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Cinta Anto
Fourth Year B.Sc Nursing
Students, Athena College of
Nursing, Mangalore,
Karnataka, India

Deena Carol Crasta
Fourth Year B.Sc Nursing
Students, Athena College of
Nursing, Mangalore,
Karnataka, India

Deena D Cunha
Fourth Year B.Sc Nursing
Students, Athena College of
Nursing, Mangalore,
Karnataka, India

Dhanyashree P
Fourth Year B.Sc Nursing
Students, Athena College of
Nursing, Mangalore,
Karnataka, India

Varshini
Fourth Year B.Sc Nursing
Students, Athena College of
Nursing, Mangalore,
Karnataka, India

SR Deepa Peter
Professor, Department of
Paediatric Nursing, Athena
College of Nursing, Mangalore,
Karnataka, India

Corresponding Author:
SR Deepa Peter
Professor, Department of
Paediatric Nursing, Athena
College of Nursing, Mangalore,
Karnataka, India

A correlative study on quality of sleep and level of stress among nursing students in selected colleges at Mangaluru

Cinta Anto, Deena Carol Crasta, Deena D Cunha, Dhanyashree P, Varshini and SR Deepa Peter

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Abstract

Humans are inherently social beings, and the concept of human needs originates from our biological nature, encompassing both mental and physical aspects. To maintain physical health, we require fundamental necessities such as food, clean water, shelter, sleep, physical activity, and others. Among these, sleep holds a pivotal role in overall well-being. Abraham Maslow identified sleep as a component of physiological needs in his hierarchy of five basic human needs. Sleep can generally be categorized as either satisfactory or unsatisfactory. Good sleep is characterized by a sense of restfulness and satisfaction, whereas poor sleep leads to feelings of dissatisfaction and fatigue.

Stress is defined as a dynamic interaction between an individual and their environment. Any disruption in this interaction can result in cognitive, emotional, and behavioral changes. During their education and training, nursing students are frequently exposed to various stressors, which may directly or indirectly hinder their academic performance and overall physical and mental well-being.

Elevated stress levels negatively affect sleep quality by prolonging the time it takes to fall asleep and causing sleep fragmentation. Poor sleep, in turn, exacerbates stress levels, creating a cyclical relationship. Even a single sleepless night can lead to a 30% increase in emotional stress levels, as sleep plays a crucial role in mood regulation and optimizing the functioning of the body and mind. Without adequate sleep, the body cannot effectively manage stress, further compromising health and well-being. With this in mind this study has undertaken to find correlation between sleep quality and level of stress.

Objectives

1. To assess the quality of sleep among the nursing students by using Pittsburgh's sleep quality index Scale.
2. To assess the level of stress among nursing students by using Perceived stress scale.
3. To find the correlation between level of stress and quality of sleep among the nursing students.

Methodology: A descriptive exploratory research design was employed for this study. A total of 60 nursing students from selected nursing colleges were randomly chosen for the study. Data collection was done by using the tools of Pittsburgh's sleep quality index Scale and Perceived stress scale. Ethical approval was obtained from the relevant authorities and informed consent was secured from all participants prior to data collection to ensure compliance with ethical research standards.

Results: The analysis revealed that a weak positive correlation between sleep quality and stress levels among nursing students, with a correlation coefficient of $r=0.32$. This indicates a weak correlation suggesting that higher stress levels are associated with poorer sleep quality, and conversely, better sleep quality correlates with lower stress levels.

Conclusion: The findings of the study revealed that there is a weak correlation between the sleep quality and level of stress among nursing students.

Keywords: Quality of sleep, level of stress, Pittsburgh sleep quality index, perceived stress scale

Introduction

The concept of human needs stems from our biological nature that can be broadly viewed in both mental and physical terms. In order to sustain once physical health we need such things as food, clean water, shelter, sleep, physical movement and so on. In these factors, sleep plays an important role in one's life. Abraham Maslow showed that sleep as a part of physiological needs in the hierarchy of five basic Human needs. According to Stores sleep categorized into satisfactory and unsatisfactory. Good sleep is sleep that has satisfactory, while bad sleep is sleep that makes Individuals feel and unsatisfactory. Unsatisfactory sleep that can cause more serious health problems. But in reality, not all of the students keep their sleep needs optimally. This is because students have lot of activity and stressors, both

academic and non-academic. The condition causes students to have a risk of poor sleep quality. Getting enough sleep helps to heal pain or injuries of the body. Adequate sleep about 7 to 8 hours sleep helps to reduce the stress and keep blood sugar in normal level. Quality of sleep allows to be energetic and alert. Stress refers to dynamic interaction between the Individual and environment. If any alteration occurs, this interaction may lead to cognitive, emotional and behavioural alterations. During nursing education and training, nursing students are frequently exposed to various stresses which may directly or indirectly impede their learning performance and overall well-being of their body and mind. For students in colleges, this stress often focuses on exams and other academic requirements. When one attempt to fall asleep, those thoughts continue and cause numerous descriptions in sleep patterns. High levels of stress impairs sleep by prolonging how long it takes to fall asleep and fragmenting sleep. Poor sleep can and does contribute to increased stress level. If often does not take long for poor sleep to affect the mood either one sleepless night can lead to 30% increase in emotional stress level that is because sleep plays a key role in regulating mood and helping the body and mind work their best. To find the correlation between level of stress and quality of sleep this study has undertaken.

Objectives

1. To assess the quality of sleep among the nursing students by using Pittsburgh's sleep quality index scale.
2. To assess the level of stress among nursing students by using Perceived stress scale.
3. To find the correlation between level of stress and quality of sleep among the nursing students.

Methodology

A descriptive exploratory approach was used for this study. The sample size consisted of 60 nursing students who met the inclusion criteria was selected for the study. The tools used for the study includes Pittsburgh's sleep quality index Scale and Perceived stress scale. Permission was obtained from concerned authorities and informed consent was obtained for data collection. The collected data was analyzed by using descriptive and inferential statistics. Assessment of the quality of sleep and level of stress would be analysed in terms of frequency percentage, mean and standard deviation. The correlation between sleep and stress will be analyzed by using Karl Pearson coefficient of correlation.

Tools used

Tool 1: Baseline proforma

Baseline proforma consist of 4 items: Age, Type of family, Religion, source of stress.

Tool 2: Pittsburgh sleep quality index scale

This is a standardized tool is used to assess the sleep quality and it provides sub scale measures of sleep latency, sleep duration and habitual sleep efficiency. It consists of 28 items. The global score of the scale range is about 0 to 21. Each of the sleep components yields a score ranging from 0 to 3, with 3 indicating the greatest dysfunction and 0 indicates no difficulty.

Scoring

0-4 indicates good sleep

5-21 indicates poor sleep.

Tool 3: Perceived stress scale

This is a standardized tool is used to assess the perception of stress among nursing students. It consists of 10 items. The global score of the scale range is about 0 to 40. Each of the stress components yields a score ranging from 0 to 4, with 0 indicates never and 4 Indicates very often.

Scoring

0-13 indicates low stress

14-26 indicates moderate stress

27-40 indicates severe stress.

Results

Organization of findings

The collected data is analyzed and presented under the following headings

- **Section 1:** Description of baseline characteristics presented in tables and figures.
- **Section 2:** Description of quality of sleep presented in tables and figures.
- **Section 3:** Description of level of stress presented in tables and figures.
- **Section 4:** Correlation between sleep quality and level of stress presented in tables and figures.

Section 1: Description of baseline characteristics presented in tables

Table 1: Frequency and percentage distribution of participants according to their baseline characteristics n=60

Sl. No.	Variables	Frequency (f)	Percentage (%)
1	Age in years		
		19	47
		20	8
		21	5
2	Type of Family		
		Nuclear family	48
		Joint family	12
3	Religion		
		Hindu	11
		Christian	49
		Muslim	0
4	Source of stress		
		Academic issues	37
		Personal problems	7
		Family problems	2
		High expectations of parents	1
		Study environment (e.g. hostel)	13

The findings of the study revealed that majority of the participants 47(78.3%) were of 19 years of age and 48 (80%) were from nuclear family. Many of the participants 49(81.7%) were Christians. Majority of participants 37(61.7%) are having stress due to academic issues. Some of the participants 21(35%) were having good sleep pattern and most of the participants 39(65%) were of poor sleep pattern.

Section 2: Description of quality of sleep of participants

Table 2: Frequency and percentage distribution of participants according to their quality of sleep n=60

Grading of sleep	Range	Percentage	Frequency	Percentage
Good	0-4	0- 19%	21	35%
Poor	5-21	23-100%	39	65%

Maximum score =21

The table 2 depicts that majority of nursing students 39 (65%) had poor sleep quality, 21 (35%) had good sleep quality.

Section 3: Description of level of stress of participants

This section provides the level of stress of 60 nursing students which was collected using perceived stress scale.

Table 3: Frequency and percentage distribution of participants according to their level of stress n=60

Grading of stress	Range	Percentage	Frequency	Percentage
Mild	0-13	0-32%	10	16.6%
Moderate	14-26	35-65%	48	80%
Severe	27-40	67-100%	2	3.3%

Maximum score= 40

The findings of the study revealed that the data presented in Table 3 revealed that majority 48(80%) had moderate stress level of stress, 10(16.6%) had mild stress level and 2(3.3%) had severe stress level.

Section 4: Correlation between sleep quality and level of stress presented in tables and figures

Table 5: Correlation of stress and sleep of participants n=60

		Stress	Sleep
Stress	Pearson Correlation	1	.032
	Sig. (2-tailed)		.808
	N	60	60
Sleep	Pearson Correlation	.032	1
	Sig. (2-tailed)	.808	
	N	60	60

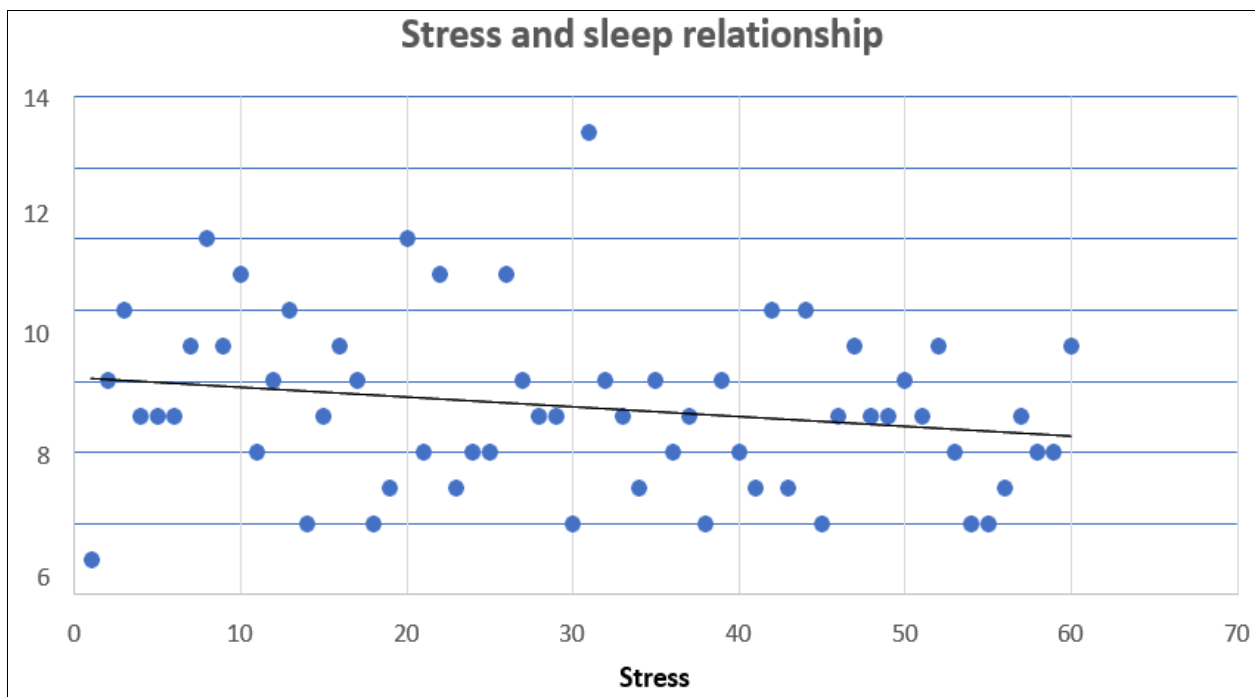


Fig 1: Scattered diagram showing Correlation between level of stress and quality of sleep of the participants

It is evident from the data presented in Table 4 and Figure 1 that there is a weak positive correlation between the quality of sleep and the level of stress.

Discussion

The research findings are discussed in relation to similar studies conducted by other researchers. The present study intended the find out the correlation between the quality of Sleep and level of stress among the first year BSc Nursing students.

The relationship between sleep quality, stress and academic performance among medical students these studies are supported by the study conducted to assess the sleep quality

and stress. The findings reveals that poor sleep quality was significantly associated with elevated levels of Stress. The mean PSQI score was 8.13±3.46; 77% of the participants reported poor quality of sleep and 63.5% reported some level of psychological stress. (mean k 10 score: 23.72±8.55) poor quality of Sleep was significantly associated with elevated mental stress levels ($p < 0.001$) and day time naps ($P = 0.035$) stepwise logistic regression model showed That stress and daytime nap were associated with poor sleep quality. Whereas, poor sleep/ stress did not show any significant association with academic performance. These studies are supported by a study conducted to assess that poor sleep quality was significantly associated with elevated

levels of stress. The strength of this correlation underscores the critical interplay between stress and sleep, highlighting the need for targeted interventions to address these interdependent factors in nursing students.

Conclusion

Throughout these studies, it is found that the nursing students have been dealing with increased stress and lack of sleep. Nursing students experience a lot of changes in the sleeping pattern, due to stress which affect them physically and emotionally. Advice should be given to help to recognize and improve their own sleep quality.

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Disclosure statement

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

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