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RESEARCH ARTICLE

A CORRELATIONAL STUDY TO ASSESS SLEEP QUALITY AND ACADEMIC PERFORMANCE AMONG NURSING STUDENTS IN A SELECTED COLLEGE OF NURSING, JALANDHAR, PUNJAB

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Abstract

A correlation study was undertaken to assess the relationship between Sleep Quality and Academic Performanceamong nursing students in selected collages of Nursing, Jalandhar, Punjab.

Objectives

1. To assess the quality of sleep among nursing students.
2. To evaluate the academic performance of nursing students.
3. To determine the relationship between quality of sleep and academic performance among nursing students.
4. To find out the association between quality of sleep among nursing students and their selected socio-demographic variables.

Methodology:A quantitative research approach with Correlational research design was used in this study. Research setting was M.H.R DAV Institute of Nursing Jalandhar, Punjab. Total 60 samples were selected with Non probability purposive sampling technique. Verbal consent taken from the students who were currently enrolled in a nursing programme (students of B.Sc. Nursing) in the nursing college and who have passed the previous academic session successfully. Self-structured sleep quality scale was used to assess sleep quality among nursing students.

Result and Conclusion: The mean score of sleep quality and academic performance was 54.70 with mean percentage of 68.30% and standard deviation of +7.64. The maximum frequency percentage of academic performance among nursing students was 25 with mean percentage 41.70%. Hence, the correlation was found to be statistically non-significant. Hence, it can be said that there is no relation between sleep quality and academic performance.

Recommendation: The study can be done on large sample to validate and generalized its findings. It can be conducted to assess the sleep quality and its influence on academic performance among Nursing Students.

Introduction:-

Sleep is a phenomenon during which our body remains in an unconscious state, yet it is vital for healing and recuperating from daily activities. Although we are asleep, our brains are active throughout the night. Interestingly, study shows humans spend approximately 25% to 33% of their lives sleeping [(1)].

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William Shakespeare famously described sleep as the "chief nourisher in life's feast" and a "balm of mind" [2]. Similarly, around 400 BC, Hippocrates cautioned that both excessive sleep and wakefulness could be harmful. Prior to the 1950s, sleep was commonly believed to be a passive activity during which both the body and brain rested[3]. However, Johns Hopkins sleep expert and neurologist Merk Wu explains, "It turns out that sleep is a period during which the brain is engaged in a number of activities necessary to life" [4].Sleep is essential for the billions of neurons to function and communicate effectively

The establishment and maintenance of effective sleep hygiene practices are essential for promoting healthy sleep patterns. This research study aims to explore the relationship between sleep hygiene and academic performance, underscoring the importance of good sleep quality as a cornerstone of both physical health and cognitive function. By examining the impact of sleep on students' academic outcomes, this study seeks to highlight the critical role of sleep in educational success and provide actionable insights for improving student well-being through better sleep practices.

Need of the Study:-

The necessity of this research is underscored by recent statistical data revealing a concerning trend in sleep patterns among the Indian population. Reports indicate a progressive decline in adequate sleep duration over recent years. Specifically, the proportion of individuals who sleep fewer than six hours a day without interruption has risen from 50% in 2022 to 55% in 2023, and alarmingly, to 61% in 2024[5]. This escalating incidence of sleep deprivation highlights a critical public health issue that warrants immediate attention, particularly within the student population.

Given these troubling statistics, the study aims to investigate the impact of insufficient sleep on the academic performance and clinical efficacy of nursing students. Nursing students, who are at the intersection of rigorous academic training and clinical responsibilities, they are particularly vulnerable to the negative effects of sleep deprivation. This study is essential to identify specific sleep-related challenges and to develop targeted interventions that can enhance sleep quality, thereby improving both academic outcomes and the quality of patient care provided by future healthcare professionals. The findings could also provide a framework for policy changes in educational and healthcare settings to prioritize and promote better sleep hygiene and overall well-being among students.

Conceptual Framework

The conceptual framework for this study is based on the Neuman's System model (1970)[6].

Central Core:

In present study, nursing studentsrepresent the central core of the model, characterized by basic factors such as age, gender…

Line of Resistance:

In present study, the line of resistance comprises the physiological, psychological, and behavioural mechanisms of nursing students that are employed to counteract and recover from disturbances in their sleep quality and academic performance. These mechanisms are triggered when usual coping strategies (flexible line of defence) fail to maintain stability.

Normal Line of Defence:

In present study, sleep quality represents state of equilibrium, a baseline standard of health. This assumes that a regular, high-quality sleep pattern is normal and expected for nursing students, representing their usual state of wellness.

Flexible Line of Defence:

In present study, academic performance acts as a flexible line of defence**. It is**positioned as a buffer that can fluctuate more readily than sleep quality. This setup means that students' grades and study effectiveness can change more quickly in response to stressors, allowing them to cope with immediate pressures without affecting their core health (sleep quality).

Stressors:

- **Intrapersonal Stressors:**It include personal health issues, mental health status, or personal habits that directly affect their sleep and, subsequently, their academic resilience.

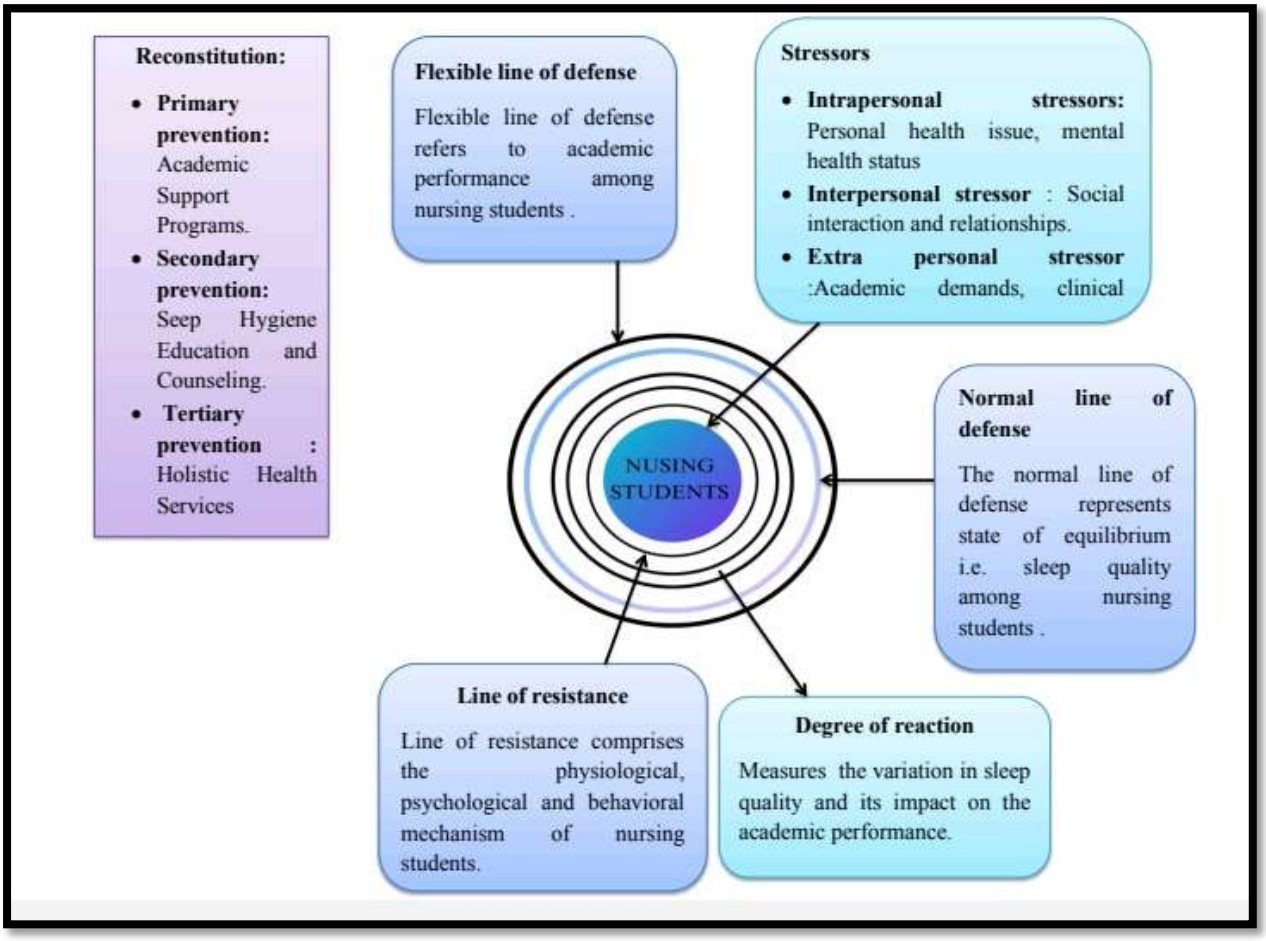
- **Interpersonal Stressors:**It includes Social interactions and relationships that might cause stress impacting their academic engagement or performance.
- **Extra personal Stressors:**It includes external factors like academic demands, clinical rotations, and the learning environment that might stress the student's ability to perform academically without immediately disturbing their sleep pattern.

Degree of Reaction:
In the present study, the degree of reaction measures the extent to which variations in sleep quality impact the academic performance and overall well-being of nursing students, reflecting their system's response and adaptability to internal and external stressors.

Reconstitution:
- **Primary Prevention:**It includesAcademic Support Programs – It directly supports academic performance, helping students manage and adapt to academic stressors more effectively.
- **Secondary Prevention**: It includesSleep Hygiene Education and Counselling **–** It is aimed at maintaining optimal sleep quality as a core aspect of health.
- **Tertiary Prevention:** It includesHolistic Health Services – It addresses both academic and non-academic stressors impacting the student's overall well-being.

Outcomes:
The expected outcome is improved academic performance through better sleep quality, leading to a more stable core where stressors are effectively managed.

Figure 1:- Conceptual framework based on Neuman's System Model by Betty Neuman (1970) to assess the sleep quality and academic performance among nursing students.



Research problem
A correlational study to assess sleep quality and academic performance among nursing students in a selected college of nursing, Jalandhar, Punjab.

Objectives:-

1. To assess the quality of sleep among nursing students.
2. To evaluate the academic performance of nursing students.
3. To determine the relationship between quality of sleep and academic performance among nursing students.
4. To find out the association between quality of sleep among nursing students and their selected socio-demographic variables.

Research Methodology:-

Research Approach:
Quantitative (non-experimental) research approach

Research design:
Correlation design

Setting of the study:
MHR DAV Institute of Nursing, Jalandhar, Punjab.

Sampling technique:
Non-probability purposive sampling technique

Sampling size:
60 Nursing Students

Description of tool:
Self-structured sleep quality scale was formed to assess the correlation of sleep quality and academic performance among nursing students. The tool was developed in the following way :(Consists of three parts)

Section I: Socio demographic variables
This part includes socio demographic variable of the participant. Socio demographic variables include age, residential area, and current academic class of BSc. Nursing, evening nap, and physical activity in a day, sleep difficulty, holidays.

Section II: Self structured tool to assess sleep quality among Nursing Students.
This scale standard rating scale to assess sleep quality among nursing students. It including 19 individual items and create 7 component scores: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep `disturbance, use of sleep medications, and daytime dysfunction. This tool has positive and negative statements. The maximum score was 80 and minimum score was 20. The level of sleep quality was low sleep quality (20-40), moderate sleep quality (41-60), high sleep quality (61-80).

Part C: This part include cumulative grade point average assessment to evaluate the students' academic performance.
CGP (cumulative grade point) of marks in university exam (last year)

Reliability of the tool:
The reliability of Self-structured sleep quality scale was computed by applying Test Retest method using Karl Pearson correlational coefficient formula [(7)]. The reliability for the Self-Structured Sleep Quality Scale was r = 0.7 .Hence, the tool was found to be reliable and feasible for the purpose of study.

Result:-

Using both descriptive and inferential statistics, the analysis was completed.

Findings related to sociodemographic variables by using frequency and percentage

Indicates that nursing students were distributed in various categories according to age (in years) ,academic class, place of residence evening nap, physical activity in a day, How well they sleep ,facing difficulty in staying sleep, ever fall asleep with light on, duration of sleep at weekends.

Table 1:- Frequency and percentage distribution of nursing students according to their socio demographic variables. **N=60**

Sr. no.	Socio demographic variables	Frequency(f)	Percentage (%)
1.	**Age (in years)**		
	18 or younger	01	1.70
	19	08	13.30
	20	22	36.60
	21 or above	**29**	**48.40**
2.	**Academic class**		
	a) GNM	00	00
	b)Semester-III	**30**	**50**
	c)Semester-V	**30**	**50**
3.	**Place of residence**		
	Hosteller	**40**	**66.70**
	Day scholar	20	33.30
	Paying guest	00	
4.	**Evening Nap**		
	Yes	**35**	**58.40**
	No	25	41.60
5.	**Physical activity in a day**		
	<30 min	**38**	**63.40**
	30-60 min	20	33.40
	60-90 min	00	00
	>90 min	02	3.20
6.	How well do you sleep usually?		
	Poor	05	8.40
	Good	50	83.40
	Very Good	05	8.20
7.	**Do you have difficulty staying asleep?**		
	Never		
	Sometime	12	20
	Often	**41**	**68.30**
	Always	07	11.70
		00	00
8.	**Do you ever fall asleep with the light on?**		
	Never	22	36.70
	Sometime	**30**	**50**
	Often	06	10
	Always	02	33.30
9.	**How many hours do you sleep on the weekends or during the holidays?**		
	< 5 hours		
	6-7 hours	**29**	**48.40**
	8-10 hours	21	35.00
	>10 hours	05	8.30
		05	8.30

Finding related to assessment of quality of sleep among nursing students.
Indicates that mean score of quality of sleep among nursing students was 54.70 (+7.64) with mean percentage of 68.30%.Hence, it revealed that nursing students were having moderate quality of sleep.

Table 2:- Mean, Mean percentage and Standard Deviation of sleep quality among nursing students.
N=60

Nursing student	Mean	Standard deviation	Mean percentage (%)
Sleep quality	54.70	+7.64	68.30

Minimum score= 20
Maximum score = 80

Table 3: Frequency and percentage distribution of sleep quality among nursing students.**N=60**

Level of sleep quality	Score Range	Nursing Students	
		Frequency (f)	Percentage (%)
Low sleep quality	20-40	01	1.70
Moderate sleep quality	41-60	46	76.60
High sleep quality	61-80	13	21.70

Table 3 indicates that the majority of Nursing students 46(76.60%) were having moderate sleep quality, 13 (21.70%) nursing students having high sleep quality ,and only 1(1.70%) nursing students was having low sleep quality.

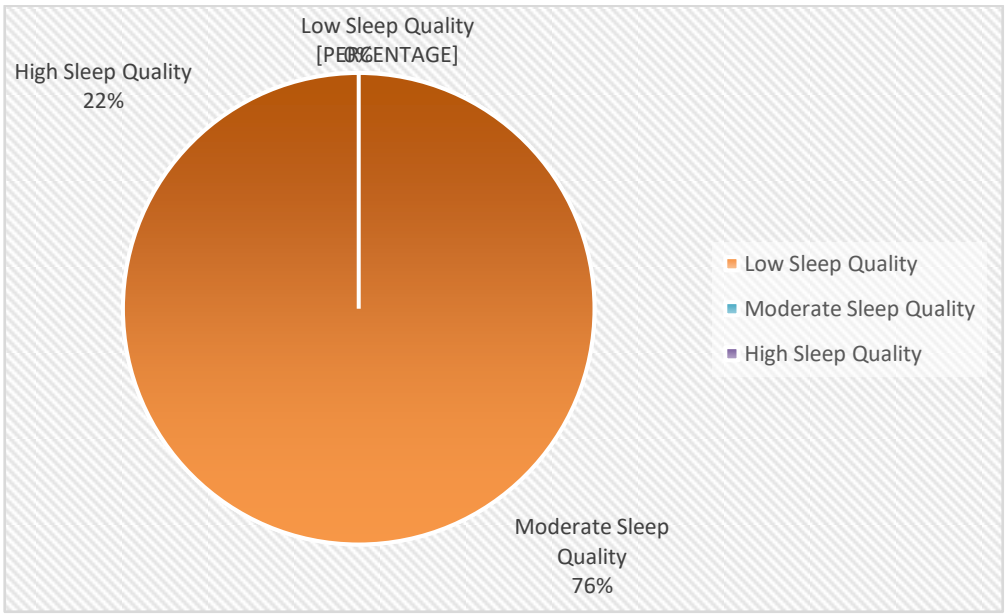


Figure 2:- Percentage distribution of sleep quality among nursing students.

Table 4:- Mean, Mean percentage and Rank order of sleep quality among nursing students according to the areas of sleep quality. **N=60**

Areas of sleep quality	Maximum score	Mean	Mean percentage (%)	Rank
Subjective sleep quality	08	4.95	61.80	4
Sleep latency	08	5.40	67.90	2
Sleep duration	04	2.03	50.80	6
Sleep efficiency	04	2.21	55.40	5
Sleep disturbance	36	29.58	82.17	1

Use of medication	12	5.26	43.80	7
Day dysfunction	08	5.25	65.60	3

Minimum score=20
Maximum score =80

Findings related to assessment of academic performance among nursing students.
According to academic performance among nursing students 29(48.30%) highest number of nursing students had B+(Good) academic score, 25(41.70%) had B (above average) academic score, 03(05%) had A (very good) and C (Average) scoring in academics. While none of the students had the academic score of O (Outstanding) A+(Excellent), P(Pass),F (Fail) grading.

Table 5:- Frequency and percentage distribution of Academic performance among Nursing Students**.**

Items		**Frequency (n)**	**Percentage (%)**
Letter grade	**SGPA**		
O (Outstanding)	10	00	0.00
A+ (Excellent)	9-9.9	00	0.00
A (Very Good)	8-8.9	03	5.00
B+(Good)	7-7.9	29	48.30
B (Above average)	6.-6.9	25	41.70
C (Average)	5-5.9	03	5.00
P (Pass)	4-4.9	00	0.00
F (Fail)	0	00	0.00

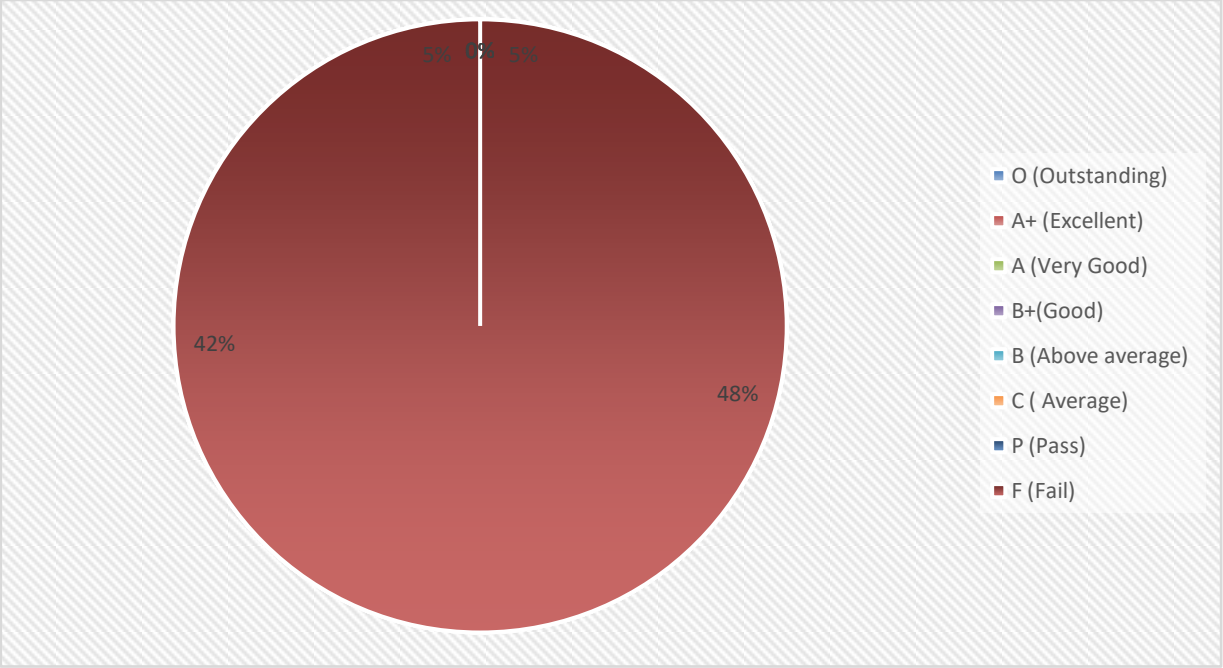


Figure 3:- Pie chart showing percentage distribution of academic performance.

Findings related to relationship of sleep quality and academic performance among nursing students.
Indicated that correlation between sleep quality and academic performance among nursing students.The mean score of sleep quality and academic performance was 54.70 (+7.64) and 6.94(+0.65) respectively. The computed correlation (r) was found to be 0.12, which shows that there is no relationship between the sleep quality and academic performance. It further reveals that the correlation 0.12 is lower than the tabulated (r) value at df (58) at 0.05 i.e. 0.21 hence, the correlation was found to be statistically non-significat.

Table 6:- Mean, standard deviation and correlation between sleep quality and academic performance among Nursing Students. **N=60**

Variables	Mean	Standard deviation	Correlation (r)
Sleep quality	54.70	+7.64	0.12^{NS}
Academic performance	6.94	+0.65	

df(58)^{NS}= Non Significant at 0.05 level

Findings related to association of sleep quality with their selected socio-demographic variables using chi-square test.

Indicates that the association of sleep quality among nursing students with their selected socio-demographic variables such as difficulty in staying asleep (11.46) was statistically significant at p<0.05 level. Hence, it revealed that socio-demographic variable difficulty in staying asleep had influence on sleep quality among nursing students. Whereas association of sleep quality among nursing students with their socio-demographic variable such as evening nap(1.29), physical activity(2.34) and amount of sleep on weekend or holidays(7.54) had calculated chi square value less than the table value which was found to be statisticallynon-significant at p<0.05 leve

Table 7:- Association of level of sleep quality among nursing students according to selected sociodemographic variables. **N=60**

Socio-demographic variables	Level of Sleep quality				
	Low (20-40)	Moderate (41-60)	High (61-80)	df	Chi-square
1.Evening nap				2	1.29^{NS}
Yes	00	29.14	8.24		
No	01	16.87	4.76		
2.Physical activity in a day				6	2.34^{NS}
< 30 min.					
30 – 60 min.	01	29	08		
60 – 90 min.	00	16	04		
> 90 min.	00	00	00		
	00	01	01		
3. Difficulty in staying asleep.				6	11.46^{NS}
Never	00	18	04		
Sometime	01	21	08		
Often	00	05	01		
Always	00	02	00		
4. How many hours do you sleep on the weekend or holiday?				6	7.54^{NS}
5 hours	01	29	08		
6-7 hours	00	16	04		
8-10 hours	00	00	00		
> 10 hours	00	01	01		

Minimum score=20 **NS=Non-significant at p<0.05 level**
Maximum score=80 ***=Significant at 0.05 level**

Discussion:-

The discussion according to the objectives of the study is as follows:

Analysis of data regarding 1st objectives of the study i.e. to evaluate the quality of sleep among nursing students.

The findings of present study, the mean score of quality of sleep among nursing students was 54.7 with mean percentage of 68.3% and standard deviation of +7.64 which showed that nursing students had moderate quality of sleep.

Analysis of data regarding 2nd objective of the study i.e. to assess the academic performance among nursing students.
The findings of present study, 29(48.30%) highest number of students had B+ (Good) academic score which showed that nursing student had average academic performance.

Analysis of the data regarding 3rd objective of the study i.e. to determine the relationship between quality of sleep and academic performance among nursing students
The findings of present study, there is no relationship between the sleep quality and academic performance among nursing students.

Analysis of the 4th objective of the study i.e. to find out the association between quality of sleep among nursing students with their selected socio-demographic variables. i.e. evening nap, physical activity in a day , difficulty in staying asleep, duration of sleep on weekend or holidays.

Findings shows according to association of sleep quality with their socio demographic variables i.e. difficulty in staying asleep was statistically significant at $p<0.05$ level which showed that socio-demographic variable difficulty in staying asleep had influence on sleep quality among nursing students.

Analysis of data according to association of sleep quality among nursing student with their socio demographic variable such as evening nap, physical activity and amount of sleep on -weekend or holidays showed statistically non-significant at $p <0.05$ level.

Conclusion:-

The present study was done on 60 nursing students to assess the sleep quality and its influence on academic performance inMHR DAV Institute of Nursing, Jalandhar. It is concluded from the finding that majority i.e. 29(48.8%) of nursing students were in age group 21 or above, 30(50%) of equal ratio of semester 3rd and 5th were included, 40(6.7%) of nursing students were hostellers, 35(58.4%) majority of nursing students took evening nap, 38(63.4%) majority of nursing students spent time in physical activity for<30min, 50(83.4%) nursing students has good sleep, 30(50%) majority of nursing student sometimes fall asleep with light on, 29(98.4%) majority of nursing student were sleep for <5hour.The mean score of sleep quality and academic performance was 54.70 (+7.64) and 6.94(+0.65). The correlation was found to be 0.12, which show that there is no relationship between the sleep quality and academic performances.

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