

The Effect of Sleep Disorder on Student's learning in Universities, In PMAS Arid
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ABSTRACT

The current research investigates the effects of sleep disorders on students in PMAS Arid Agriculture University, Rawalpindi, particularly university students. Insomnia and sleep apnea are prevalent among students and impact on different functions, memory, and academic performance. The research aims to determine how often or how many students are affected by these conditions, their impact on a student's thinking and learning capabilities, and analyse if there is a link between the students' sleep and their achievement. In this powerful intended research, 200 students completed the survey on sleep disorders, and fifteen students were interviewed in detail based on the survey results they provided. Quantitative data was described descriptively and analysed by regression analysis, while qualitative data was analysed through content analysis. It was also established that sleep disturbances, especially concentration, affected the learners' performance to a considerable extent. However, the quantitatively derived figures portrayed a low reliability of the relationships to academic performance since sleep-related factors only accounted for about 5% of the total variance. Besides, qualitative findings revealed that sleep loss affected emotional well-being, including anxiety, mood swings, and downward mobility academically. The present research holds that universities should provide students with measures for improving the quality of sleep and offer help to learners who struggle with sleep disturbances to boost their health and academic performance.

Keywords: Sleep Disorders; Biological factors; psychological factors; Social factors; Cognitive Functions; Emotional Wellbeing and Motivation; Sleep quality and patterns

INTRODUCTION

Sleep is a vital physiological activity necessary for optimal cognitive functioning, memory consolidation, emotional regulation, and overall mental health (Almarzouki et al., 2022). For university students, the importance of quality sleep becomes even more pronounced due to the academic pressures, social commitments, and other life responsibilities they navigate daily. This demographic is increasingly reporting sleep issues like insomnia, sleep apnea, and delayed sleep-wake phase disorder, which can result in poor academic performance, emotional instability, poor executive function, and impaired concentration. (Aquino et al., 2024; Rajuskar & Badarke, 2024).

Extended sleep deprivation negatively impacts neurobehavioral functioning and is now widely prevalent among students due to rising academic stress (Griggs, Harper, & Hickman Jr., 2022). Several

environmental and social factors such as changes in sleeping arrangements, shifting social networks, and evolving routines also contribute to disturbed sleep (Cao et al., 2025). Commonly reported disorders include insomnia, hypersomnia, sleep apnea, and even sleep terror disorder, all of which impact mood, health, and academic success. Excessive Daytime Sleepiness (EDS), often caused by insufficient sleep, is a frequent complaint among university students (Mukherjee et al., 2024).

Recent data show alarming rates of sleep disturbances among students. For instance, Belingheri et al. (2020) found that 44% of nursing students reported at least one sleep-related issue. Similarly, studies have documented widespread sleep issues such as trouble falling asleep, poor sleep quality, early waking, and excessive napping during the day among college students (Ahmed et al., 2025). These issues, including symptoms like snoring and daytime fatigue, are strongly linked to lower academic achievement (Eze, 2025).

This study focuses on students at Arid Agriculture University Rawalpindi (AAUR), which has grown significantly over the years and now offers 106 programs across 48 departments, with more than 10,000 enrolled students. As the student population has expanded, so has the need to assess their academic well-being. A student's GPA, which plays a critical role in shaping future employment opportunities, is directly influenced by sleep patterns and related disorders.

Numerous studies confirm that inadequate sleep impairs attention, learning, memory, and emotional regulation, all essential to academic success (Pekçetin et al., 2021; Chen et al., 2024). However, research specifically focusing on how different sleep disorders impact the university student population remains limited (Lim et al., 2023). Despite growing awareness, many students continue to sacrifice sleep for academics or leisure, which in turn affects their decision-making, problem-solving, and classroom performance (Shantakumari et al., 2024; Steffey et al., 2023; Arora et al., 2025).

Poor sleep hygiene, academic stress, and excessive use of electronic devices, particularly at night are some of the main contributors to sleep disturbances in students (Di et al., 2022; Faris et al., 2022). These lifestyle factors result in irregular sleep-wake patterns, poor concentration, reduced information processing, and lower motivation (Yin et al., 2022). The inclusion criteria for this study ensured that only students not on sleep-altering medication participated, as such medications could bias results (Leong & Chee, 2023).

There is a growing need to explore sleep-related issues within university populations in order to design evidence-based interventions. While general findings support the significance of sleep in learning and mental health, more focused empirical research is required to comprehend the specific academic consequences of sleep issues among students of university.

Theoretical Framework

The Biopsychosocial Model was first formulated by George Engel in 1977, and is based on the idea that health and illness can be understood when taking into account the biological, psychological and social domains. Compared to a strictly biomedical model, which only looks at bodily indicators of wellness pathology, the biopsychosocial perspective stresses that psychological and societal dimensions play a major function in influencing a human being's health and well-being. In the case of PMAS Arid Agricultural University Rawalpindi (PAU), the Biopsychosocial model provides a justification for understanding student learning through sleep disorders. With respect to the biological aspect, sleep disorders, including insomnia and sleep apnea, impairs execution functions like sustained attention,

working memory, and emotional regulation, which are necessary for learning and academic engagement (Dos Santos et al., 2025; Timková, 2020). In terms of the psychological domain, students at PAU are expected to experience anxiety and stress associated with their exams, workload, and assignment deadlines. The negligence of proper sleep habits reinforces unproductive sleep, thereby exacerbating students' academic concentration and motivation (Ugwuanyi & Formella, 2024; Verma et al., 2023). Finally, as a function of social pressures, students experience peer pressure to conform to long study hours and inconsistent digital exposure, hence compromising their sleep hygiene and circadian rhythms (Santos, 2021). The model implies that sleep is only one part of academic performance but is shaped by broader psychosocial factors that influence sleep behavior. Any intervention to improve academic outcomes will include the student's emotional condition, peer culture, and everyday practices, including medical treatment of sleep issues (Gaultney, 2010).

An anthropological analytical approach which is relevant here is Michel Foucault's Theory of Discipline and Surveillance. Foucault's (1977) framework provides a useful understanding of how institutions shape student behavior, including their sleep behaviours. Foucault argued that modern institutions (like schools and universities) operate uncritically by exerting subtle and mundane forms of control over individuals, and thus prompting students to internalize norms of productivity, discipline, and management of time. At PMAS Arid University, students are never far away from expectations implicit in their institution; they are regularly reminded of academic deadlines, early morning classes, and strong performance, these messages create subtle behavior which regulate everyday matters under the institutions watchful eye. As these subtle reminders coalesce over the academic year, students begin to learn how to self-regulate their time, productivity, and most importantly sleep, all in the pursuit of academic success. Sleep becomes subordinated to the productivity of academic performance and exhaustion becomes a standard by which one is dedicated. This theory is particularly valuable in examining the reliance of students on sleep deprivation, and the fact that they willingly give up sleep while simultaneously categorizing sleep as a luxury instead of a biological need, which illustrates the important distinction that sleep deprivation is not an individual failure, but an institutional expectation (Ruivo Marques et al., 2024).

In addition, Medical Pluralism, a framework from medical anthropology literature, conforms to describing ways that people can exist in multiple, sometimes outlying systems of healing (biomedical, traditional and spiritual) that they can access for any health problem. By extending this medical pluralism framework to the sleep disorder problem of students at PMAS Arid University, we examined ways students relied on various techniques to cope with sleep deprivation. Some students could access biomedical techniques (counseling or using sleep aids such as melatonin), but for other students (and many in my study) could sometimes rely in ways that were much more culturally and spiritually embedded (such as prayer; herbal remedies; speaking with family). These culturally-specific coping techniques illustrate not just access, but reflect culturally constructed meanings tied to health and well-being (Merellano-Navarro et al., 2022). Furthermore, in university settings where formal mental health support may be lacking, limited or under-utilized, these pluralistic strategies become highly valued for many students. As such, using medical pluralism in this study highlights the importance of culturally responsive, integrative sleep interventions that respect students' different beliefs and health practices, especially at a Pakistani university where medical pluralism is a lived part of life.

Conceptual Framework

Conceptual framework of the investigation is the following:

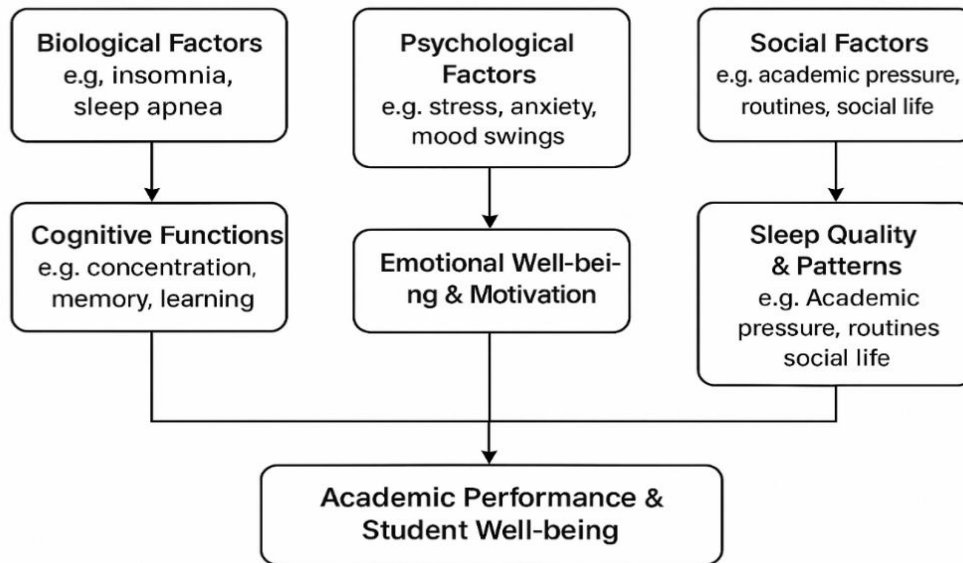


Figure: Study Conceptual Framework

LITERATURE REVIEW

Sleep Disorders and Academic Achievement

Sleep is an essential biological requirement that impacts memory, attention, and emotional regulation. For university students, academic pressure, poor time management, and constant exposure to technology disrupt normal sleep behavior and contribute to sleep issues such as insomnia, obstructive sleep apnea, and circadian rhythm sleep-wake issues (Jorgensen et al., 2020; Mousavi et al., 2022). Sleep disorders negatively impact the ability of students to concentrate, memorize information, and perform higher level cognitive processes, all of which are vital to academic success (Wong et al., 2022; Aquino et al., 2024). Sleep-deprived students consistently exhibit lower GPA scores, lower class attendance, and lower academic engagement (Beebe et al., 2017; Dunn et al., 2022).

Psychological and Social Consequences

Sleep disruptions contribute significantly to psychological health problems including anxiety, depression, and stress which are all prevalent among students in university (Wilson et al., 2025; Hu et al., 2024). Low sleep quality negatively impacts emotional regulation and emotional and social competencies leading to withdrawal, loneliness and ineffective peer-interaction (Ng et al., 2022; Marino et al., 2022). Furthermore, people who undergo insomnia and insomnia co-morbidities report somatic complaints such as headaches and musculoskeletal pain which contribute to poor well-being, and poor academic achievement (Van Dyk et al., 2022; Stores et al., 2023).

Environmental and Cultural Factors

Environmental and social conditions can vastly affect students' sleep quality. Environmental factors such as noise pollution, blue light exposure from screens, crowding in dorms and shared spaces can cause their circadian rhythms to become disrupted (Qi et al., 2024; Kwon et al., 2024). Not to mention the culturally acceptability of multiple sleep deprivation in some university contexts, where the cultural norm is used to acquire status or valued prestige, instead of rest (Crary, 2013; Razumov, 2024) Furthermore, there are socio-economic issues such as financial distress, hunger and housing among students that exacerbate sleep issues (Hameed et al., 2025; Johnson et al., 2022).

Physical Health Implications

Disrupted sleep is also linked with a variety of physical health consequences for example, obesity, immune function, and metabolic disorders. Disturbed sleep inhibits the body's ability to regulate hormones, glucose metabolism, and cardiac health (Zhou et al., 2022; Ovsianikova et al., 2024; Dirisala et al., 2025). Sleep or fatigue deprived students are more likely to develop chronic fatigue and thus a higher likelihood of infection which further prevents students from participating in their academic experiences or feeling satisfied in their life overall (Carpi et al., 2022; Demichelis et al., 2022).

Interventions and Coping Mechanisms

Some successful methods for managing sleep disorders among students include: cognitive behavioural therapy for insomnia (CBT-I); mindfulness-based stress reduction (MBSR); relaxation techniques; and changes to student lifestyles (Tadros et al., 2023; Ghoul et al., 2025). Technology such as Sleepio and Calm, mobile health platforms, and other wearables with self-administered interventions, can be useful for managing sleep hygiene (Kwee & Dos Santos, 2023; Ahn et al., 2024). College-level strategies like later class start times, narcissistic noise in dormitory living, and operational awareness for impact can be useful (Liu et al., 2020; Huey et al., 2025).

New Technology in Sleep

New interventions such as virtual reality (VR), artificial intelligence (AI) sleep platforms, and chronotherapy have demonstrated possible benefits for improving student sleep (David, 2025; Perez-Pozuelo et al., 2020; Schlarb et al., 2025). Group interventions, yoga, changes in diet, and exercise programs have also been helpful for students dealing with sleep dysfunction and their overall mental and physical health (Bird & Fuller, 2024; Zhong et al., 2025). These multi-modal strategies highlight the importance of a holistic range of approaches that create a multipronged response for the individual (individual behaviour), institutional commitment, and multi-use technology.

RESEARCH METHODOLOGY

Research Objectives

1. To establish the prevalence level of sleep problems among students in PMAS Arid Agriculture University Rawalpindi.
2. To study the effects of sleep disorders on such cognitive skills as learning.
3. To establish the degree of relationship between the quality of sleep and performances of the students.
4. To explore the student's attitude towards the interference of sleep disorders with their wellness.

Research Design

The current research is a descriptive research that aims to observe, describe and record elements of a situation as they occur naturally, without modifying any variables. By nature descriptive research includes descriptions of accurate and systematic data about a particular population or phenomenon. Descriptive research often utilizes surveys, interviews, or observations of a condition it explores, in this instance it was used to assess investigates sleep disorders have the potential to influence academic performance of university students.

This study employed both qualitative semi-structured interviews and a quantitative questionnaire as part of a mixed methods technique to triangulate the results. The quantitative data describing sleep and academic performance was given structure by this convergent parallel design, which also made room for the qualitative data to surface and offer a more thorough insight of the experiences of college students with sleep disorders. The study was able to present a detailed evaluation of the research problem by integrating both of these formats.

Population and Sample

The present study was targeted at undergraduate and graduate students from multiple departments at PMAS Arid Agriculture University as they are considered a high-risk population for sleep issues due to academic and social stressors. PMAS Arid Agriculture University has a student body comprised of 10,312 students from 48 departments and 106 degree programs. Using stratified random sampling, the quantitative survey gathered data from 200 participants selected to ensure samples from each academic year and each discipline were distributed proportionally. In addition, out of the quantitative survey participants, 15 students were purposively selected based on self-reports of having sleep disorders such as insomnia, night wakefulness, and/or daytime sleepiness. This purposive sampling aimed at obtaining a representative, balanced, and in-depth representation of students' sleep experiences.

Data Collection Instruments

The present study used qualitative and quantitative tools together to capture a robust dataset. The quantitative phase assumed a structured self-completion questionnaire; the questionnaire had three parts, such as, demographic data (age, gender, department, year of study); related variables to sleep: deterioration of the quality of sleep, the difficulty in sleeping, night wakings, the sleepiness during the daytime, the difficulty to wake up in the morning, the difficulty to concentrate, and the presence of the sleep disorder; or the academic data of the participants: grades of the participants measured through self-report GPA, or only the semester that they had just completed was entered. The sleep related factors were rated in a 5-point Likert scale and some questions were framed as some items in reputed measures such as the Pittsburgh Sleep Quality Index (PSQI) and Epworth Sleepiness Scale (ESS).

Open-ended questions about students' awareness, knowledge, and comprehension of sleep disorders, as well as their experiences, memory and academic performance issues, coping mechanisms, emotional and social repercussions, and perceived institutional support, were used in semi-structured interviews during the qualitative phase. Each interview lasted between 25 and 40 minutes, and it was captured with permission. The goal was to use dynamic and multifaceted replies to produce rich theme data.

Data Collection Procedure

After receiving institutional ethical approval and receiving informed consent from participants, who had been fully informed of the goal, confidentiality, and rights, the data collection process got underway. Data was collected over the course of two weeks using a digital survey sent to all university email addresses and an in-person distribution during lecture breaks for the first quantitative survey. Following data collection, a purposive sample of students who reported sleep problems in the original survey were used

for in-person, semi-structured interviews. With the participants' permission, the interviews were audio recorded and held in private spaces within the institution. For the purpose of thematic analysis, the audio recordings were verbatim transcribed. By offering both approaches, we were able to conduct a more thorough investigation and gather a variety of viewpoints on the participants' reflections.

Data Analysis

The research has been done with both descriptive and inferential statistics. The SPSS (Version 26) was used to examine the quantitative data, whereas the qualitative data were coded and exposed to the thematic analysis in the NVivo software.

Analysis Quantitative Data

Demographic information and characteristics related to sleep were summarized using both descriptive statistics and frequencies. Then, the regression analysis and the correlation between the predictors factors, sleep disturbances, and the outcome variable, academic performance was investigated. R² values and ANOVA were used to determine the model's strength and relevance. Additionally, bivariate correlations were employed to examine relationships between sleep-related factors.

Analyzing Qualitative Data

Thematic analysis was employed to evaluate the interview data, with both inductive and deductive coding. Themes that emerged were participants' understandings of sleep disorders; their experiences of insomnia; the cognitive and psychological impacts from sleep disturbances; their coping strategies and lastly, institutional support during their intensive management of sleep disturbances in their academic studies. NVivo was used for the purpose of coding, developing a word cloud, cluster analysis, and link maps, that visually represented participants sleep disturbances and institutional support in relation to their student outcomes. This dual analysis ensured that all elements of the research topic were explored.

Quantitative Analysis

Table 1: Sleep Difficulty

Sleep Difficulty				
Response Category	Relative Frequency	Effective Percent	Progressive Percent	Cumulative Percent
Strongly Disagree	40	20.0	20.0	20.0
Disagree	42	21.0	21.0	41.0
Neutral	36	18.0	18.0	59.0
Agree	43	21.5	21.5	80.5
Agree to strong extent	13	6.5	6.5	100.0
Grand total	200	100.0	100.0	100.0

Table 1 indicated the number of students who experience difficulties settling down to sleep every night.

Table 2: Night waking

Night Wakings				
Response Category	Frequency (f)	Percent (%)	Valid percent (%)	Cumulative Percent (%)
Strongly Disagree	47	23.5	23.5	23.5

Strong disagreement	37	18.5	18.5	42.0
Neutral	31	15.5	15.5	57.5
Agree	42	21.0	21.0	78.5
Agree to strong extent	49	23.0	23.0	100.0
Total	200	100.0	100.0	100.0

Table 2 shows students' answers about the frequency of sleeping through the night and their problems with returning to sleep.

Table 3: Difficulty waking up in the morning

Problem waking up in the morning				
Response Category	Frequency (f)	Percent (%)	Valid percent (%)	Cumulative Percent (%)
Strongly Disagree	36	18.0	18.0	18.0
Disagree	43	21.5	21.5	39.5
Neutral	39	19.5	19.5	59.0
Agree	40	20.0	20.0	79.0
Strongly agree	42	21.0	21.0	100.0
Total	200	100.0	100.0	100.0

The table 3 and displays students' answers: "I find it hard to get up early in the morning.

Table 4: Daytime Sleepiness

Daytime Sleepiness				
Response Category	Frequency (f)	Percent (%)	Valid percent (%)	Cumulative Percent (%)
Strongly Disagree	39	19.5	19.5	19.5
Correspondingly disagree	35	17.5	17.5	37.0
Neutral	43	21.5	21.5	58.5
Disagree	43	21.5	21.5	80.0
Agree	40	20.0	20.0	100.0
Total	200	100.0	100.0	100.0

This table indicate that students suffer from daytime sleepiness because of poor sleep habits.

Table 5: Concentration Issues

Concentration Issues				
Response Category	Frequency (f)	Percent (%)	Valid percent (%)	Cumulative Percent (%)
Highly Disagree	41	20.5	20.5	20.5
The disagree	41	20.5	20.5	41.0
Neutral	37	18.5	18.5	59.5
Agree	38	19.0	19.0	78.5
Agree highly	12	5.9	5.9	100.0
Total	200	100.0	100.0	100.0

The results in the table 5 reveal that students' sleep problems lead to about the same number of concentration issues in all categories.

Table 6: Sleep Disorder

Sleep Disorders				
Response Category	Frequency (f)	Percent (%)	Valid percent (%)	Cumulative Percent (%)
Strongly Disagree	45	22.5	22.5	22.5
Agree	20	20.0	20.0	42.5
Neutral	39	19.5	19.5	62.0
Agree	41	20.5	20.5	82.5
Strongly Agree	35	17.5	17.5	100.0
Total	200	100.0	100.0	100.0

Table 6 summarizes the responses of students about their experiences with insomnia, sleep apnoea or restless leg syndrome.

Table 7: Sleep Quality

Decrease in the Quality of Sleep				
Response Category	Frequency (f)	Percent (%)	Valid percent (%)	Cumulative Percent (%)
Strongly Disagree	46	23.0	23.0	23.0
Disagree	35	17.5	17.5	40.5
Neutral	26	13.0	13.0	53.5
Agree	45	22.5	22.5	76.0
Highly Agree	58	29.0	29.0	100.0
Total	200	100.0	100.0	100.0

Students were asked if their sleep had deteriorated since they started university. It is clear from the data that 26.5% of students believe their sleep quality has declined, since most answers pointed to agreement.

Table 8: Impact of poor sleep on poor performance of students as perceived by the students

Performance Impact				
Response Category	Frequency (f)	Percent (%)	Valid percent (%)	Cumulative Percent (%)
Strongly Disagree	40	20.0	20.0	20.0
Strongly disagree	35	17.5	17.5	37.5
Neutral	42	21.0	21.0	58.5
Agree	41	20.5	20.5	79.0
Strongly Agree	42	21.0	21.0	100.0
Total	200	100.0	100.0	100.0

The opinions of students concerning the impact of sleeplessness on educational process are presented in the table.

Table 9: Memory Issues

Memory Issues				
Response Category	Frequency (f)	Percent (%)	Valid percent (%)	Cumulative Percent (%)
Strongly Disagree	43	21.5	21.5	21.5
Agree	42	20.5	20.5	41.0
Neutral	44	22.0	22.0	64.0
Agree	38	19.0	19.0	83.0
Highly Agree	14	7.8	7.8	100.0
Total	200	100.0	100.0	100.0

Table 9 and the chart provide information about students' thoughts on how a lack of sleep causes memory problems.

Table 10: Workload management difficulties due to poor sleep

Workload Management				
Response Category	Frequency (f)	Percent (%)	Valid percent (%)	Cumulative Percent (%)
Strongly Disagree	43	21.5	21.5	21.5
Agree	71	35.5	35.5	71.0
Neutral	38	19.0	19.0	55.0
Agree	47	23.5	23.5	78.5
High Agreement	43	21.5	21.5	100.0
Total	200	100.0	100.0	100.0

Table 10 and the graph provide students' opinions on whether poor sleep influences their academic work.

Table 11: Impact of Poor sleep on Grade

Grade Impact				
Response Category	Frequency (f)	Percent (%)	Valid percent (%)	Cumulative Percent (%)
Strongly Disagree	46	23.0	23.0	23.0
Disagree	46	23.0	23.0	46.0
Neutral	36	18.0	18.0	64.0
Agree	33	16.5	16.5	80.5
Strongly Agree	39	19.5	19.5	100.0
Total	200	100.0	100.	100.0

Table 11 and graph shows the students' opinions on how sleeping poorly has affected their grades.

Table 12: Missed assignments or deadlines due to poor sleep

Missed Assignments				
Response Category	Frequency (f)	Percent (%)	Valid percent (%)	Cumulative Percent (%)

Strongly Disagree	35	17.5	17.5	17.5
Disagree	35	17.5	17.5	35.0
Neutral	38.0.	19.0.	19.0.	54.0
Agree	44	22.0	22.0	76.0
Strongly Agree	48	0.0	100.0	24.0
Total	200	100.0	200	100.0

Table 12 show students' responses regarding whether a lack of sleep has made them miss their assignments or deadlines.

Table 13: Stress and anxiety due to sleep issues

Sleep Stress				
Response Category	Frequency (f)	Percent (%)	Valid percent (%)	Cumulative Percent (%)
Strongly Disagree	38	19.0	19.0	19.0
Disagree	41	20.5	20.5	39.5
Neutral	38	19.0	19.0	58.5
Agree	38	19.0	19.0	77.5
Agree	90	42.5	42.5	100.0
Total	200	100.0	100.0	100.0

In Table 13, Students' answers to whether sleep problems add to their stress and anxiety indicate that 41.5% feel this way. Meanwhile, 20.5% disagreed, and another 19.0% strongly disagreed, up to 39.5% who do not believe a connection exists.

Table 14: Cognitive Decline

Cognitive Decline				
Response Category	Count (f)	Percent (%)	Weighted Percent (%)	Cumulative Percent (%)
Strongly Disagree	45	22.5	22.5	22.5
Not in agreement	37	18.5	18.5	41.0
Neutral	40	20.0	20.0	61.0
Accept	44	22.0	22.0	83.0
Strongly Agree	34	17.0	17.0	100.0
Total	200	100.0	100.0	100.0

Table 14 demonstrate that students share their thoughts on cognitive decline caused by lack of sleep in a relatively equal way among the various categories.

Table 15: Awareness of how sleep disorders affect academic performance

Knowledge of Effects				
Response Category	Frequency (f)	Percent (%)	Valid percent (%)	Cumulative Percent (%)
Strongly Disagree	38	19.0	19.0	19.0
Occupational dissatisfaction	44	22.0	22.0	41.0
Indifferent	38	19.0	19.0	60.0

Agree	43	21.5	21.5	81.5
Strongly Agree	37	18.5	18.5	100.0
Total	200	100.0	100.0	100.0

Table 15 display that students have different levels of understanding regarding the effects of sleep disorders on their studies, but the answers are relatively evenly spread.

Table 16: changes made to improve their sleep routines

Alteration in the Sleep Routine				
Response Category	Frequency (f)	Percent (%)	Valid percent (%)	Cumulative Percent (%)
Strongly Disagree	45	22.5	22.5	22.5
Not Agree	44	22.0	22.0	44.5
Neutral	38	19.0	19.0	63.5
Agree	40	20.0	20.0	83.5
Strongly Agree	33	16.5	16.5	100.0
Total	200	100.0	100.0	100.0

Table 16 and the graph shows the students' opinions on whether they have altered their sleep habits to sleep better.

Table 17: Seeking help from healthcare professionals for sleep-related issues

Health care Aide				
Response Category	Frequency (f)	Percent (%)	Valid percent (%)	Cumulative Percent (%)
Strongly Disagree	44	22.0	22.0	22.0
Disagree	39	19.5	19.5	41.5
Neutral	35	17.5	17.5	59.0
Agree	39	19.5	19.5	78.5
Strong Agree	43	21.5	21.5	100.0
Total	200	100.0	100.0	100.0

According to Table 17, Students were asked if they ever went to a healthcare professional or counsellor to solve their sleep concerns, as shown in the table.

Table 18: Student perceptions of university support for addressing sleep-related issues

University Support				
Response Category	Frequency (f)	Percent (%)	Valid Percent (%)	Majority Percent (%)
Strong Disagree	41	20.5	20.5	20.5
Music (disagree advertising)	32	16.0	16.0	36.5
Armed organs	1	0.5	0.5	3.1
Agree	41	20.5	20.5	79.0
Strongly Agree	42	21.0	21.0	100.0
Total	200	100.0	100.0	100.0

Table 18 and the graph show students' views on how universities assist with sleeping problems.

Table 19: Difficulty maintaining a healthy sleep schedule due to academic pressure

Good sleeping habit				
Response Category	Frequency (f)	Percent (%)	Valid percent (%)	Cumulative Percent (%)
ERAD by 50	38.8	55.6	55.6	56.6
Strongly Disagree	46	23.0	23.0	23.0
Disagree	38	19.0	19.0	42.0
Neutral	50	25.0	25.0	67.0
Agree	41	20.5	20.5	87.5
Strongly Agree	25	12.5	12.5	100.0
Total	200	100.0	100.0	100.0

Table 19 and the graph reflect students' thoughts on keeping a healthy sleep cycle during their studies.

Table 20: Students' beliefs about improving their sleep enhancing academic performance

Faith in Sleep Betterment				
Response Category	Frequency (f)	Percent (%)	Valid percent (%)	Cumulative Percent (%)
They strongly disagree	35	17.5	17.5	17.5
Unagree	27	13.5	13.5	31.0
neutral	45	22.5	22.5	53.5
Agree	40	20.0	20.0	73.5
Strongly Agree	53	26.5	26.5	100.0
Total	200	100.0	100.0	100.0

Table 20 and the graph reveal students' opinions on how improved sleep affects their academic performance.

Table 21: Importance of sleep for success and well being

Wellbeing and Sleep				
Response Category	Frequency (f)	Percent (%)	Valid percent (%)	Cumulative Percent (%)
Strongly disagree	45	22.5	22.5	22.5
Strongly disagree	37	18.5	18.5	41.0
Neutral	31	15.5	15.5	56.5
Agree	47	23.5	23.5	80.0
Strongly Agree	40	2.0	2.0	100.0
aggregate	200	100.0	100.0	100.0

Table 21 and the chart show students' opinions on how sleep affects their physical health and studies.

Table 22: Impact of sleep on their participation in extracurricular activities

Extracurricular Impact					
Response Category	Frequency (f)	Percent (%)	Valid percent (%)	Cumulative Percent (%)	Note/Comment
Strongly Disagree	37	18.5	18.5	18.5	Only a few months are along with my typical balancing issues, and it has been a life saver.
Disagree	47	23.5%	23.5%	42.0%	
Neutral	37	18.50	18.50	60.50	
Agree	36	18.0	18.0	78.5	
Strongly Agree	43	21.5	21.5	100.0	
Subtotal	200	100.0	100.0	100.0	

Based on chart and table 22, students express how a lack of sleep influences their participation in extra activities.

Table 23: Perception of University Awareness on Sleep Issues

University Awareness				
Response Category	Frequency (f)	Percent (%)	Valid percent (%)	Cumulative Percent (%)
Strongly Disagree	43	21.5	21.5	21.5
Agree	38	19.0	19.0	40.5
Neutral	41	20.5	20.5	61.0
Agreement	39	19.5	19.5	80.5
Strongly Agree	39	19.5	19.5	100.0
Total	200	100.0	100.0	100.0

Table 23 t was created to summarize what students think about their university's understanding of students' sleep-related problems.

Table 24: Belief That Improving Sleep Would Improve Academic Success

Improvement Belief				
Response Category	Frequency (f)	Percent (%)	Valid percent (%)	Cumulative Percent (%)

Strongly Disagree	36	18.0	18.0	18.0
Disagree	40	20.0	20.0	38.0
Neutral	46	23.0	23.0	61.0
Agree	40	20.0	20.0	81.0
Strongly Agree	38	19.0	19.0	100.0
Total	200	100.0	100.0	100.0

Table 24 display students' opinions regarding whether better sleep can boost their academic achievements.

Table 25: Regression Analysis

Model Summary									
Model Std.	R Square	Adj R Square	Std. Error of the Estimate	Error of the Estimate Change Statistics	Change of R Square	Change of F	df 1	df2	Sig. F Change
1	.224a	.050	.015	1.413	.050	1.445	7	192	.189

a. Predictors: (Constant), Sleep Quality Drop, Daytime Sleepiness, Sleep Difficulty, Night Wakings, Problems Concentrating, Sleeping Disorders, Problems Waking Up in the Morning.

According to the regression analysis, there was weak positive relationship between academic performance and the components of sleep ($R = 0.224$). The model contributed to an academic performance variance of 5 percent ($R^2 = 0.050$) along with an adjusted R^2 of 0.015 that indicated the low prediction power. The F-statistic value was (1.445, $p = 0.189$) meaning that the model was statistically insignificant. Collectively, these findings suggested that sleep disorders are not an excellent predictor of academic achievement among a group of participants captured in this sample.

Table 26: ANOVA

ANOVA					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	20.196	7	2.885	1.445	.189b
Residual	383.304	192	1.996		
In total:	403.500	199			

a. Dependent Variable: Performance Impact

b. Predictors: (Constant), Decline in Sleep Quality, Sleep Difficulty, Daytime Sleepiness, Night Wakings, Sleep Disorders, Morning Wake Difficulty, Concentration Issues

The ANOVA indicate that the regression model explained comparatively little with a regression sum of squares of 20.196 and a high residual sum of 383.304. The F- statistic and p-value of 1.445 and 0.189 showed that this model is not significant. It indicates that sleep related variables were not influential predictors of academic performance. Still, there can be other factors that are more significant in determining the outcomes of students.

Table 27: Coefficients

Coefficients ^a

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.	95.0% Confidence	Interval of B	
	B	Standard Error	Beta	Standard	Deviation	Lower Bound	Upper Bound
Constant	3.846	.557	6.901	.000	2.746	4.945	
Sleep Difficulty	.009	.071	.009	.129	.897	.131	.150
Night Wakings	.046	.068	.048	.681	.497	.088	.180
Morning Wake Difficulty	.047	.072	.046	.645	.519	.190	.096
Daytime Sleepiness	.062	.071	.062	.875	.383	.078	.203
Concentration Problems	.147	.070	.149	2.087	.038	.285	.008
Sleep Disorders	.162	.072	.162	2.258	.025	.304	.021
Sleep Quality deterioration	.031	.067	.033	.468	.641	.164	.101

Note: (a) Dependent Variable: The Impact of Performance

The regression coefficients indicated that concentration problems (-0.147) and sleep problems (-0.162) had significant negative effects on academic performance. With sleep problems absent, performance was predicted at 3.846. All other sleep-related variables, difficulties with sleep problems, night waking, and daytime sleepiness, were statistically insignificant ($p > 0.05$) which means that they did not have much influence concerning academic performance. In conclusion, only concentration problems and sleep problems were meaningful predictors of academic performance.

Table 28: Coefficient Correlations

Coefficient Correlations ^a							
Model	Sleep Quality Decline	Daytime Sleepiness	Sleep Difficulty	Night Waking's	Concentration Issues	Sleep Disorders	Morning Wake Difficulty
Sleep Quality Decline	1.000						

Daytime Sleepiness	-.001	1.000					
Sleep Difficulty	-.034	-.006	1.000				
Night Wakings	-.013	.060	.034	1.000			
Concentration Issues	-.094	.023	-.001	-.063	1.000		
Sleep Disorders	.088	-.033	-.022	-.086	.103	1.000	
Morning Wake Difficulty	.102	.011	-.140	-.030	.018	-.065	1.000

The correlation analysis indicated weak relationships amongst the majority of the variables associated with sleep, which indicates relative independence. Of all sleep-related variables, concentration issues and sleep disorders had the most notable influence on the academically reported performance. Sleep difficulty and night wakings were not significant, and as stress and strain increased, concentration issues impacted academic performance in a negative way. The model accounted to only 5 percent of the difference in the outcome of performance meaning that there is poor predictability. Representation with the demographic data showed there was a balance between age, gender, and departments. Thus, while these factors had an influence on performance academically, while sleep disorders and concentration issues cause a moderate impact, there would be other unidentified factors that influence the academic outcomes.

Qualitative Analysis

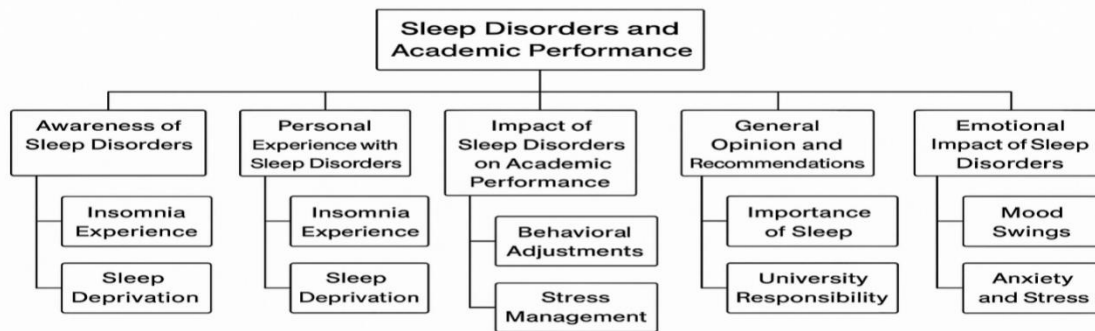
Prompted by the qualitative analysis, students understood sleep issues such as insomnia and sleep apnoea, and were aware of relevant negative impacts. The interviews brought to life their emotional struggles with sleep, coping strategies, and the need for institutional support. The themes were important and highlighted the tremendous efforts that students took to manage sleep illness, primarily their focus on taking action independently. Overall, this study highlights the need to address sleep health in accordance to students health and subsequently educational attainment.

Table 29: Themes of the Data

Main Theme	Sub-Themes	Anthropological Interpretation
1. Awareness of Sleep Disorders	• Insomnia Awareness • Sleep Apnoea Awareness	Awareness is culturally shaped; medicalization of sleep issues varies across societies. Some cultures may not recognize sleep issues as medical conditions.
2. Personal Experience with Sleep Disorders	• Insomnia Experience • Sleep Deprivation	Sleep deprivation reflects social and institutional pressures. Anthropologists explore how student stress is embedded in achievement-driven, neoliberal contexts.
3. Impact on Academic Performance	• Concentration Problems • Memory Impairment	Cognitive decline is not just biological but also socially induced. Sleep impacts are shaped by time discipline, institutional structure, and learning environments.
4. Coping Mechanisms	• Behavioural	Students draw from diverse healing systems

and Solutions	Adjustments • Stress Management	(biomedical, traditional, and spiritual). Anthropology highlights culturally-specific health-seeking and self-care strategies.
5. General Opinion and Recommendations	• Importance of Sleep • University Responsibility	Opinions about sleep and institutional support reflect cultural values. Calls for action demonstrate social negotiation of wellness and institutional accountability.
6. Emotional Impact of Sleep Disorders	• Mood Swings • Anxiety and Stress	Emotional responses to sleep deprivation are part of broader social suffering. Anthropology contextualizes stress and mood as culturally expressed and embodied.

Hierarchical Analysis



The thematic map displays the connections between the four primary themes - awareness, personal experience, academic impacts, emotional effects, recommendations - which were all identified under the greater umbrella idea of sleep disorders and academic performance. Also, while the themes are central concepts, sub-themes such as insomnia awareness, concentration problems, and memory loss may further delineate these relationships.

Cluster Analysis

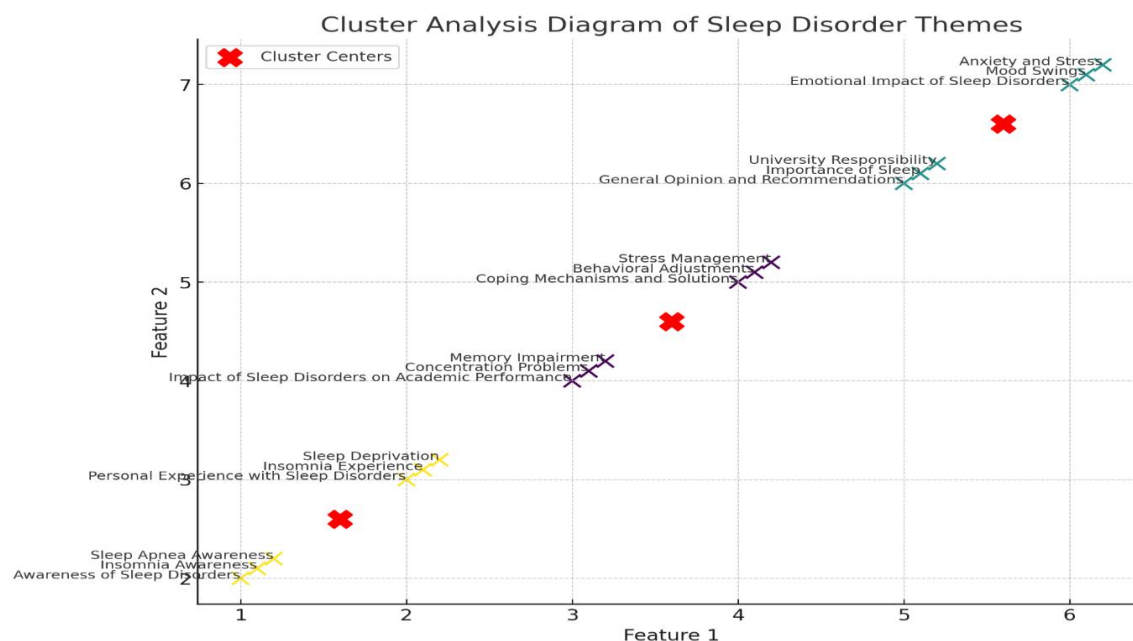


Figure: Cluster Analysis

Cluster analysis helped to categorize themes related to sleep disorders in university students by illuminating patterns and grouping similar topics. Cluster centers were marked with red "X"; categories based on more tightly clustered themes are based on closer proximity of clusters. Themes relating to emotional effects such as anxiety and mood swings clustered towards the top. Themes about general opinions and responsibility of the university appeared in the middle. Themes relating to academic impact such as issues with memory and concentration formed groups at the bottom. It is worth noting also that insomnia themes formed a separate cluster on the left. The analysis served to illustrate emotional, academic, and institutional factors and their interconnectedness and demonstrated sleep disorders have multidimensional impacts on students.

DISCUSSION

The researchers conducted a mixed-methods study to understand how sleep disorders impact students at PMAS Arid Agriculture University. The quantitative results demonstrated only weak significant associations between sleep variables and academic achievement, with the model accounting for only 5 percent of the variance ($R^2 = 0.05$). Only concentration issues and diagnosed sleep disorders were identified as significant predictors of academic outcomes and were defined as negatively-related predictors (Gopal et al., 2025). Variables related to sleep disturbances such as waking in the night, difficulty falling asleep, and not being able to wake in the morning were not significant. Qualitative results, on the other hand, unveiled a much greater impact students reported difficulties recalling, concentrating, managing emotions, and stress levels as a result of poor sleep. Students reported experiences that were grouped thematically into three main areas: emotional impacts, academic impacts, and coping strategies. Students indicated ways they coped with sleep issues included mindfulness techniques, changes to their routine, and managing their time; however, students expressed concern that the support offered by the university was negligible in visibility and utility. These results mirror the findings of Manzar et al. (2021) that students who maintain healthy sleep routines are better able to cope with academic stress, academic workload, and a better academic experience overall.

The research also identified cultural aspects of sleep, where students seemed to equate sleep to an inferior status in their academic endeavors—reflecting what Simpong et al. (2025) called an "achievement society", where overwork can be celebrated and rest seen as a sin. Many participants said that sleeplessness was a sacrificial necessity, especially for exam times, which is in agreement with Kassaw and Demareva's (2023) thoughts that sleep behavior is determined concurrently by neurobiology and sociocultural conditions. Emotional challenges to sleep (e.g., anxiety, mood swings, and irritability) were reported across the board, showing that poor sleep does not solely affect cognitive functioning, but emotional functioning as well (Ruivo Marques, Allen Gomes, & De Azevedo, 2024). There was inconsistent knowledge regarding sleep disorders; some students were able to recognize terms like insomnia and sleep apnea, yet often did not associate their symptoms with any medical diagnosis—confirmation of Garcia et al.'s (2023) findings which indicate health beliefs are significantly driven by cultural values. Coping strategies ran the gamut from professional counseling, melatonin, to culturally-informed practices such as herbal tea and prayer (Merellano-Navarro et al., 2022).

Students campaigned for institutional reforms such as flexible schedules, wellness education and to see more accessible mental health services; this reflects the argument put forth by Bousgheiri et al. (2024) that institutions must take an active role in actually developing health-supporting environments. Overall, these findings indicate that sleep health is a multidimensional issue that does not only stem from individual behavior, but also relates to systemic academic and cultural structures.

CONCLUSION

Although sleep disorders contributed to only 5% of the variance in academic performance, contextual factors like concentration problems and diagnosed sleep disorders were significant variables with negative associations. In terms of demographics, most participants were aged 18-24 years, and there were equal representations of both genders across departments. From the qualitative content analysis, key themes emerged, including insomnia, sleep deprivation across multiple exams, and the effect of sleep on memory, attention, and feelings toward studying. Cluster analytic representations reinforced a direct association between emotional and academic outcomes due to sleep challenges. Supporting these findings, Kohn and Carlise (2014) emphasized sleep as an important determinant of academic performance, while also considering the influence of stress management practices. The authors noted that support, both at the institution and on a personal level, as well as sleep hygiene practices, could promote both performance and well-being.

Limitations and Future Research

The results' generalizability is impacted by this study's limitation of concentrating on a specific institution. Furthermore, other significant variables including stress, nutrition, screen time, and physical exercise were not taken into consideration by the quantitative model. To further understand the association and causality between sleep patterns and academic performance, future study should take these factors into account and involve a larger and more diverse sample.

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