A Study on the Effect of Sleep Deprivation on Mental Health in University Girl Students

Rajesh Ekka
Faculty, Department of Education, Babasaheb Bhimrao Ambekar University, Lucknow.
Taslima Sultana*
M.A. Student,Babasaheb Bhimrao Ambekar University, Lucknow.

Corresponding Author Email: rajeshvj07@gmail.com

Abstract: *The present paper is to examine the effect of Sleep Deprivation on Mental Health of girl students in higher education. Sleep deprivation and mental health consume diverse theoretical approaches to understand individual actions and interactions within their social environment. Poor sleep hygiene, irregular sleep cycles, and poor sleep quality are common among female university students. This study involved a descriptive survey design used for the female perspective among university students concerning the effect of sleep deprivation and mental health as they enter a new phase of university life. In the present study, a total of 100 undergraduate and postgraduate female students were selected using a random sampling technique from Babasaheb Bhimrao Ambedkar University (A Central University) in Lucknow, Uttar Pradesh, India. The respondents were asked to complete the Effects of Sleep Deprivation on Mental Health Questionnaire, the Anxiety Scale, and the General Health Questionnaire (GHQ). Statistical criteria (mean, standard deviation, and t-test) were computed to test the significance of the mean difference in anxiety between undergraduate and postgraduate female students. The study found a significant difference in the mean anxiety scores between undergraduate and postgraduate female students. The study indicates that due to low sleep quality, anxiety levels increase, which affects the mental health of female students.*

Keywords: Anxiety, Deprivation, Health, Girl, Mental, Sleep.

INTRODUCTION

Sleep deprivation occurs when a person does not get enough sleep to feel energetic the following day. Adults should aim for seven to eight hours of sleep every night (Kim,2019) although this may vary depending on individual needs. For instance, one person may feel satisfied with six hours of sleep, while another may experience sleep deprivation after the same amount of sleep. Approximately one in five individuals' experiences sleep deprivation.

Sleep is necessary for cognitive performance, emotional regulation, and general well-being. Many students suffer from chronic sleep loss due to academic pressure, social responsibilities, and digital distractions. This lack of proper rest has a severe impact on mental health, including increased stress, anxiety, sadness, and cognitive impairment. Understanding the relationship between sleep and mental health is very important for young people, teachers, and parents. Encouraging good sleep habits can benefit students' mental health, academic performance, and general quality of life. Sleep deficiency is an extremely common issue that can be caused by various biological and social factors. Unusual sleeping habits might occur more frequently in demanding and competitive settings, as shown in East Asian high schools in Korea and worldwide. Many college students who have to balance their extracurricular and academic obligations also experience this type of stress. These young adults are pursuing their careers and must deal with new duties they have never had to deal with before, such as jobs, internships, and covering their own living expenses. Furthermore, college students frequently worry about sustaining their social networks and forming new connections with classmates and love partners. These variables may reduce the amount of time students have to dedicate to their studies, requiring them to stay up late to complete their work. This may eventually prevent them from succeeding academically in the future. In one survey, 70.6% of college students slept for fewer than eight hours per night, and more than 60% said their sleep was of low quality (Kim, 2019). Additionally, compared to their opponents, those identified as having poor sleep quality were more likely to experience physical and psychological health issues. The American College Health Association's 22018 National College Health Assessment for Undergraduates provides additional insights into the extent of sleep deprivation among college students. Notably, "sleep difficulties" ranked third among factors that students believed would affect their academic performance,

only behind stress and anxiety. Furthermore, there may be a relationship between sleep deprivation and a student's field of study; however, this has not been fully investigated beyond large-scale studies focusing mostly on medical and nursing students. College students with internships, part-time employment, or full-time jobs may also experience sleep loss due to a delay in going to bed, particularly if they work later shifts. Due to changes in the circadian cycle, older teenagers and young adults are physiologically predisposed to sleep later, which frequently leads to night owl tendencies. Sleep is necessary for cognitive performance, emotional regulation, and general well-being. Many students suffer from chronic sleep loss due to academic pressure, social responsibilities, and digital distractions. This lack of proper rest has a severe impact on mental health, including increased stress, anxiety, sadness, and cognitive impairment. Occupational therapy has continuously recognized the need for restful and sufficient sleep for good performance, involvement, and engagement in everyday activities. Occupational therapists discuss the influence of sleep on all stages of life and strategies for intervention. To meet individual, family, and population-based sleep demands, Occupational therapy encompasses a holistic approach to assisting individuals in living their full potential. (Dwivedi, 2017).

LITERATURE REVIEW

The study conducted by Vestergaard et al. (2024) in their research on sleep duration and mental health among young adults. The study highlighted a shaped pattern in the association between student-reported sleep duration across mental disorders and well-being for both males and females. A strong association between short sleep duration and, to some extent, long sleep duration with self-reported mental illness was observed. While the directionality of these findings remains uncertain, it is worth considering that increasing sleep duration through targeted sleep interventions could potentially reduce the risk of mental illness.

Furthermore, Lim & et.al. (2024) in their research work; The Effect of Sleep Deprivation on Creative Cognition: A Systematic Review of Experiment-Based Research. It summarizes the literature reporting experiments that have examined the effect of sleep deprivation on creative thinking and critically evaluates the methods used in these studies. Their study found that sleep deprivation, including REM deprivation, can impair creative cognition. However, the impact varies across studies, and the heterogeneity of study designs limits the generalizability of the effects. Sleep deprivation affects different aspects of divergent thinking, and the affected components are inconsistent across studies.

The research conducted by Lerner (2023) on; Cause and Effect: The Impact of Sleep Deprivation on College Success' found out that the important connection between college students' academic performance and sleep deprivation. Lerner's research demonstrates how college students regularly compromise their sleep in order to meet rigorous academic schedules, which frequently works against their academic achievement objectives. According to research, lack of sleep affects physical and mental health in addition to academic achievement. Physically, lack of sleep impairs hormonal balance and the immune system, increasing the risk of disease and negatively impacting general health. There is a clear correlation between sleep deprivation and higher rates of anxiety, despair, and even suicidal ideation.

The study done by Embang (2021) on; The Effects of Sleep Deprivation Towards the Academic Performance of UstpOroquieta Students examine that studies the substantial effects that sleep deprivation has on college students' academic performance. To determine whether less sleep is associated with worse academic achievement, particularly in subjects like English and education, this study uses quantitative approaches, including surveys and statistical tools like t-tests and correlation analysis. According to Embrong's research, performance and sleep length are positively correlated, meaning that students who get less sleep typically receive worse marks. This study discovered an approximate beneficial connection between academic achievement and sleep duration. In particular, the findings indicated that children who slept for longer periods performed better academically. These results are consistent with other studies showing the importance of sufficient sleep for memory consolidation, cognitive function, and general learning ability. Many USTP students in our sample did not exceed the 7–9-hour sleep threshold recommended by the National Sleep Foundation for young people, indicating a possible area for health and educational improvement measures.

OBJECTIVES OF THE STUDY

- To study the effect of sleep deprivation on the mental health of university students.
- To Study the effect of sleep deprivation on the mental health of university students with reference to their educational level (graduate and postgraduate).
- To study the impact of sleep deprivation on the mental health of university students in the residential context (Urban and Rural).
- To study the effect of sleep deprivation on the mental health of university students in the context of electronic device consumption.

HYPOTHESIS

- There is no significant difference between the effect of sleep deprivation on the mental health of undergraduate and postgraduate university students.
- There was no significant difference between the effects of sleep deprivation on the mental health of rural and urban university students.

METHODOLOGY

Design of the study - The survey method was used under descriptive research. This study was conducted using a quantitative research method. The research design outlines the sample selection, methodology, data collection, and independent and dependent variables. This study employed a survey approach to gather descriptive data from the target group. Quantitative methods were employed to conduct the research.

Selection of tool: For data collection, the researcher applied the survey method. Three tools were used for data collection.

1. Demographic and Personal Information Form with checklist (Self – made),
2. Mental Health Questionnaire (GHQ -12 by Goldberg, 1972),

3. Anxiety Scale (Farha Deeba & Roquia Begum, Bangladesh, 2004).

The tools were supplied to all 100 female students of the university. Before collecting the data, a pilot study was conducted to check the reliability and validity.

Sample selection: The sample for the present study consisted of 50 undergraduate and 50 postgraduate female students from the University of B. B.A. U., Lucknow. The sample for the study was selected from female students studying at the University of Babasaheb Bhimrao Ambedkar University, Lucknow, Uttar Pradesh, India, using a simple random sampling technique.

RESULT AND DISCUSSION

Hypothesis 1: There is no significant difference in mean scores of Anxieties between UG and PG female University students

Table 1. Anxiety between UG and PG female University students

Course	N	M	SD	σ_D	Calculated value	df	Table value
UG	52	113.88	21.93	4.23	2.58	98	1.98
PG	48	124.79	20.39				(0.01)

*Significant at the 0.05 level

From Table 1, it can be seen that the table value is 1.98, which is significant at the 0.05 level with df=98.This indicates that the mean anxiety scores of undergraduate and postgraduate students differed significantly. The null hypothesis that there is a significant difference in the mean anxiety scores between undergraduate and postgraduate female university students. Furthermore, the mean anxiety score of postgraduate students was 124.79, which was significantly higher than that of undergraduate students, whose mean anxiety score was 113.88. Therefore, it may be said that PG students were found to have significantly higher anxiety than UG students.

Hypothesis 2: There is no significant difference in mean anxiety scores between rural and urban female university students.

Table 2. Anxiety between Rural and Urban female University students

Course	N	M	SD	σ_D	Calculated value	df	Table value
Rural	37	120.14	20.64	4.43	0.37	98	1.98
Urban	63	118.52	22.6				-0.05

*Not Significant at 0.05 level

From Table 2, it can be seen that the table value is 1.98, which is not significant at the 0.05 level with df=98.This indicates that the mean anxiety scores of UG and PG students from rural and urban areas did not differ significantly. the null hypothesis that there is no significant difference in the mean anxiety scores between rural and urban female university students. Furthermore, the mean scores of anxieties of rural and urban students are 118.52 and 120.14, respectively, which are almost similar to each other for the undergraduate and postgraduate students. Therefore, both rural and urban students were found to suffer from high anxiety. Therefore, the null hypothesis was not rejected, that is, there was no significant difference in mean anxiety scores between rural and urban female university students.

Table 3. Severity norm of present Anxiety Scale

Severity of Anxiety	Corresponding percentile	Corresponding score of anxiety scale	Total respondent
Mild	43 and below	Below 69	2%
Moderate	44-50	70-80	3%
Severe	51-93	81-149	88%
Profound	93 and above	Above and 150	7%

Interpretation: The severity anxiety level scale showed that 2% of female university students had mild, 3% had moderate, 88% had severe, and 7% had profound anxiety. The picture above portrays the current status of 88% of female university students who experience high levels of anxiety. Only 5% of female university students controlled their anxiety levels. This example suggests an increased concern about student well-being and the need for suitable solutions to help students manage their anxiety. The highest bar, which represents 88% of the responses, relates to Severe Anxiety, indicating that nearly all respondents fall into this category. Smaller bars represent mild (2%), moderate (3%), and profound (7%) categories, suggesting fewer responses in these categories. The data show that anxiety levels are extremely high, with the majority of respondents presenting severe anxiety. The low percentage of female students with mild and moderate anxiety indicates that anxiety level is a significant concern in this group.

Table 4. Questionaries to measure the Sleep Deprivation

Questions	Yes	No	Maybe	Never	Sometimes
Are you a seriously affected by sleep deprivation?	16	46	4	7	27
	-16%	-46%	-4%	-7%	-27%
Do you sleep 6 hours or more?	64	15	7	1	13
	-64%	-15%	-7%	-1%	-13%
Is your sleeping discipline maintained?	40	32	11	1	16
	-40%	-32%	-11%	-1%	-16%
Does sleep deprivation affect your academic performance?	42	23	15	5	15
	-42%	-23%	-15%	-5%	-15%
Does sleep deprivation affect your mental health?	34	25	15	5	21
	-34%	-25%	-15%	-5%	-21%
Does sleep deprivation affect your daily routine activities?	44	16	16	3	21
	-44%	-16%	-16%	-3%	-21%
Does sleep deprivation alter your physical health?	36	22	11	10	21
	-36%	-22%	-11%	-10%	-21%
Does sleep deprivation causes you a headache all day?	35	21	8	8	28
	-35%	-21%	-8%	-8%	-28%
Does deprivation of sleep cause you any sort of stress?	26	26	14	8	26
	-26%	-26%	-14%	-8%	-26%
Does deprivation of sleep make you feel physically uncomfortable?	21	31	15	8	25
	-21%	-31%	-15%	-8%	-25%
Does deprivation of sleep cause you any sort of stress?	30	29	16	7	18
	-30%	-29%	-16%	-7%	-18%
Does sleep deprivation disturb your appetite?	40	30	13	4	13
	-40%	-30%	-13%	-4%	-13%
Does deprivation of sleep make you feel mentally uncomfortable?	40	30	14	10	18
	-40%	-30%	-14%	-10%	-18%
Does sleep deprivation makes you feel tired all day?	47	16	9	10	18
	-47%	-16%	-9%	-10%	-18%
Does deprivation of sleep cause you depression?	19	48	9	9	15
	-19%	-48%	-9%	-9%	-15%
Does sleep deprivation affect your mood?	52	12	11	8	17
	-52%	-12%	-11%	-8%	-17%
Do you feel any sort of difficulty falling asleep?	24	32	7	7	30
	-24%	-32%	-7%	-7%	-30%
Are you satisfied with your sleeping pattern?	35	38	18	3	6
	-35%	-38%	-18%	-3%	-6%
Are you a morning person?	40	34	5	3	18
	-40%	-34%	-5%	-3%	-18%

A total of 100 individuals participated in this descriptive quantitative study, of which 52% were undergraduates (UG) and 48% were postgraduates (PG) from different streams. Of the respondents, 37% were from rural areas, and 63% were from urban areas. According to the data obtained on the effect of sleep deprivation on physical health, 36% of individuals reported that their physical health was completely disturbed, and 16% reported that it may be due to sleep deprivation or not. The same number of samples (n=100) were also tested for the effects of sleep deprivation on the mental health of students, and the results obtained were that 34% of individuals stated that their mental health was disturbed due to the lack of sleep, and 24% of individuals stated that maybe their sleep was disturbed and maybe not. The same number of samples (n=100) were also tested for the students who slept for 6 hours or more, and the results obtained were that 64% of the individuals stated that they slept for more than 6 hours, and 15% of the individuals stated that they did not get enough sleep, which was less than 6 hours. According to the data obtained on the effect of sleep deprivation, 40% of the participants reported that their sleep schedule was maintained, while 32% reported that their sleep schedule was not maintained. Of the data obtained out of 100 responses, 42% of the participants reported a slight decline in their academic performance due to sleep deprivation, while 23% reported that their academic performance was not affected. According to the data gathered on the effect of sleep deprivation, 35% of individuals reported that sleep deprivation caused them headaches, while 21% reported that sleep deprivation did not lead them to headaches. According to the data collected from 100 responses, 26% of the individuals reported that sleep caused them some sort of stress, while 26% reported that sleep deprivation negatively impacted their stress levels. As per data obtained out of the 100 responses, 21% of the participants reported that sleep deprivation caused them to experience physical discomfort, while 31% reported that lack of sleep did not cause them any physical discomfort. Of the 100 responses, 30% of the individuals reported that sleep deprivation disturbed their appetite, while 29% of the individuals reported that sleep deprivation did not disturb their appetite. As per data obtained out of the 100 responses, 40% of the participants reported that sleep deprivation caused them to experience mental discomfort, while 30% reported that lack of sleep did not cause them any mental discomfort. As per data obtained out of the 100 responses, 47% of the participants reported that sleep deprivation caused them to feel tired all day, while 16% of the participants reported that lack of sleep did not cause them any tiredness. Of the 100 responses, 19% of the individuals reported that sleep deprivation caused them depression, while 48% of the individuals reported that sleep deprivation did not cause them depression. In accordance with the gathered data on the effect of sleep deprivation, 52% of individuals reported that sleep deprivation affected their mood, while 12% reported that sleep deprivation did not seem to affect how they felt. From the data collected out of 100 responses,24% individual reported that they experienced some sort of difficulty while falling asleep, while 32% of the respondents reported that they did not experience any sort of difficulty while falling asleep. Based on the collected data, 35% of the participants reported that they were satisfied with their sleep pattern, while 38% reported that they were not satisfied with their sleep pattern. From the data collected, out of 100 responses,40% individual reported that they are morning persons, while 45% of the individuals reported that they do not wake up early in the morning due to sleep deprivation.

FINDINGS

This study examined the sleep routine of female university students to determine whether they are sleep deprived and how it affects their mental health. According to Table 1, it shows that Severity of Anxiety of 2% Mild, 3% Moderate, 8% Severe and 7% Profound of the UG and PG female student. According to Table 2, the female students slept for more than 6 hours, and 26% did not get enough sleep, which caused them stress. Of the 100 respondents, 40% said that their mental discomfort had been caused by sleep loss, whereas 30% said that their state of mind had not been affected by sleep deprivation; 16% of respondents stated that they did not feel tired at all, whereas 47% said that they were exhausted all day due to sleep deprivation. Of those who replied, 19% stated that sleep deprivation made them depressed, while 48% indicated that it did not. Among the participants, 52% reported that sleep loss influenced their mood, while 12% indicated that it had no effect on their emotions. According to the data acquired, 24% of respondents out of 100 had difficulties falling asleep, whereas 32% had no issue at all. According to the data gathered, 35% of respondents said they were happy with their sleep schedule, whereas 38% said they were not. Of 100 replies, 40% stated that they were morning people, whereas 34% reported not waking up early owing to sleep deprivation.

CONCLUSION

In conclusion, our study aimed to investigate the impact of sleep deprivation on the mental health of female university students. According to our research, sleep deprivation has been linked to negative impacts on mental health. Most participants mentioned that their physical health, including their sleep patterns, had been disturbed. Studies showing that sleep deprivation tends to impair mental health, cognitive abilities, and general health are consistent with our findings. It was found that most students do not get the recommended 7-8 hours of sleep per night. Lack of sleep had a detrimental impact on female university students, affecting their mental health. A total of 100 UG and PG female students were selected using the random sampling technique from the University of B.B.A.U in Lucknow, Uttar Pradesh, India. Researcher found out the respondents were asked to complete the Effects of Sleep Deprivation on Mental Health Questionnaire, the Anxiety Scale, and the General Health Questionnaire (GHQ) for female U. G. and P. G students. Statistical criteria (mean, standard deviation, 't' test, and histogram) were computed to test the significance of the mean difference in Anxiety between U.G. and P.G. female students. PG female students were found to have significantly higher anxiety than UG female students. Currently, 2% of students suffer from mild anxiety, 3% from moderate anxiety, 88% from severe anxiety, and 7% from profound anxiety. The investigation emphasizes that an increase in anxiety severity affects the mental health of female students. The study suggests that sleep deprivation affects mental health, which increases anxiety levels among female students. This study focused on the effects of sleep deprivation and anxiety in female university students. This study indicates that low sleep quality increases anxiety levels, which affects the mental health of female students.

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