



## “A Study to Assess the Relationship between Academic Stress and Quality of Sleep Among PUC Science Students Studying in Selected College at Bagalkot.” Karnataka, India.

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### KEYWORDS

Academic stress,  
PUC Students,  
Relationship,  
Quality of sleep.

### ABSTRACT:

**Introduction:** Academic stress is anxiety and anxiety caused by academic demands beyond an individual's available resources. It affects secondary level students' academic performance, psychosocial adjustment, and sleep quality. Unmanaged stress can lead to developmental difficulties, long-term physical and mental health setbacks, behavioural problems, risky smoking, substance abuse, self-harm, poor eating habits, and sleep disorders. Distressed teens are at higher risk for behavioural problems.

**Objectives:** To find out the co-relation between Academic stress and Quality of sleep of PUC science students in selected college at Bagalkot.

**Methods:** A descriptive co-relational study with a sample of 120 PUC science students in the age group of 16 – 18 years was selected by convenient sampling technique. The data was collected by using Academic stress scale & Pittsburgh sleep quality index (PSQI) scale respectively. The data was entered in MS excel sheet and transferred to SPSS 25 for analysis.

**Results:** Among 120 samples 50.83% were males and 49.17% were females. Among 120 participants (2.5%) of students were having Slight academic stress and (97.5%) of students were having Moderate academic stress. Among 120 participants (7.5%) of students were No difficulty of sleep, (92.5%) of students were having Mild difficulty of sleep. were age group of 16 – 18 years.

**Conclusions:** The study found a weak positive correlation between academic stress and Quality of sleep among PUC science students, suggesting that promoting proper sleep practice and providing accurate academic progress information can help reduce stress.

### 1. Introduction:

Adolescence is a crucial transitional stage between childhood and adulthood, marked by rapid physical, emotional, and social changes. It is a significant period of growth, maturation, and self-adjustment. Adolescents, comprising 17% of the world's population, often experience stress. Studies have shown a positive relationship between sleep quality and academic achievement, with poor sleep quality and insufficient sleep significantly associated with poorer performance.<sup>1</sup>

Higher secondary school education is a crucial turning point in an individual's academic life, with performance playing a significant role in deciding their next higher education and career. Excessive stress during this stage can lead to psychological problems like depression and nervousness, negatively impacting achievements and causing distress.<sup>2</sup> Students, including early adult age groups, often struggle with optimal sleep due to high activity and stressors, leading to poor sleep quality. Historically, stress was considered a lifestyle crisis, but now it is recognized as affecting individuals of all



developmental stages.<sup>3</sup> The National Crime Records Bureau reports that one student commits suicide every hour, with 1.8% of students committing suicide due to failing exams. Adolescents in India have the highest suicide rate globally, with school work being the most frequent source of stress. Chronic stress can lead to long-term physical and mental health issues, including anxiety disorders, depression, behavioral problems, and suicide. Academic stress has emerged as a significant mental health problem, affecting students' academic performance, psychosocial adjustment, and overall well-being.<sup>4</sup> Adolescent girls are more vulnerable to stress due to physiological changes, social upbringing, and pressure to achieve good grades. Depression is more common among girls. Self-reported mental and subjective health complaints increase over time. Improving school achievement and emotional well-being are essential. Academic stress is mental distress associated with anticipated frustration and burdens like exams, class discussions, and meeting expectations.<sup>5</sup> Academic stress is often caused by poor study habits, such as time management and concentration issues, which can lead to poor academic performance. Students need to employ coping strategies to overcome this pressure. Sleep is crucial for working memory capacity and consolidation, and prolonged psychological stress can negatively impact academic performance. Sleep deprivation and delayed circadian rhythm can also contribute to academic stress.<sup>6</sup>

## 2. Objectives:

To assess the Academic stress among PUC students in selected college at Bagalkot. To assess the Quality of sleep among PUC students in selected college at Bagalkot. To find out the co-relation between Academic stress and Quality of sleep of PUC students in selected college at Bagalkot. To find out the association between Academic stress and selected socio demographic variables. To find out the association between Quality of sleep and selected socio demographic variables.

## 3. Methods:

It was a descriptive co-relational study with an aim to assess the co-relation between Academic stress and Quality of sleep of PUC science students in selected college at Bagalkot. A sample of 120 in the age group of

16 – 18 years was selected by convenient sampling technique.

### Study participants:

The study participants were students from 16-18 years of age residing in rural areas of Bagalkot District. The data was collected from 120 PUC science students in selected college at Bagalkot.

### Setting of the study:

Based on the investigator's familiarity, availability of the subjects and feasibility to conduct the study, the present study was conducted in Basaveshwar Sciences PU College Bagalkot.

### Sampling technique:

The sample was selected by convenient sampling technique will be used to select the sample for Selecting PU College Bagalkot.

### Sample size estimation:

The sample size for the present study was estimated using the following formula based on result of pilot study.

$$\text{Sample size} = Z\text{value}^2 \times SD^2 / d^2$$

where, **Z** = the value of normal variant at 95% confidence level i.e. Z value = 1.96.

**SD** = Standard Deviation

**D** = Expected allowable error in the mean (i.e. 5% of mean)

$$\text{Mean} = 14 \quad \text{SD} = 3.60 \quad d = 5 \times 14 / 100 \quad d = 0.7$$

The value of normal variant at 95% confidence level i.e. Z value = 1.96.

$$\text{Hence, Sample size (n)} = Z \text{ value}^2 \times SD^2 / d^2 \quad \text{Sample size (n)} = (1.96)^2 \times (3.60)^2 / (0.7)^2$$

$$\text{Sample size (n)} = 3.84 \times 12.96 / 0.49$$

$$\text{Sample size (n)} = 101.5$$

Hence the calculated sample size was 101.5, as round off the researcher selected 120 PUC science students Bagalkot.

### Data collection Instrument:

- Academic Stress Scale–To Assess the Academic Stress.
- Pittsburgh Sleep Quality Index (PSQI)–To Assess the Quality of sleep.



### Translation and reliability of data collection instruments:

The instruments were translated in to Kannada language and retranslated in to English. Similarity between original and translated tool were ascertained by linguistic experts. The reliability of all 2 tools was established by test-retest method. The tools were administered to 12 PUC science students' and the same tools were administered to same group with a gap of seven days. Spearman's rank order correlation coefficient for baseline proforma was  $R=1$ . For Academic stress scale [ $r= 0.95$ ] and for Pittsberg quality of sleep scale [ $r= 0.89$ ] suggesting all the tools were reliable for conducting the study.

### Data collection Procedure:

Data collection was done from 18-07-2023 at Basaveshwar Science PU College Bagalkot. A formal Permission was obtained from the Principal of Sajjalashree Institute of Nursing Sciences Navanagar, Bagalkot. Then permission was obtained from the Principal of Basaveshwar Science PU College Bagalkot. The purpose of the study was explained to the principal of this college. The investigator given self-introduction explained the purpose of data collection to the subjects and subject's willingness to participate in the study was ascertained. The subject was assured the anonymity and confidentiality of the information provided by them. Academic stress scale was administered to students to assess the Academic stress, and Pittsberg quality of sleep scale was administered to students to assess the student's quality of sleep each participant has taken around 45minutes to complete both the scale.

### Ethical clearance:

Ethical clearance certificate was obtained from Institutional ethical clearance committee, B.V.V.S Sajjalashree Institute of Nursing sciences, Bagalkot (ref No. BVVSSIONS-IEC/2022-23/945 Dt:12/08/2022) written consent of participation was obtained from participants before data collection.

### Statistical analysis:

The data was analysed using SPSS version 25. The obtained data was entered in MS excel sheet. The data was edited for accuracy and completeness. The categorical responses were coded with numerical codes. The data was presented with frequency and percentage distribution tables and diagrams. The description of Academic stress and Quality of sleep was presented with

frequency, and percentage distribution, mean, median and standard deviation, range etc. Spearman's correlation formula used to find out the co-relation between the Academic stress and Quality of sleep. The chi-square ( $X^2$ ) test will be used to find out the association between the demographic variables with the Academic stress and Quality of sleep.

### 4.Results

#### PART I: - Description of socio-demographic variables of students

N=120

Sl. No	Age	Frequency	Percentage
1	16-17 years	50	41.66
2	18-19 years	70	58.33
3	Total	120	100
Sl. No	Gender	Frequency	Percentage
1	Male	61	50.83
2	Female	59	49.17
3	Total	120	100
Sl. No	Religion	Frequency	Percentage
1	Hindu	114	95
2	Muslim	6	5
3	Christian	00	00
4	Total	120	100
Sl. No	Type of residential.	Frequency	Percentage
1	Urban	44	36.67
2	Rural	76	63.33
3	Total	120	100
Sl. No	Type of family	Frequency	Percentage
1	Nuclear family	64	53.33
2	Joint family	56	46.67
3	Extended family	00	00
4	Total	120	100
Sl. No	Type of stay	Frequency	Percentage
1	Home	81	67.50
2	Hostel	38	31.67
3	PG	1	0.83
4	Total	120	100
Sl. No	Type of management	Frequency	Percentage
1	Government	00	00
2	Private added	120	100
3	Total	120	100
Sl. No	Year of study	Frequency	Percentage
1	1st Year	52	43.33
2	2nd Year	68	56.67



Total	120	100
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**PART II: - Frequency and percentage distribution of academic stress of students (Academic stress scale)**

N=120				
Sl.No	Range of score	Academic stress	Frequency	Percentage
1	1-20	No academic stress	00	00%
2	21-40	Slight academic Stress	03	2.5%
3	41-60	Moderate academic Stress	117	97.5%
4	61-80	High academic Stress	00	00%
5	81-100	Extreme academic Stress	00	00%
<b>Total</b>			<b>120</b>	<b>100</b>

From above table the percentage distribution of Academic stress for their students for academic stress shows that (2.5%) of students were having Slight academic stress and (97.5%) of students were having Moderate academic stress.

**PART III: - Frequency and percentage distribution of Quality of sleep of students (Pittsburgh sleep quality index)**

N=120				
Sl. No	Range of score	Quality of sleep	Frequency	Percentage
1	0-5	No difficulty	09	7.5
2	6-10	Mild difficulty	111	92.5
3	11-15	Moderate difficulty	00	00
4	16-21	Severe difficulty	00	00
<b>Total</b>			<b>120</b>	<b>100</b>

The above table percentage distribution of students according to the level of Quality of sleep shows (7.5%) of students were No difficulty of sleep, (92.5%) of students were having Mild difficulty of sleep.

**PART IV: - Association between the Academic stress of students with their selected socio-demographic variables.**

Sl. No	sociodemographic variables	Df	$\chi^2$ calculated value	$\chi^2$ table value
1	Age	1	5.9*	3.846
2	Gender	1	1.89	3.846
3	Religion	1	0.01	3.846
4	Type of residential	1	0.11	3.846
5	Type of family	1	0.31	3.846
6	Type of stay	1	1.46	3.846
7	Year of study	1	7.29*	3.846

**\*Significance at  $\alpha = 0.05$**

Findings regarding the association between Academic stress and their socio-demographic variables show that there was a significant association between Academic stress and their selected sociodemographic variables like Age and Year of study.

**PART V: - Association between the quality of sleep of students with their selected socio-demographic variables**

N=120

Sl. No	sociodemographic variables	Df	$\chi^2$ calculated value	$\chi^2$ table value
1	Age	1	3.91*	3.846
2	Gender	1	0.28	3.846
3	Religion	1	0.45	3.846
4	Type of residential	1	0.48	3.846
5	Type of family	1	0.05	3.846
6	Type of stay	1	2.69	3.846
7	Year of study	1	0.09	3.846

**\*Significance at  $\alpha = 0.05$**

Findings regarding the association between quality of sleep and their socio-demographic variables show that there was a significant association between quality of sleep and their selected sociodemographic variables like Age.

**5. Discussion**

It is a co-relation study to assess the relationship between academic stress and quality of sleep among PUC science students studying in selected college at Bagalkot." A similar cross-sectional study was conducted in University of Indonesia. on assessment of relationship



between sleep quality and level of stress among Students. The study concluded that the results showed that poor sleep quality most widely owned by grove social humanities have strong relationship with cluster and stress level.<sup>7</sup> A similar descriptive cross-sectional study was conducted in medical students in their preclinical years at a Saudi medical college in 2019. on assessment of stress and sleep quality the results of the study show that the mean PSQI score was  $8.13 \pm 3.46$ ; 77% of the participants reported poor quality of sleep and 63.5% reported some level of psychological stress.<sup>8</sup> A similar descriptive cross-sectional study was under taken to assess the Relationship between Quality of Sleep and Academic Performance among Nursing Students in selected College of Nursing, Ludhiana, and Punjab. the results of the study sleep duration had a significant impact on quality of sleep whereas gender, academic year.<sup>9</sup>

A similar descriptive study was conducted in who were attending a private educational institution in the Gwangju or Pusan metropolitan city. The result of the study selected that there were significant relationships between sleep quality and academic stress.<sup>10</sup> A similar descriptive and cross-sectional study was conducted medical university in Taiwan. the results of the study shows that higher academic stress causes poorer sleep quality sleep quality was found to partially mediate the relationship between academic expectation stress<sup>11</sup> A similar study was conducted to assess the effects of sleep quality and resilience on perceived stress. Results indicated that sleep quality mediated the relationship between perceived stress.<sup>12</sup>

A similar cross-sectional study was conducted to examine the impacts of academic stress on physical activity and sleep. Academic stress was negatively correlated with physical activity and sleep. The path analysis showed that academic stress directly predicted sleep, anxiety and depression.<sup>13</sup> A similar study was conducted to This study assesses the impact of emotional regulation, and sleep quality among undergraduate students in Jordan. he results indicated that the study emotional regulation on the quality of sleep through the mediation of perceived stress.<sup>14</sup> A similar study was conducted to examine the relationship between quality of sleep and academic performance among undergraduate students in Sabah. The findings show a positive

correlation,  $r=0.342$ , the relationship between the quality of sleep and academic performance.<sup>15</sup>

A cross-sectional study was conducted to evaluate the association between academic stress and sleep quality among medical students enrolled in a university of Lima (Peru) during the COVID-19 pandemic. The findings shows that 97.32% of students presented with "academic stress" and 90.48% had "poor quality of sleep."<sup>16</sup> A similar study was conducted to investigate the potential relationship between academic stress, affect, and sleep quality among college students. The result found that there were no significant correlations between perceived academic stress, affect, and sleep quality.<sup>17</sup> A similar cross-sectional study was conducted to assess the association of sleep quality with academic performance among university students in Ethiopia. Results We found that students with better sleep quality score achieved better on their academic performance (P value = 0.001), while sleep duration was not associated with academic performance.<sup>18</sup>

## Conclusion and Recommendation:

After obtaining the results of the present study the researcher noticed that there is week positive correlation between Academic stress and Quality of sleep of PUC students. To restore the wellbeing of the students, a proper quality of sleep practice should be promoted that may eventually help reduce stress. On the other hand, proper information regarding academic progress and defined assessment methods may help reduce academic stress and promote good quality of sleep. Study in large scale, and true experimental research also should be carried out. More and more educational campaigns also should be conducted in this field.

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