

# A Study on the Impact of Sleep Deprivation on University Girl Students



Rajesh Ekka, Taslima Sultana

**Abstract:** *Sleep is necessary for overall well-being, emotional regulation, and cognitive performance. Many students suffer from chronic sleep loss caused by social commitments, technological distractions, and academic pressure. Their mental health suffers significantly as a result of the lack of sleep, with symptoms including increased stress, anxiety, sadness, and cognitive deterioration. Parents, educators, and children must understand the relationship between sleep and mental health. Encouraging kids to sleep well can make their lives better in many ways, including their health, schoolwork, and mental health. A variety of biological and social factors can cause sleep loss, a common condition. The study was conducted at Babasaheb Bhimrao Ambedkar University on 100 undergraduate and postgraduate female students. The study shows that poor sleep quality harms female students.*

**Keywords:** Deprivation, Girl, Health, Student, Sleep

## Nomenclature:

NSF: National Sleep Foundation

SD: Standard Deviation

## I. INTRODUCTION

Sleep is a physiological and psychological state that occurs naturally and is characterised by altered consciousness, decreased sensory activity, and virtually no voluntary muscle activity or interaction with the environment. Sleep is required for proper brain function, a critical component of human existence and well-being. It is essential for learning, productivity, and mental and physical well-being. The average human needs 7 hours of sleep at night and 8 to 9 hours of sleep every day. Sleep deprivation happens when you don't receive enough sleep. Lack of sleep is inversely related to sleep duration, which can significantly affect overall health and quality of life.

The quality and quantity of sleep are essential for an individual's well-being and health. According to studies, getting enough good sleep protects one's safety, quality of life, and mental and physical health [6].

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Sleep deprivation has several adverse effects on mood, memory, and overall health. The chance of getting heart disease has increased by 48%, the immune system has weakened, and Type 2 Diabetes can age the brain by three to five years. According to the CDC, more than one-third of adults in the United States do not get enough sleep regularly [2]. The American Academy of Sleep Medicine recommends 8 hours of sleep per night.

Sleep is one of life's most basic demands. In today's 24-hour world, we use our valuable overnight hours for daytime activities. Over the last 25 years, the average number of work hours has increased by 1 month, while the average amount of sleep has decreased by 20% compared to the previous century. Human bodies have not changed, but civilisation's sleep patterns have. The rise in sleep disorders in today's culture hurts people's physical and mental health. The National Sleep Foundation (NSF) conducted a Gallup poll in March 2001 to investigate the relationship between American lifestyles, sleeping patterns, and sleep issues. According to the study, the majority of Americans (63%) do not get the recommended eight hours of sleep per night, which is essential for optimal performance, safety, and good health. A third of Americans actually don't get the required amount of sleep.

Sleep and physical health are inextricably linked, particularly with immune system function. Lack of sleep has been linked to increased stress and inflammation, which decreases immunity and increases the likelihood of illness [5]. Furthermore, sleep deprivation can disrupt hormones that regulate sleep, hunger, and physical capacity, leading to weight gain and decreased physical performance. Numerous studies have found that "the less you sleep, the shorter your life span."

Sleep deprivation can have a significant negative influence on mental health, just like it does on physical health. Studies have connected high-quality sleep to lower levels of anxiety, despair, and even suicidal thoughts and feelings [5]. This is especially true for college students, who are the most vulnerable to the development of mental illnesses. Sleep deprivation can have a variety of negative repercussions, including decreased vitality, poor memory and concentration, and an overall disagreeable demeanour. There is also a complex link between sleep and mood. Sleep is a fundamental and necessary biological function that must be met, just as our needs for food and water are. Inadequate sleep can result from a lack of sleep or a condition that impairs sleep quality. It has only recently been known



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how harmful sleep disorders and sleep deprivation is to one's health and social life.

## II. NEEDS AND SIGNIFICANCE OF THE STUDY

### A. Mental Health Risks

Prolonged sleep deprivation has been associated with the onset and worsening of mental health problems such as depression, anxiety, and suicidal ideation. Lack of sleep disrupts hormone production and neurotransmitter function, both of which are essential for mood control. Sleep deprivation may increase symptoms in students who are already at risk for mental health concerns, complicating recovery and treatment.

### B. Emotional Regulation

Sleep deprivation disturbs emotional balance and worsens anger, anxiety, and mood swings. Students who do not get enough sleep may struggle to cope with stress, increasing their risk of mental health problems such as depression and anxiety. Emotional fatigue can reduce one's ability to manage educational responsibilities, personal commitments, and societal expectations.

### C. Cognitive Performance

Sleep promotes critical thinking, problem-solving, and memory consolidation. Students who are sleep deprived have decreased cognitive skills, making it difficult for them to concentrate, remember, and retain information. This affects academic performance, leading to lower grades and more challenging examinations. Sleep deprivation may also hinder pupils' ability to absorb difficult material, as it shortens attention spans and speeds up reactions.

### D. Physical Wellness and Health

A lack of sleep has profound effects on both physical and mental health, including a weakened immune system, an increased risk of obesity, and cardiovascular disease. A multitude of physical illnesses may exacerbate mental health problems. Lack of sleep can cause physical exhaustion, affecting motivation and participation in daily activities, including academics, and leading to burnout.

### E. Social Contact and Connections

Students who do not get enough sleep are more prone to feeling socially isolated and lonely. Mood swings and irritability make it challenging to communicate with friends and family, which exacerbates loneliness and mental distress. Lack of sleep can damage the social support network that is essential for mental health, increasing the chance of mental health issues among students.

### F. The Need to Treat Sleep Deprivation

Students who suffer from sleep deprivation must receive treatment to maintain their mental and emotional well-being. Medical professionals, families, and educational institutions must emphasise the importance of good sleep hygiene and provide sleep-friendly environments. Children's overall well-being can be enhanced by introducing measures such as later school start times, reduced academic pressure, and

mental health support. Sleep quality is an essential aspect of mental health interventions and awareness, as it influences students' academic, emotional, and social performance.

## III. METHOD & MATERIAL

### A. Objectives of the Study:

To study the effect of sleep deprivation on the mental health of university students

- i. *Research Design:* A descriptive survey method was used to evaluate the implementation and impact of sleep deprivation on the mental health of university students.
- ii. *Data Collection:* Descriptive data on the respondents were collected using a questionnaire. The survey method comprises gathering information from female students' accommodations at Babasaheb Bhimrao Ambedkar University in Lucknow. The research is carried out using quantitative methods. In the current study, a survey was administered to female students at Babasaheb Bhimrao Ambedkar University in Lucknow to assess the impact of sleep deprivation on students' mental health.

## IV. LITERATURE REVIEW

In the paper "The Effect of Sleep Deprivation on Creative Cognition: A Systematic Review of Experiment-Based Research," Lim et al. (2024) critically assess the methodologies employed in the investigations and compile a literature review of experiments examining how sleep deprivation affects creative thinking. Their research revealed that sleep deprivation, specifically REM sleep deprivation, can hinder creative thinking. However, the influence varies across studies, and the variety of study designs constrains the generalizability of effects. Divergent thinking is affected by sleep deprivation in diverse ways, and the components affected vary across studies [4].

Lerner's (2023) study, "Cause and Effect: The Impact of Sleep Deprivation on College Success," discovered an important link between sleep deprivation and college students' academic performance. Lerner's research reveals that college students routinely sacrifice sleep to meet demanding academic schedules, which often work against their academic attainment goals. According to the study, a lack of sleep affects one's physical and mental health, as well as scholastic ability [3].

Cort-Blackson (2018) investigates the consequences of sleep deprivation on students attending online colleges, particularly those managing full-time employment and family responsibilities. This study uses a phenomenological approach to capture the experiences of 10 students to better understand their sleep patterns, the causes of sleep deprivation, and its effects on academic performance. Cort-Blackson's study, based on the opponent-process model, emphasises the equilibrium between circadian rhythms and the sleep-wake homeostatic process and identifies several factors that influence sleep, including work- and family-related responsibilities and social media distractions [1].

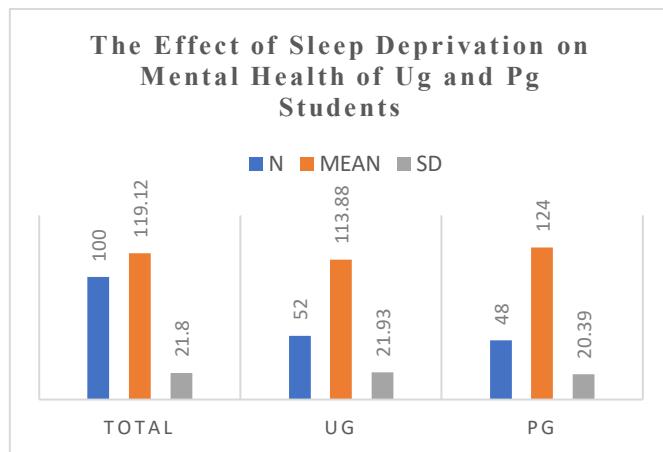
Rose and Ramanan (2017) investigated the impact of



sleep deprivation on students' cognitive and academic performance. 'Effect of Sleep Deprivation on Academic Performance and Cognitive Functions among College Students.' The cross-sectional study included 150 students and found that a significant proportion of respondents experienced adverse outcomes due to sleep deprivation. According to the findings, 52.7% of students reported that receiving too little sleep harmed their academic performance, and the majority of them also had cognitive impairments such as memory loss and difficulties focusing. Moreover, over 70% of sleep-deprived pupils suffered memory impairments, and 98% struggled to concentrate in class [7].

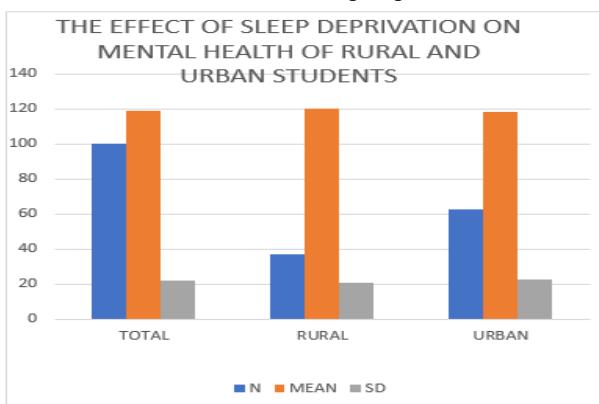
## V. RESULT

After collecting the data from the university girl students, it was analysed by using the graph method and the results are described below:



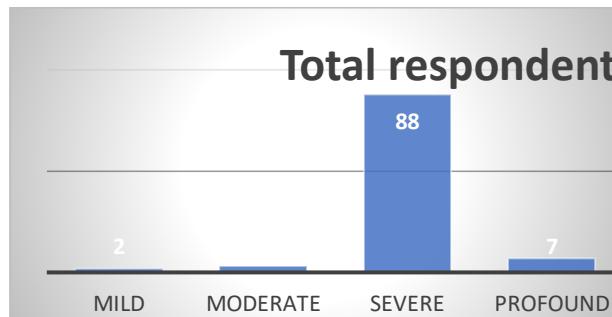
[Fig.1: Sleep Deprivation of UG & PG girls]

Figure 1 presents a statistical comparison of female university students enrolled in undergraduate (UG) and postgraduate (PG) programs based on sample size (100), mean score (MEAN), and standard deviation (SD). The study had one hundred participants. For undergraduate students, the average score is 113.88, while for graduate students, it is 124. With a standard deviation of 21.93 for UG students and 20.39 for PG students, this suggests that PG students perform better than UG students on the measured parameters. Compared to UG students, PG students' responses fluctuated less, as seen by their somewhat smaller SD. This could indicate that graduate students function better under sleep deprivation.



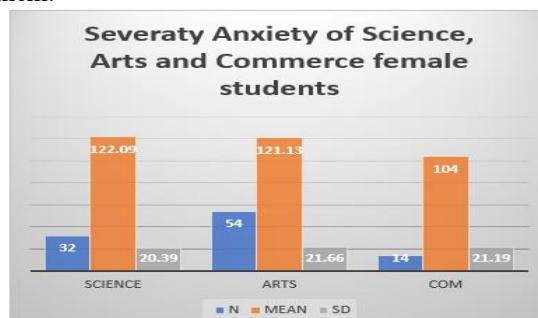
[Fig.2: Comparison of Rural and Urban Female University Students]

Figure 2 shows a statistical comparison of rural and urban female university students based on sample size (100), mean score (MEAN), and standard deviation (SD). There are 100 participants in the study. The mean score for rural female students is 120.14, while for urban female students it is 118.52. This means that rural female students outperform urban female students on the measured parameters, with a standard deviation of 20.64 for rural female students and 22.6 for urban female students. The slightly lower SD for rural female students suggests that their replies fluctuate less than those of urban female students. This could imply that rural female students perform better consistently under sleep deprivation.



[Fig.3: Severity of Anxiety Among Female University Students]

Figure 3 depicts the severity of anxiety among female university students, with 2% mild, 3% moderate, 88% severe, and 7% profound. The image above accurately depicts the current situation, with 88% of female university students experiencing high levels of anxiety. 5% of female university students manage their own anxiety levels. This example demonstrates the growing concern for student well-being and the need for appropriate solutions to help pupils manage their anxieties. The biggest bar, representing 88% of replies, corresponds to severe anxiety, implying that virtually all respondents fall into this category. Smaller bars reflect the Mild (2%), Moderate (3%), and Profound (7%) categories, indicating fewer replies in these categories. The majority of responders displayed significant anxiety, according to the statistics, which suggests that anxiety levels are very high. Female students' low percentage of mild to moderate anxiety indicates that anxiety is a significant issue for them.



[Fig.4: Anxiety in Science, Arts, and Commerce Streams Among Girl Students]

Figure 4 displays the percentages of female students who suffer from severe anxiety in the

subjects of science, arts, and commerce: 76.31% in science, 75.71% in the arts, and 65% in commerce. The current state of pupils experiencing significant levels of anxiety is accurately depicted in the image above. It illustrates the degree to which stress and anxiety impact pupils, especially those from different academic fields. This illustration demonstrates the growing concern for students' welfare and the need for effective techniques to help them manage their fears. With 76.31% indicating tension and anxiety, female students in the scientific stream were the most concerned. High levels of anxiousness have also been reported by female students in the arts stream (75.71%). In contrast, 65% of female commerce students reported feeling less concerned. This study demonstrates that anxiety levels among female students vary by academic track, suggesting that factors including academic pressure, issue complexity, and career concerns may be involved.

## VI. CONCLUSION

According to research, sleep deprivation hurts mental health. The majority of individuals reported that their sleep and physical health had been affected. Our findings are consistent with research that shows how sleep deprivation can damage mental health, cognitive performance, and general health. The majority of pupils were not getting the prescribed 7-8 hours of sleep each night. Sleep deprivation hurts the mental health of female university students. This study emphasizes how important it is for female students to understand how fatigue and sleep deprivation affect mental health. Being drowsy in class can have a significant impact on students' ability to execute assignments, whether due to a simple lack of sleep or an undiagnosed or untreated sleep disorder. 20% of people skip one or more days of their usual activities because they are drowsy during the day. A lack of sleep reduces a person's ability to communicate, solve issues, and use their motor skills. They also have difficulty learning and remembering. These characteristics may have a long-term impact on academic performance, personal growth, and interpersonal relationships. The study suggests that sleep deprivation affects mental health, increasing the anxiety level of the female student. Research focuses on the effect of sleep deprivation and anxiety on female university students. This study indicates that due to low sleep quality, anxiety levels increase, which affects the mental health of the female students.

## DECLARATION STATEMENT

After aggregating input from all authors, I must verify the accuracy of the following information as the article's author.

- **Conflicts of Interest/ Competing Interests:** Based on my understanding, this article has no conflicts of interest.
- **Funding Support:** This article has not been funded by any organizations or agencies. This independence ensures that the research is conducted objectively and without external influence.
- **Ethical Approval and Consent to Participate:** The content of this article does not necessitate ethical approval or consent to participate with supporting documentation.

- **Data Access Statement and Material Availability:** The adequate resources of this article are publicly accessible.
- **Author's Contributions:** The authorship of this article is contributed equally to all participating individuals.

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