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Correlation between Quality of Sleep and Academic Performance among Undergraduate Students

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Keywords: quality of sleep, academic performance, undergraduate students.

ABSTRACT

Background: Sleep problems have become epidemic and traditional research has discovered many causes of poor sleep. Inadequate sleep affects the body in many ways, so it seems to have imperative effects on a student's academic performance. **Aim:** The present study was to find out the correlation between the Quality of Sleep and Academic Performance among Undergraduate Students in selected Women's Arts and Science colleges, Puducherry. **Methodology:** A Quantitative correlational survey research design was adopted for the study. Total sample of 300 adolescents was selected by using convenience sampling technique. Data were collected by using Socio-demographic variables, Sleep quality Scale was used to assess quality of sleep and Academic Performance was used to assess by Grade Point Average (GPA) method. **Results:** The study results showed that most of the undergraduate students 50.7% had very good sleep and 76.0% had good academic performance. The correlation values indicated a substantial positive correlation between Quality of Sleep and Academic Performance among undergraduate students. **Conclusion:** The study concluded that good Quality of sleep improves the academic performance of undergraduate students. If the quality of the sleep was good their academic performance would also be good.

INTRODUCTION

Sleep is a physiological process essential to humans and their normal functioning. Sleep habits and problems related to sleep are also influenced by physical, mental, and environmental factors such as age, gender, job, lifestyle, emotional tension and noise. The most important social factors influencing to sleep are family problems. The first five psychological factors that most affect to sleep are psychological problems, stress, sadness, depression, anxiety and tension. [1]

Up to 60% of all college students suffer from poor sleep quality and 7.7% meet all criteria of an insomnia disorder. Sleep problems have a great impact on the student's daily life, for example, the Grade Point Average (GPA).[2]

Studies have suggested that quality of sleep include such as insufficient sleep, increased frequency of short-term sleep, going to sleep late and getting up early affect the capacity of individual learning capacity, academic performance, and neurobehavioral function.[3]

Good quality of sleep is pertinent for the health and wellbeing of an individual. It is a key for next day freshness, energy, enthusiasm and saneness. It’s Depth, the restfulness of sleep and feeling freshness after awakening are some of the salient characteristics of sleep quality.[4]

Sleep is important for some reasons. It restores our energy, fights off illness and fatigue by strengthening our immune system, helps us think more clearly and creatively. It strengthens memory and produces a more positive mood and better performance throughout the day.[5]

Academic performance is the extent to which students have achieved in their short or long-term educational goals. Some of the poor academic performance qualities have been identified among the students are low enthusiasm for learning, lack of motivation for learning, lack of interest in learning, weak willingness to learn, and poor learning mentality. It also affects Cumulative GPA, attendance percentage and also its completion of educational benchmarks such as secondary school diplomas and bachelor's degrees represent academic achievement.[6]

Adolescents are experiencing insufficient sleep during night and this leads to more daytime sleepiness symptoms as compared to previous generations. The two major areas where

adolescents sleep cluster into various factors that influence are intrinsic-the biological processes going on internally in adolescents and the external factors-social, academic, and environmental-that play a significant role in their sleep habits. Currently adolescents undergo major sleep changes like sleep duration, depth decrease, and sleep shifts towards evening hours. The average amount of sleep that teenagers get is between 7 and 7 ¼ hours. However, they need between 9 and 9 ½ hours. A tendency toward eveningness sleep becomes evident as a result of internal and external influences on brain mechanisms regulating sleep and circadian rhythm. Staying up late combined with early morning awakenings for college easily lead to insufficient sleep and accumulation of sleep during the college weekdays.[7]

STATEMENT OF THE PROBLEM

"A correlational study between Quality of Sleep and Academic Performance among Undergraduate Students in selected Women's Arts and Science College, Puducherry".

OBJECTIVES

1. To assess the quality of sleep among undergraduate students.
2. To assess the academic performance among undergraduate students.
3. To identify the relationship between quality of sleep and academic performance among undergraduate students.
4. To find out the association between quality of sleep among undergraduate students with selected demographic variables.
5. To find out the association between academic performance among undergraduate students with selected demographic variables.

MATERIALS AND METHODS

A Correlational survey design with a convenience sampling technique was used to select the sample. Total samples of 300 undergraduate students were selected. The data was collected after obtaining permission from the concerned authority. Informed consent was obtained from the each sample prior to data collection setting chosen to conduct the study was selected areas at

Puducherry. The tool used for this study was quality of sleep assessed by Sleep Quality Scale (SQS) and academic performance was used to assess by GPA method. Both Descriptive and inferential statistics were used to analyze the data.

RESULTS

The study results on demographic variable among undergraduate students for Age, majority of them 206 (68.7%) belongs to age group of 19 years. Regarding Religion 271(90.3%) were Hindus. Regarding Marital Status 291(97.0%) were single. To Type of Family, most of them 208 (69.3%) belongs to nuclear family. Concerning Place of Staying most of them 297 (99.0%) were days-scholar.

Regarding number of Siblings, majority of them 158 (52.7%) had one sibling. To Residence, most of them 164 (54.7%) were residing in urban area. To Dietary Pattern, majority of them 279 (93.0%) were non-vegetarian. Regarding Physical Activity, majority of them 195(65%) were not doing any physical activity. Regarding Part Time Job, majority of them 283 (94.3%) were not working any part time job.

Table 1:Frequency and Percentage-wise Distribution of Quality of Sleep among Undergraduate Students.

N=300

Quality of sleep	**Frequency (n)**	**Percentage (%)**
Very good sleep (0-21)	152	50.7
Fairly good sleep (22-42)	143	47.7
Fairly bad sleep (43-63)	5	1.6
Very bad sleep (64-84)	0	0
Total	300	100

The above table portrayed that majority of the student's 152 (50.7%) had very good sleep, 143 (47.7%) had fairly good sleep, 5 (5.6%) had fairly bad sleep and none of them fall on very bad sleep.

Figure. 1: Percentage distribution of Quality of Sleep among Undergraduate Students

Table 2:Frequency and Percentage distribution of Academic performance among undergraduate students.

N=300

Academic Performance	**Frequency (n)**	**Percentage (%)**
Good performance (4.0-3.0)	228	76.0
Poor performance (2.9-0)	72	24.0
Total	300	100

The above table revealed that the majority of the students 228 (76.0%) had good academic performance, 72 (24.0%) had poor academic performance.

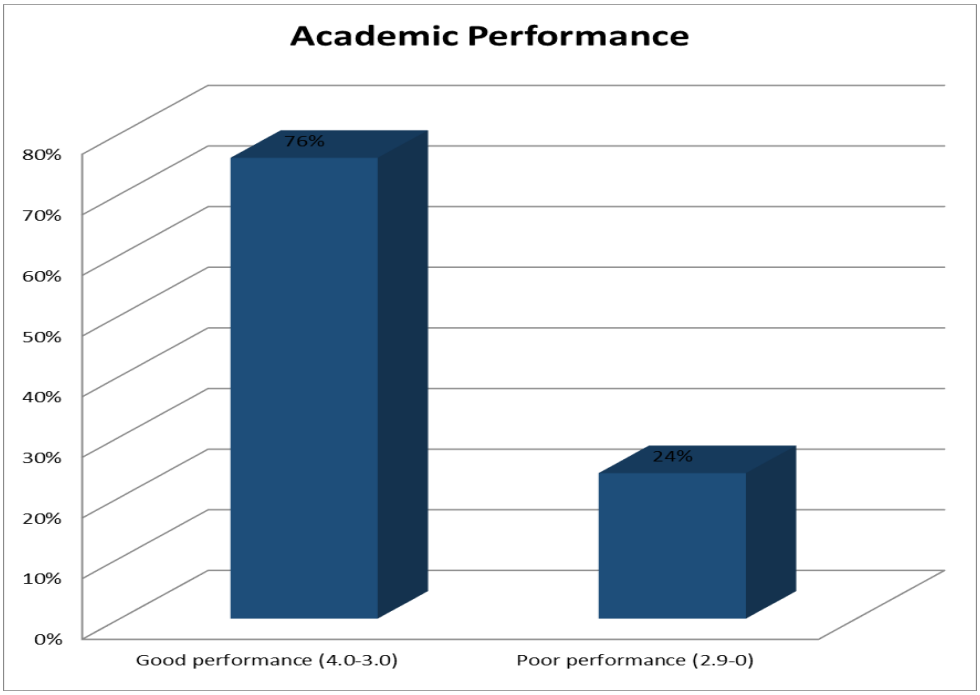

Figure. 2: Percentage distribution of Academic Performance among undergraduate students

Table 3: Relationship between Quality of Sleep and Academic Performance among Undergraduate Students

N = 300

Variables	**Mean**	**SD**	**Correlation (r)**	**Level of significance**
Quality of sleep	18.1	6.61	**0.125**	**p=0.030 S***
Academic performance	3.27	.401		

***p<0.01, S – Significant**

The above table portrayed that the mean score for Quality of sleep was 18.1±6.61 and the mean score for academic performance was 3.27±0.401. The calculated Karl Pearson's Correlation value of r = 0.125 showed a substantial positive correlation between Quality of sleep and academic performance among undergraduate students.

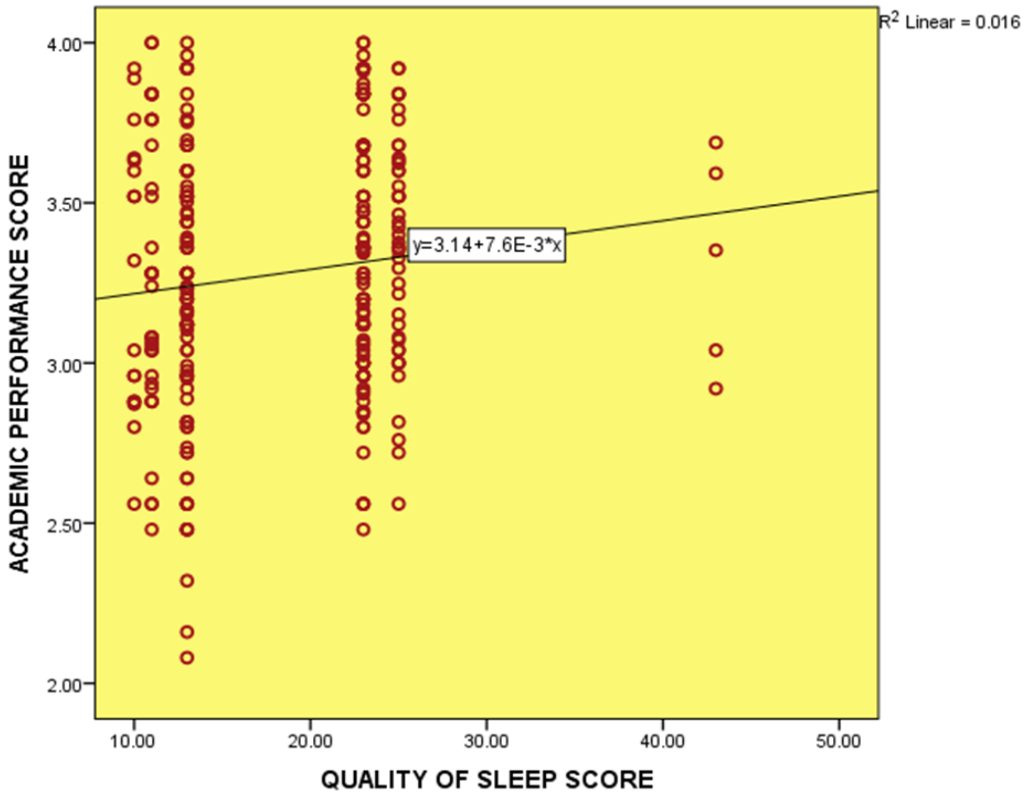

Figure. 3: Scatter Diagram shows the Correlation between

Quality of sleep and Academic Performance

Table 4: Association between Quality of Sleep among Undergraduate Students with selected Demographic Variables.

N=300

DEMOGRAPHIC VARIABLE	LEVEL OF QUALITY OF SLEEP						χ^2	df	p-value
	Very good Sleep		Fairly good Sleep		Fairly bad Sleep				
AGE (IN YEARS)	N	%	N	%	N	%			
18 years	39	25.7	33	23.1	4	80.0	9.828	6	.132 (NS)
19 years	106	69.7	99	69.2	1	20.0			

20 years	6	3.9	8	5.6	0	0			
21 years	1	0.7	3	2.1	0	0			
RELIGION									
Hindu	139	91.4	127	88.8	5	100	1.184	6	.978 **(NS)**
Muslim	6	3.9	8	5.6	0	0			
Christian	6	3.9	7	4.9	0	0			
Others	1	0.8	1	0.7	0	0			
MARITAL STATUS									
Married	3	2.0	6	4.2	0	0	1.408	2	**.495 (NS)**
Single	149	98.0	137	95.8	5	100			
TYPE OF FAMILY									
Nuclear Family	27	17.8	30	21.0	0	0			
Joint family	97	63.8	106	74.1	5	100	15.367	6	**.018 S***
Extended family	5	3.3	1	0.7	0	0			
Single parents	23	15.1	6	4.2	0	0			

DEMOGRAPHIC VARIABLE	**LEVEL OF QUALITY OF SLEEP**						**χ^2**	**df**	**p-value**
	Very good Sleep		**Fairly good Sleep**		**Fairly bad Sleep**				
	N	**%**	**N**	**%**	**N**	**%**			
PLACE OF STAYING									
Days-scholar	149	98.0	143	100	5	100	2.951	2	.229 **(NS)**
Hostellers	3	2.0	0	0	0	0			
NUMBER OF SIBLINGS IN THE FAMILY									
One	89	58.6	65	45.5	4	80.0			
Two	40	26.3	40	28.0	1	20.0	9.081	6	.169 **(NS)**
Three and above	16	10.5	27	18.9	0	0			
Nil	7	4.6	11	7.6	0	0			

RESIDENCE							2.059	4	.725 **(NS)**
Urban	81	53.3	79	55.2	4	80.0			
Rural	63	41.4	54	37.8	1	20.0			
Semi-urban	8	5.3	10	7.0	0	0			
DIETARY PATTERN							2.041	2	.360 **(NS)**
Vegetarian	8	5.3	13	9.1	0	0			
Non-vegetarian	144	94.7	130	90.9	5	100			
PHYSICAL ACTIVITY							1.045	2	.593 **(NS)**
Yes	49	32.2	54	37.8	2	40.0			
No	103	67.8	89	62.2	3	60.0			
PART TIME JOB							1.580	2	0.454 **(NS)**
Yes	11	7.2	6	4.2	0	0			
No	141	92.8	137	95.8	5	100			

***p<0.05, S – Significant, N.S – Not Significant**

The table: 4- depicted that the Type of Family **(χ^2=15.367, p=.018)** had shown statistically significant association with the quality of sleep among undergraduate students at p<0.05 level. The other demographic variables had not shown statistically significant association with the quality of sleep among undergraduate student.

Table 5: Association between Academic Performance among Undergraduate Students with selected Demographic Variables

N=300

DEMOGRAPHIC VARIABLE	**ACADEMIC PERFORMANCE**				**χ^2**	**df**	**p-value**
	Good performance		**Poor performance**				
	N	**%**	**N**	**%**			
AGE (IN YEARS)					4.430	3	.219 **(NS)**
18 years	62	27.2	14	19.4			

19 years	150	65.8	56	77.8			
20 years	12	5.3	2	2.8			
21 years	4	1.7	0	0			
RELIGION							
Hindu	204	89.5	67	93.1	3.217	3	.359 **(NS)**
Muslim	13	5.7	1	1.4			
Christian	9	3.9	4	5.6			
Others	2	0.9	0	0			
MARITAL STATUS							
Married	5	2.2	4	5.6	2.126	1	.145 **(NS)**
Single	223	97.8	68	94.4			
TYPE OF FAMILY							
Joint Family	40	17.6	17	23.6			
Nuclear family	161	70.6	47	65.3	1.462	3	.691 **(NS)**
Extended family	5	2.2	1	1.4			
Single parents	22	9.6	7	9.7			
DEMOGRAPHIC VARIABLE	**ACADEMIC PERFORMANCE**				**χ^2**	**df**	**p-value**
	Good performance		**Poor performance**				
	N	**%**	**N**	**%**			
PLACE OF STAYING							
Days-scholar	227	99.6	70	97.2	3.024	1	.082 **(NS)**
Hostellers	1	0.4	2	2.8			
NUMBER OF SIBLING IN THE FAMILY							
One	119	52.2	39	54.2	3.099	3	.377 **(NS)**
Two	65	28.5	16	22.2			

Three and above	29	12.7	14	19.4			
Nil	15	6.6	3	4.2			
RESIDENCE							
Urban	123	53.9	41	56.9	3.578	2	.167 **(NS)**
Rural	88	38.6	30	41.7			
Semi urban	17	7.5	1	1.4			
DIETARY PATTERN							
Vegetarian	17	7.5	4	5.6	.304	1	.582 **(NS)**
Non-vegetarian	211	92.5	68	94.4			
PHYSICAL ACTIVITY							
Yes	81	35.5	24	33.3	.116	1	.734 **(NS)**
No	147	64.5	48	66.7			
PART TIME JOB							
Yes	14	6.1	3	4.2	.399	1	0.528 **(NS)**
No	214	93.9	69	95.8			

***p<0.05, S – Significant, N.S – Not Significant**

The table 5- depicted that the demographic variables had not shown a statistically significant association with the academic performance among undergraduate students at p<0.001 level and p<0.05respectively.

DISCUSSION

The First objective of the study was to assess the quality of sleep among undergraduate students. The study findings revealed that most of students 152 (50.7%) had very good sleep, 143 (47.7%) had fairly good sleep, 5 (5.6%) had fairly bad sleep and none of them fall on very bad sleep.

The present study was supported by **Kaur G** conducted "A cross-sectional Study on the Sleep Quality of Indian College Students" at Chandigarh, India. The study concluded that problem of

poor sleep quality was common in Indian college students. Three out of ten students had problem of poor sleep quality and females found to be more at risk.[8]

The secondary objectives of the study were to assess the academic performance among undergraduate students. The study findings revealed that majority of the students 228 (76.0%) had good academic performance, rest of them 72(24.0%) had poor academic performance.

The present study was supported by **Gbollie C** conducted a study on "Student Academic Performance: The Role of Motivation, Strategies, and Perceived Factors Hindering Liberian Junior and Senior High School Students Learning". The study results showed the motivational belief component of extrinsic goal orientation as the most preferred belief and test anxiety was the least possessed belief. The study concluded that some practical recommendations for action relative to the improvement of student performance have been advanced.[9]

The third objective of the study was to identify the relationship between quality of sleep and academic performance among undergraduate students. The mean score of Quality of sleep was 18.1±6.61 and the mean score of Academic performance was 3.27±0.401. The calculated Karl Pearson's Correlation value of r = 0.125 showed a substantial positive correlation between Quality of sleep and academic performance among undergraduate students which clearly infers that when the quality of sleep is good, academic performance also be good. The above results showed that a significant substantial positive relationship between Quality of sleep and Academic Performance. Hence **Hypothesis was accepted**. Therefore, it was suggested that quality of sleep and academic performance were related among undergraduate students i.e. when quality of sleep increases, the academic performance also increases and found to be statistically significant.

The present study was supported by **Hermoso M.R. T** conducted study on "Influence of Sleeping Patterns on Health and Academic Performance among University Students". The study results show that Women show a higher risk of presenting poor sleep quality compared with men. The study concluded that Academic performance expose that the students with poor sleep quality obtain lower academic scores than those with good sleep quality.[10]

The fourth objectives of the study was to find out the association between quality of sleep among undergraduate students with selected demographic variables. It included Age, Religion,

Marital Status, Type of Family, Place of Staying, and Number of Sibling in the Family, Residence, Dietary Pattern, Physical Activity and Part Time Job. The study revealed that Type of Family **(X^2=15.367, p=.018)** had shown statistically significant association with the Quality of sleep among undergraduate students at $p<0.05$ level respectively. The other demographic variables had not shown statistically significant association with the quality of sleep among undergraduate students.

The fifth objectives of the study was to find out the association between academic performances among undergraduate students with selected demographic variables. It included Age, Religion, Marital Status, Type of Family, Place of Staying, and Number of Sibling in the Family, Residence, Dietary Pattern, Physical Activity and Part Time Job. The demographic variables had not shown statistically significant association with the academic performance among undergraduate students at $p<0.001$ level and $p<0.05$ respectively.

CONCLUSION

The study concluded that most of the female students had good quality of sleep and good academic performance. The correlation value indicated a substantial positive correlation between Quality of sleep and Academic performance which clearly infers that when the quality of sleep is good, academic performance also be good and its only applicable for Women's studying in Arts and Science College.

RECOMMENDATIONS

- Replication of the study may be done with the large samples in different settings to generalize the study findings.
- This study can be conducted in School setting.
- A comparative study can be done between the Male and Female among students.
- The interventional study can be conducted to evaluate the improved quality of sleep.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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