, demonstrating a high level of commitment and care for patients. As a result, health professionals, particularly night shift workers, are vulnerable to changes in quality of life. This is due to the fact that, compared to individuals who work during the day, psychophysiological exhaustion is greater due to the fact that they carry out their activities at a time when the functioning of the organism is impaired.^[5] The stress caused by the perception of stimuli that cause emotional arousal and alter homeostasis causes weariness in night workers, contributing to an adaptation process marked by psychological and physiological illnesses. routines.^[6]

The human body has a circadian rhythm that controls the time you spend awake. The human organism is endowed with circadian rhythm, which regulates the period of rest and activity, and the fact of being exposed to lighting during work and sleep deprivation directly influences the physiology and behavior of the human organism^[7], consequently it will be reflected in a series of diseases. Among the occupational diseases related to night work, alterations in the digestive, cardiocirculatory, gastrointestinal, neurological and musculoskeletal systems can be listed, as well as a low ability to fall asleep normally.⁸ This leads to fatigue, decreased alertness, poor performance, irritability, stress, headache, nausea, moodiness, and depression.^[8] The objective of the following review of the causes and consequences of sleep loss and fatigue in the healthcare setting is to increase the level of consciousness and knowledge base of health professionals in general and hospital nursing staff in particular knowledge base of healthcare professionals in general, and hospital-based nursing personnel in particular.^[9] An additional goal is to provide a framework for developing strategies both at the systems level and at the individual level for addressing and managing sleep loss and fatigue.^[10]

Basic principles of sleep and chronobiology are briefly reviewed, followed by a discussion of the impact of sleep loss on the personal and professional lives of healthcare workers, including the performance of work-related tasks, their own Health and security.

The aim of the current study was to assess quality of sleep and health status of health care professionals and to determine the relationship between quality of sleep and health status of health care professionals.

MATERIALS AND METHODS

Study Design: A Cross-sectional study was conducted from Jan-2024 to June-2024 in Tertiary care hospitals in two different cities of Pakistan i.e. Health care professionals of Islamabad and Rawalpindi after obtaining the ethical approval from the ethical board (E19-2024/ERC). The data was collected using pre-designed and validated questionnaires to collect information about their sleep and general health status. The targeted age group were 25-50 years males and females both. The data was collected using random sampling techniques from 100 health care professionals. The survey designed began with a brief description of the study itself, followed by a detailed informed consent that explained the participants' rights. The risks and benefits perceived of participation and the measures taken by the investigators to keep their personal information confidential. They would access the survey only after they agree to this informed consent. It took around 10min to fill out the survey. The survey was sent by e-mail and by hand.

Health care professionals aged 25-50 years of both genders were included in the survey, while patients with chronic medical condition or Self-reported presence of any of the following conditions: Diabetes Mellitus, Hypertension, Bronchial Asthma and Pregnant females were not included. The survey included two validated and widely used screening tools:

- Pittsburgh Sleep Quality Index (PSQI)
- RAND 32 questionnaire (Short form-36 health survey questionnaire) for General Health.

The PSQI is a tool used to evaluate two sleep domains; sleep quality and sleep disturbances. The questionnaire yields an overall score ranging from 0 to 21. A score of 5 or greater was indicative of poor overall sleep quality whereas a score of less than 5 was indicative of good overall sleep quality. Short Form 36 Health Survey Questionnaire (SF-36) is commonly used to provide an indication of health status of particular population to help with service planning and to measure the impact (in terms of health gains) of clinical and social interventions. The data was analyzed using SPSS 27.0 version. The incidence of poor health and the proportion of male and female participants will be documented. The test of significance Chi-square will be applied.

RESULTS

Table 1 shows the distribution of the PSQI components among the healthcare professionals. The overall mean/global PSQI score was 7, which is above the cut-off of 5 and indicates poor overall sleep quality. Although a substantial proportion reported good or fairly good subjective sleep quality, habitual sleep efficiency was poor in a

considerable proportion of participants, with 55% having an efficiency of $\leq 65\%$. The observed scores for sleep disturbances, use of sleeping medication, and daytime dysfunction were 0, indicating very good scores for these components in the reported sample.

Table 1. Distribution of Pittsburgh Sleep Quality Index (PSQI) components and total score

PSQI component	Measure / score range	Score / grading	Percentage / interpretation
1. Subjective sleep quality	0–3	0 – Very good	20%
		1 – Fairly good	39%
		2 – Bad	16%
		3 – Poor	20%
2. Sleep latency (Q2)	0–3	0 – Good	38.4%
		1 – Fairly good	40%
		2 – Bad	15.3%
		3 – Poor	6.4%
2. Sleep latency (Q5a)	0–3	0 – Very good	44.4%
		1 – Fairly good	30.4%
		2 – Bad	15.7%
		3 – Poor	19.4%
3. Sleep duration	0–3	0 – Very good	36%
		1 – Fairly good	38%
		2 – Bad	11.4%
		3 – Poor	15%
4. Habitual sleep efficiency	$\geq 85\%$; 75–84%; 65–74%; $\leq 65\%$	0 – Very good; 1 – Fair; 2 – Bad; 3 – Poor	36%; 3.4%; 5.1%; 55%
5. Sleep disturbances	0–27 (5b–5j)	0 – Very good; 1–3 – component scores	Observed score: 0 (Very good)
6. Use of sleeping medication	0	0 – Very good	Observed score: 0 (Very good)
7. Daytime dysfunction	0–6 (Q7 & Q8)	0; 1; 2; 3	Observed score: 0 (Very good)
Total PSQI score	0–21	7	Overall poor sleep quality (≥ 5 indicates poor sleep)

Table 2 summarizes participants' perceived general health and their perception of change over the previous year. Most participants rated their current health as good (43.9%), followed by very good (27.0%), while 17.8% rated their health as fair and

11.2% as excellent. Half of the participants reported that their health was unchanged compared with one year earlier, whereas 22.2% considered it somewhat better and 24.0% reported that it was worse or much worse.

Table 2. General health status and comparison with health one year ago

General health measure	Category	Percentage (%)
Self-rated general health	Excellent	11.2%
	Very good	27%
	Good	43.9%
	Fair	17.8%
Health compared with one year ago	Same	50%
	Somewhat better	22.2%
	Worse	15.7%
	Much worse	8.3%

Table 3 presents the functional and occupational effects of physical and emotional health problems. Three quarters of participants reported no limitation in daily activities, although some participants reported mild or substantial limitations. Emotional

problems resulted in reduced work time for 45% of participants. Physical and emotional problems also affected social activities, while body pain was reported at different levels of severity and interfered with work in a proportion of participants.

Table 3. Functional, work, social activity, and body pain outcomes

Outcome domain	Category / severity	Percentage (%)	Additional measure
Limitation of daily activities	Not limited at all	75%	
	Limited a little	30–40%	
	Limited a lot	15–20%	
Emotional problems affecting work	Did not cut down work time	55%	
	Reduced work time	45%	

Physical & emotional problems affecting social activities	Extremely	10%	
	Quite a bit	14.2%	
	Moderate	23.6%	
	Slight	33%	
	Not at all	24.5%	
Body pain	Extremely	10%	Pain interfering with work: 8%
	Moderately	17.8%	Pain interfering with work: 9.3%
	Very mild	24.3%	Pain interfering with work: 46.3%
	None	21.5%	Pain interfering with work: 32.5%

Table 4 describes positive emotional feelings and the frequency with which physical or emotional problems affected social activities. More than half of the participants (55%) reported feeling like a happy person most of the time, while 40% reported

feeling enthusiastic and 40% calm and peaceful most of the time. Regarding social activities, 26.2% reported no effect, whereas 29.9% reported effects some of the time and 22.4% reported effects most of the time.

Table 4. Positive emotional feelings and frequency of effects on social activities

Measure	Category / frequency	Percentage (%)
Positive emotional feelings	Enthusiastic most of the time	40%
	Calm and peaceful most of the time	40%
	Happy person most of the time	55%
Physical & emotional problems affecting social activities	None of the time	26.2%
	Little of the time	20.6%
	Some of the time	29.9%
	Most of the time	22.4%

DISCUSSION

In our study, it is proven that there is strong relation between sleep quality and general health of individuals. Hinz Andreas in his study conducted in 2017 proved that sleep quality has an association with psychological health of German community. In our study, it has proven that 15 to 20 % of people have inactivation of activities. Tony M Palermo in a study published on 13th October 2008 proved that adolescents with chronic pain have limitation of activities.^[9] Similarly a study conducted by Kaur et al in 2015 march proved that sleep quality has relation with general health in Indian students.^[10] Vas Fragosco carried out study in 2015 and proved that there is association between physical activity in sedentary adults sleep wake behaviours.^[11] In the present study, sleep quality has the relation with amount of time spent on work, the better is sleep quality, the more is amount of time spent on work. A similar study conducted in 2017 proved through meta-analysis that both sleep quality and quantity are associated negatively with workload and a number of health outcomes.^[11] In the same study conducted in 2014 proved the relationship between sleep and quality and work demands.^[12] In our study, about 45% of people have effect of depression and anxiety such that they have reduced the time spent on work. Similarly study in 2021 proved that there is a relation of depression and anxiety with disrupted daily activities.^[13] In current study only 10% of individuals have been extremely affected through social activities with friends and

family by their physical and emotional problems and 24.5 % have not affected at all because they have good quality of sleep. In a study conducted in 2020 also proved that there is role of mental health and physical activity in association with sleep quality and life quality among rural elderly people in China.^[14] Similarly Adem Sumen in his cross sectional study conducted in July 2021 proved relationship between sleep quality and psychosocial problems.^[15] In our present study, it is proven that body pain has interference with normal work at home and outside home. In 10 % of people body pain has extremely affected work at home as their sleep is also affected. Toprak celenay in his study conducted in 2020 proved that musculoskeletal pain and sleep quality has affected work at home.^[16] Similarly in a study conducted in 2016 proved that physical pain and poor quality of sleep can cause poor work performance.^[17]

In our study as most of people have good quality of sleep, therefore they feel enthusiastic most of time but 35 % of people feel negative emotions, nervousness and down hearted as their sleep is also of poor quality. A study conducted in 2018 proved that sleep quality moderates the association between physical activity frequency and feelings of energy and fatigue in adolescence.^[18] similarly another study proved association between poor sleep quality and emotional eating in adults of US and mediating role of negative emotions.^[19]

In present study, in about 26.2% of people, physical and emotional problems have not effected on social activities at all and in 22.4 % of people these

problems have effected social activities most of time. In a similar study conducted by Viner et al, there is a role of sleep, physical activity and mental health on mediating effects of social media.^[20]

CONCLUSION

A significant relationship exists between sleep quality and general health among healthcare professionals. Poor sleep is associated with reduced work efficiency, increased emotional distress, and diminished social functioning. Strategies aimed at improving sleep hygiene and occupational scheduling may enhance both personal well-being and professional performance in healthcare settings.

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