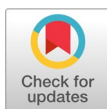


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- Author (s):** Kainat Saifullah¹, Farzana Ashraf^{2*}, Fariha Fatima^{3*}, Maryam Jahangir², Faramarz Asanjrani⁴
- Affiliation (s):** ¹ATTARI Rehabilitation Center, Lahore, Pakistan
²COMSATS University, Lahore, Pakistan
³University of Siegen, Siegen, Germany
⁴Arak University, Arak, Iran
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A Qualitative Study on the Impact of Sleep Deprivation on English Language Comprehension in Undergraduate Students

Kainat Saifullah¹, Farzana Ashraf^{2*}, Fariha Fatima^{3*}, Maryam Jahangir²,
Faramarz Asanjrani⁴

¹ATTARI Rehabilitation Center, Lahore, Pakistan

²Department of Humanities, COMSATS University, Lahore, Pakistan

³Department of Business Information Systems, University of Siegen, Germany

⁴Department of Psychology and Education, Arak University, Iran

Abstract

The current qualitative research aims to explore how sleep deprivation affects the understanding of English language in undergraduate students. In an exploratory study, eight sleep-deprived participants were purposely selected, screened using the Pittsburgh Sleep Quality Index (PSQI), and assessed at COMSATS University Islamabad, Lahore campus. The interviews were conducted to gain an understanding of certain aspects of their classroom experiences through semi-structured interviews. The thematic analysis disclosed a single dominant theme and two superordinate themes, which included (i) the factors that contribute to sleep deprivation, and (ii) behavioral and personal factors that lead to impaired language comprehension. The important findings suggested that academic workload, psychological stress, medical condition, and excessive use of electronic devices were some of the major causes of sleep deprivation. Students also attempted to cope with sleepiness in the classroom by using disengagement mechanisms, such as talking to peers or using their mobile phones. Unfortunately, these mechanisms undermined their understanding. Individual negligence, inability to concentrate, emotional imbalances, and language barriers were other personal variables that contributed to the decline in learning achievements. This research highlights the importance of sufficient sleep for mental well-being. It emphasizes the need for awareness and preventive measures, thereby enabling students to maintain good mental health and academic performance. The main implications of the findings are that they can be useful to teachers, learners, and health professionals in terms of academic achievement and psychological well-being.

Keywords: classroom behavior, English language, language

*Corresponding Author: Farzana.ashraf@cuilahore.edu.pk; farehafatima7@gmail.com

comprehension, sleep deprivation

Introduction

Compared with the general population, university students exhibit significantly inadequate sleep habits, patterns, and sleep quality. Additionally, these students may experience sleepiness in their class more frequently than their peers who are not studying. Additionally, earlier studies demonstrated that consistent study behaviors are significant predictors of cognitive functioning and academic achievement in students who get sufficient sleep. In contrast, lack of structured study is associated with lower academic performance, poor concentration, and increased cognitive errors in individuals with insufficient sleep (Credé & Kuncel, [2008](#)). Compared to what their age group needs for improved cognitive performance and comprehension in the classroom, the students with poor sleep habits report getting much less sleep each night. Students frequently forgo sleep to fulfill social and academic obligations that continually alter their lives. Additionally, it makes them feel more stressed, anxious, depressed, and exhausted (Orzech et al., [2011](#)).

Given that adolescents spend most of their time studying and developing, both the quality of their sleep and their study behaviors are key predictors. There is a dearth of studies examining the link between insufficient sleep, and language comprehension in English. Numerous studies have been conducted to examine the impact of sleep deprivation on students' language, performance, and cognitive functioning. Furthermore, additional research is necessary to investigate the effect of changes in college students sleep quality on their overall language comprehension and academic performance (Shochat et al., [2014](#)).

Sleep Deprivation

Sleep, a naturally occurring state of the body and mind, is characterized by altered consciousness. It reduces muscle activity, including virtually all voluntary muscle activity, during rapid eye movements, sensory activation, and environmental engagement (Ferri et al., [2008](#)). The greatest psychological changes in the brain occur during sleep. The brain uses less energy during sleep than when awake (Maquet et al., [2005](#)). There are both empirical and subjective methods for evaluating sleep quality. Difficulty getting or staying asleep, as well as the frequency of nighttime awakenings, are all examples of objective sleep quality (Barnes et al., [2015](#)). After

waking from sleep, subjective sleep quality is related to rest and recovery.

Sleep loss threatens severe implications for cognitive processes, especially among adolescents and young adults. According to a systematic review, lack of sleep among adolescents is highly correlated with increased anxiety, depression, and difficulties with emotional regulation (Johri et al., [2025](#)). Likewise, longitudinal research demonstrates that compromised sleep quality predicts lower working memory capacity and dissatisfactory academic performance in university students (Almarzouki et al., [2022](#)). These observations point out that sleep loss is not merely a matter of daytime sleepiness; it erodes learning, attention, and psychological resilience during crucial stages of development.

Aside from cognitive consequences, sleep deprivation has quantifiable physiological and psychological impacts in adults. For example, disturbed sleep has been linked to increased inflammatory markers such as interleukin-6 and impaired psychomotor vigilance, as indicated by slower response times and more lapses (Shaikh et al., [2024](#)). These physiological reactions imply that sleep deprivation serves as a stressor, undermining immune function and leading to instability of mood. Eventually, the chronic effects of sleep deprivation may cause long-term health complications, increasing vulnerability, and necessitating normal sleep habits for well-being.

On average, university-going students sleep 6 to 6.5 hours per night (Alqurashi et al., [2022](#)). The recommended amount of sleep each night for a healthy lifestyle is 7 to 8 hours in adults and adolescents. The amount of sleep required depends on the quality of sleep one gets. Several factors can impact sleep quality. These factors are gender, age, medical disease, psychological disorder, pregnancy, and the level of sleep disorders. Long-term lack of sleep and sleep disorders are also associated with anxiety, depression, fatigue, diabetes, and heart disease (Rezaei et al., [2015](#)).

A condition of not sleeping enough over a long time, such as routinely receiving less than the advised 7 to 8 hours per night for a month or longer, is often referred to as chronic sleep deprivation or restriction. Whereas acute sleep loss is a reference to shorter-term periods (for instance, going several consecutive nights with minimal sleep), chronic sleep deficit entails a prolonged deficit that compromises physical and cognitive processes in the long term (Sun et al., [2025](#)). Sleep is mandatory for maintaining alertness,

performing regular day activities, consolidating memory, supporting the immune system, and overall well-being. Individuals who typically sleep too little have reduced alertness, decelerated reaction times, and compromised decision-making (Sun et al., [2025](#)).

Current research also demonstrates that chronic sleep deprivation has adverse mental health consequences. A systematic review of adolescents indicated that sleep deprivation is highly correlated with anxiety, depression, and worse emotional regulation (Johri et al., [2025](#)). In adults, chronic deprivation (as opposed to acute deprivation) is associated with decreased executive function, increased low-grade systemic inflammation, and disrupted physiological stress markers (Sun et al., [2025](#)). For example, nighttime working medical students or residents with chronic sleep deprivation have slower cognitive processing, decreased executive function, and greater impulsivity than their colleagues who have more normal sleep (Sun et al., [2025](#)).

Sleep Deprivation in University Students

Studies have examined the impact of late starting times at schools. The results demonstrate consistency for these studies. Findings suggest that late school start times regularly improve sleep, health, and learning in adolescence. These studies use a variety of methodological approaches. The results of these studies also indicate that an earlier start time harms sleep, health, and learning in adolescence (Kelley et al., [2014](#)). The majority of cross-cultural studies have shown that the earlier "synchronization" of adolescents occurs much later than the start of the academic year in most academic institutions. A study conducted among college and university students found that they slept less than six hours each night (National Sleep Foundation, [2016](#)). Another study highlighted the students' sleep needs. Findings demonstrated that college students who slept an average of 8 hours per night during final exams performed better in their exams than those who did not sleep, consistent with the recommended hours of sleep each night (Musshafen et al., [2021](#)).

Causes of Sleep Deprivation

Sleep deprivation is a prevalent issue among university students. This could be due to different causes, such as the internet, mental illnesses, caffeine, and medical diseases, e.g., diabetes, cardiovascular diseases, and obesity. All these have been discussed in detail. A study was conducted to

investigate the association between sleep deprivation and high-speed internet access. Research suggests that a lack of sleep is often linked to a wide range of health issues. People without a broadband link tend to have better sleep than those with one. People with a broadband link sleep 25 minutes less than those without one. The recommended amount of sleep is 7 to 8 hours per night (Francesco et al., [2018](#)). Another study examining internet usage indicated that the proportion of participants who used their smartphones for social media before bed is higher than that of those who did not. The results of this study demonstrated that participants who used smartphones for more than 60 minutes slept 7.4 times less than those who used smartphones for less than 15 minutes before bedtime (Alshobaili & Yousef, [2019](#)).

Sleep deprivation is caused by numerous factors, from behavioral determinants to intrinsic medical causes. One of the principal behavioral causes is the intake of caffeine: contemporary meta-analytic data indicate that even a few hours prior to bedtime, caffeine can delay sleep onset, shorten total sleep time, decrease deep sleep, and disrupt sleep structure. To reduce its wakeful effects, researchers advise against taking greater doses of caffeine within 8-12 hours of bedtime (Gardiner et al., [2025](#)). Medical conditions, particularly cardiovascular diseases, are both the causes and effects of sleep loss; hypertension, heart failure, and circadian rhythm disturbances often lead to nighttime awakenings or disrupted sleep maintenance (Onyegbule et al., [2025](#)).

Sleep disorders constitute another large category of causes. Conditions like obstructive sleep apnea, insomnia, and circadian rhythm disorders disrupt the quality of sleep, leading to repeated awakenings, diminished restorative stages, or desynchronization of sleep-wake timing (Jha, [2023](#); Vernia et al., [2021](#)). In addition to these, lifestyle and environmental determinants, such as night shift work, exposure to artificial light in the evening, irregular work schedules, irregular sleep habits, and psychological states like depression and anxiety, are also significant. These determinants can operate individually or interactively, creating feedback mechanisms that further compromise sleep quality and duration (Okechukwu et al., [2023](#)).

Experimental research was conducted to investigate the relationship between insufficient sleep and obesity. Results demonstrated that a lack of sleep leads to metabolic changes that are either directly or indirectly linked to obesity. Another study was conducted to assess the link between sleep

duration and weight. Results demonstrated a link between sleep duration and weight in all age groups, this link being stronger in children. It was concluded that sleep is crucial in younger ages for brain development, cognitive functioning, and the proper functioning of the hypothalamus. The hypothalamus is the part of the brain that regulates appetite and energy expenditure. It was also concluded that a lack of sleep in younger ages impair all these functions (Taheri, [2006](#)).

Language Comprehension in Students

Understanding language is a crucial aspect of day-to-day university life. Understanding written and spoken language is crucial and depends on the ability to correctly process words, comprehend sentence meaning, apply grammar, and analyze the structure of texts. Knowledge problems can emerge from difficulties in any field. Language is an integral part of communication, comprising sounds and written symbols. It is used by different people from different countries and regions to speak and write. Knowledge is the ability to understand anything (Hobson et al., [2024](#)). Linguistic comprehension is defined as the capacity to understand oral and written language vocabulary, syntax (sentence formation), morphology, discourse comprehension, and working memory. These abilities allow a reader to extract meaning from text that goes beyond mere word recognition (Sun et al., [2025](#)).

Barriers to Learning English as a Second Language

Learning a language to become fluent can be very difficult. This is especially true if one's native languages are not closely related. As new learners, people often face numerous obstacles in learning, reading, and comprehending English as a foreign language. Even native speakers often make mistakes due to the inherent differences and subtleties of the language (Hooper, [2019](#)). Barriers represent problems, hurdles, and difficulties in learning English at all levels. The examination system, student weaknesses and foundation in English, large class sizes, passive learning, and uninteresting, lengthy, and challenging literature-based curricula are primary issues in learning English. Additionally, low grades from English teachers and outdated methods contribute to these challenges. If one examines the yearly grades of Pakistani students, there has been a significant increase in failures, primarily due to failures in English. Failing in English means failing in all subjects.

One study found that, despite considerable effort, results in English remained dissatisfactory, largely due to deficiencies in teaching methods and the design of teaching materials. As for the functions of languages, each language has four abilities: listening, speaking, reading, and writing. Impairments or abilities in language vary according to the diversity of sociolinguistic divisions worldwide. It has been observed that listening becomes more complex and difficult for a non-native learner (Morley, [2001](#)).

Thus, the importance of speaking is paramount and cannot be ignored, especially in Pakistan. Many factors are cited as making English proficiency difficult (Tayyab, [2023](#)). Reading is a process of social interaction involving literature, the individuals who read, and the social context in which the reader engages with a text. Urdu is the national language of Pakistan, but many other languages are also spoken, such as Punjabi, Saraiki, and Sindhi. All these languages are used for communication in Pakistan. The native language plays a vital role in communication. Pakistan is a significant part of the subcontinent, which is why it is a multilingual country.

Link between Sleep Deprivation and English Language Comprehension

Sleep plays an important role in solidifying the linguistic information needed for English language understanding, including vocabulary, grammar, and syntax. The declarative-procedural model (Arthur & Ullman, [2021](#)) suggests that declarative memory (for facts and meanings of words) and procedural memory (for rules, syntax, and sequence processing) both play a role in language processing. Sleep loss interferes with memory consolidation processes, particularly in non-REM sleep stages (slow-wave sleep and spindles), which compromises the integration of new lexical entries and grammatical patterns (Wei et al., [2018](#)). Novel word learning (recognition, recall), for example, performs much better if sleep follows learning than if it is replaced with equivalent wake periods, suggesting sleep's unique advantage in forming word-meaning connections that support comprehension. In addition to memory consolidation, empirical investigations demonstrate that sleep deprivation compromises comprehension performance by affecting attention, working memory, and processing speed—cognitive abilities core to English reading and listening comprehension. In children, sleep-disordered breathing and excessive daytime sleepiness predict low word and non-word reading proficiency,

which are early precursors to full comprehension.

Joyce and Breadmore (2021) established that children with increased sleeping issues had lower decoding accuracy and speed, which are likely to affect their reading of more complex texts. Similarly, resting-state brain imaging research in adults shows that partial sleep loss decreases functional connectivity within brain networks involved in syntax processing, morphology, and semantics. In other words, the understanding of grammar is particularly susceptible to damage when sleep is lacking.

Theoretical Justifications

Sleep deprivation significantly impacts English language comprehension by impairing cognitive processes involved in understanding and processing language. Theoretical research such as Active System Consolidation (ASC) and information Overlap to Abstract (iOtA) suggests that sleep deprivation can reduce comprehension, impair auditory processing, and slow down language processing, making it harder to articulate thoughts and understand others (Cross et al., 2018). Sleep plays a critical role in consolidating linguistic information, including vocabulary and grammar, and sleep-dependent neural oscillations facilitate language processing and consolidation. As a result, sleep deprivation can impede language learning, impair communication skills, and affect language performance, highlighting the importance of adequate sleep for language acquisition and proficiency. In the present study, three major cognitive abilities are central to English language comprehension: reading comprehension, verbal efficacy, and working memory. Greater verbal working memory capacity enhances the ability to retain information during text encoding, which improves English comprehension. Since comprehension is the goal of most readers, it is legitimate for researchers to be interested in how sleeplessness might undermine reading performance (Ellis et al., 2014).

Research Questions

Based on previous literature and theoretical guidelines, the following research questions are generated;

- How does sleep-deprivation affect English language comprehension in undergraduate students?
- What psychological and academic factors contribute to sleep

deprivation in university students learning English language?

- What coping mechanisms do sleep-deprived students use in English language classes, and how do these affect their understanding?

Research Objectives

- This research aims to evaluate the consequences of sleep deprivation in the language comprehension of adults.
- Another aim of this study is to answer the actual research questions.

Methods

This qualitative study investigates the impact of sleep deprivation on language comprehension among university students, employing an exploratory research design. Considering the limited research available on this topic, the exploratory approach provides a comprehensive opportunity to investigate it. The researchers employed a purposive sampling approach, utilizing eight undergraduate students from COMSATS University Islamabad, Lahore campus, each belonging to a different discipline, including Physics, Psychology, Math, and BBA. Table 1 shows that the majority of participants were females, selected by applying PSQI, as they were more comfortable providing data. All study participants were residents of Lahore. The inclusion criteria involved participants who were first-semester students, aged between 18 and 20 years, residing in Lahore. Exclusion criteria involved hostel students, any physical disability, and a psychological disorder.

To ensure the study's validity, potential confounding factors such as the medium of instruction, study habits, and grade points were controlled. Participants were matched based on their medium of instruction throughout their academic journey, as all of them had an English-medium schooling background. English-medium schools in Pakistan include distinct categories, i.e., Cambridge, private, and regular schools. To control for confounding effects, only participants who had their education in regular English-medium schools were chosen.

Further, grade points were also matched as all recruiters had at least 3 Cumulative Grade Point Average and no third division throughout their academics. Moreover, comparable study habits such as daily-average time spent on study (e.g., at least 3 hours) and note-taking during the lecture were

also ensured.

Students who were deprived of sleep were screened using the Pittsburgh Sleep Quality Index (PSQI; Buysse, [1989](#)); only those who received a score of 5 or higher on the PSQI were considered. The lived experiences of participants were assessed for language comprehension by asking open-ended research questions. Demographic forms and semi-structured interviews were used as the sources of data collection, with an emphasis on the experiences of sleepiness, classroom involvement, and lack of understanding among students. The interviews lasted 5-7 minutes, and open-ended questions led the focus, with literature references included. All necessary measures were taken to ensure ethical considerations, including obtaining informed consent, guaranteeing confidentiality, and allowing individuals to withdraw at any time. Interviews were conducted in a confidential setting, and with permission, were recorded, transcribed, and analyzed using thematic analysis, which enables the identification of frequencies and meaning within patterns. Figure 1 demonstrates the frequency of appearance of participants' verbal expressions generated by using the AI-Word-Cloud Generator.

Results

A thematic analysis of interviews was conducted to answer the research questions. Table 1 illustrates the demographic information of all the participants. It includes the major information of the participants, such as their age, gender, birth order, department, family system, marital status, city, and year of education (see Table 1). Figure 2 shows the coding and themes of the interviews. The first superordinate theme was based on the factors behind sleep deprivation contributing to a lack of English language comprehension in the classroom. Factors that lead to sleep deprivation are important and impact language comprehension in the classroom. The first subordinate theme was a classroom where behaviors led to a lack of English language comprehension. Participants reported that because they were sleep-deprived, they felt sleepy in the classroom. To avoid this, they resorted to talking with friends, using their phones, eating in the classroom, going to the washroom for face washing, and engaging in absenteeism. They also exhibited a lack of communication and involvement in classroom activities. The second subordinate theme was personal factors leading to a lack of English language comprehension. Personal factors play an important role in language comprehension. Participants reported that due to sleep

Demographic Characteristics of Participants

No	Age	Gender	Birth Order	Marital Status	Department	Family System
1	18	Male	Firstborn	Single	Math	Nuclear
2	18	Female	Middle	Single	Math	Nuclear
3	19	Female	Firstborn	Single	Physics	Nuclear
4	18	Female	Middle	Single	Physics	Joint
5	20	Female	Youngest	Single	Psychology	Nuclear
6	19	Female	Firstborn	Single	Psychology	Nuclear
7	18	Male	Youngest	Single	BBA	Nuclear
8	18	Female	Middle	Single	BBA	Nuclear

Word Cloud Representing Description of Themes across the Data

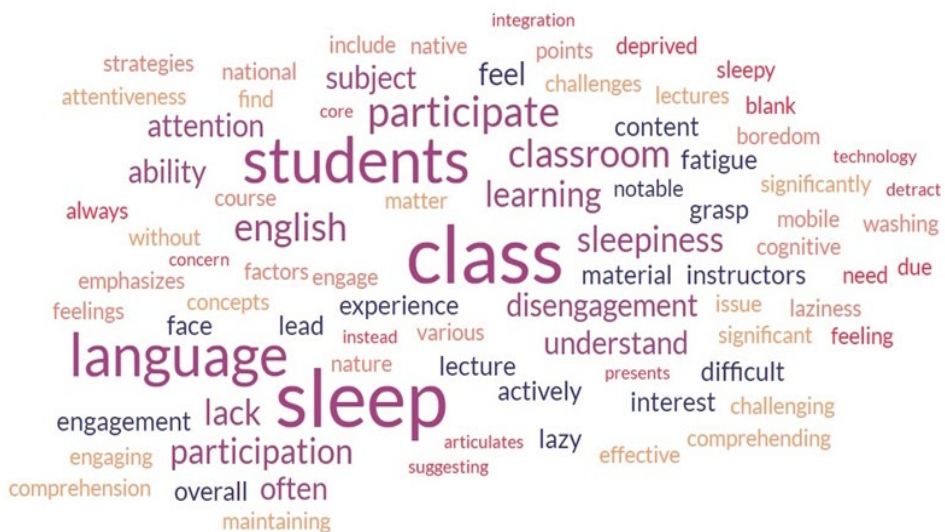


Table 2*A Qualitative Analysis of English Language Comprehension in Sleep-Deprived Young Adults.*

Theme	Sub-theme	Theme description	Respondents	Total <i>f</i>
Classroom comprehension and sleep deprivation	Inadequate comprehension and Inattentiveness due to sleep deprivation	Yes, it becomes a hindrance by diverting our attention in the classroom. We only hear the lecture instead of listening	A. K	3
Language Barriers in Academic Engagement	Lack of active participation due to a non-native language	I am unable to pay attention in the classroom, which distracts me	B. J	2
Concentration and Engagement in Learning	Lack of concentration during class activities	I cannot focus on the lecture or participate in the class discussion.	M.S	2
Impact of Sleep Deprivation on Cognitive Functioning	Cognitive functioning based on the language barrier	Students without enough sleep have problems with attention and problem-solving skills	J.B	2
Barriers to Active Learning	Inattentiveness while learning	There is also a problem with sleepiness. The English language proficiency of teachers is a significant hindrance that prevents me from actively participating in the classroom	W.B	2
Language as a Barrier to Comprehension	Language barrier	Language class teachers deliver the lecture in English, which is very difficult, and I feel obstacles in comprehending the lecture	R.W	3
Challenges of Learning in a Non-Native Language	Difficulty in understanding the language	English is not our national language; that is why we need more focus to understand it. The native language is easier to understand than English.	R.S	2
Impact of Difficulty on Engagement and Motivation	Language barrier	I find this subject very difficult. I try to understand, but am unable to do so. Due to its difficulty, I never take an interest in this class and always feel sleepy and bored.	M.S	1

Theme	Sub-theme	Theme description	Respondents	Total <i>f</i>
Language Perceptions and Academic Disengagement	Perceiving the English language as difficult	I feel bored with this subject; I have lost interest. These lead towards laziness.	R.W	3
Vicious Cycle of Disengagement	Laziness	I became lazy and dull in the classroom. These make me feel lazy in class and make it harder for me to focus. Due to these problems, my mood is also affected.	B.W	3
Impact of Sleep Deprivation on Academic Mood	Mood issues	Of course, being sleep-deprived, I felt lazy, inattentive, and unengaged.	W.B	3
Coping Mechanisms for Staying Engaged in Class	Talking with friends, using the phone, eating in the classroom	I avoid sleeping in class by talking with my friend and using my mobile phone, by eating something, washing my face, and interacting with the class.	A.K.A and R.S	2
Sleep Deprivation and Classroom Engagement	Communication problems	I did not participate in class while feeling sleepy (B.W). I did not participate in the classroom while being sleep-deprived.	A.K.A	2
Overcoming Barriers to Classroom Participation	Lack of participation	It is very difficult for me to participate in class when I feel sleepy. So, I always had a blank face in class and did not participate.	W.B	3
Subordinate themes				
• Personal factors leading to a lack of English language comprehension • Classroom behaviors leading to a lack of English language comprehension				
Superordinate themes				
• Factors of sleep deprivation behind the lack of English language comprehension in the classroom				

Discussion

The focus of the current research was to examine English language comprehension in sleep-deprived participants. A single overarching theme emerged, along with two superordinate themes that were identified through the participant interviews. All participants were sleep deprived and studied English as a compulsory subject.

The first superordinate theme was based on the factors behind sleep deprivation contributing to the lack of English language comprehension in the classroom. Factors that lead to sleep deprivation are important and

impact language comprehension in the classroom. There are different factors leading to lack of sleep, e.g., workload, noisy environment, medical diseases (sleep apnea, heart problems, and diabetes), mental problems (anxiety, stress, and depression), and use of electronic devices. All the above-mentioned factors should be controlled to prevent sleep deprivation. These factors are common among university students (Hobson et al., [2024](#)).

Sleep-deprived older adults often retain their reading abilities, such as reading and understanding, about 50% of them experience difficulties in unrestricted reading and higher-order language comprehension, whereas half can maintain unrestricted reading and language comprehension. School-age children are sleep-deprived, and sleep disturbances, such as difficulty falling asleep, poor sleep quality, and oversleeping, are negatively associated with various learning outcomes, including reading comprehension, reading ability, language comprehension, and classroom performance (Bruni et al., [2006](#)). Results of one study indicate that a lack of sleep is associated with a decreased ability to hear and understand language in individuals. In this study, sleep-deprived individuals had poorer understanding of grammatical structures (Holding et al., [2019](#)) and poorer language comprehension in long tasks (Pilcher, [2007](#)).

The first subordinate theme was classroom behavior that led to a lack of English language comprehension. Participants reported that because they were sleep-deprived, they felt sleepy in the classroom. To avoid sleepiness, they resorted to talking with friends, using their phones, eating in the classroom, going to the washroom for face washing, and skipping classes. They also exhibited a lack of communication and involvement in class activities. All these classroom behaviors lead to a lack of English language comprehension.

The first coding was talking with friends. Participants reported that they avoided sleepiness in the classroom by talking with friends. Communication with friends can decrease students attention span and concentration. Because of communication with friends, they missed important lectures and were unable to relate to later concepts discussed by students in the interview. The second coding was using mobile phones. This was also a reason behind their lack of comprehension. The internet and technology in general are also significant contributors to sleep deprivation. In class, students were not paying attention to the lecture because they were busy on their mobile devices. As students use mobile devices in class, they miss important topics.

The third coding was a lack of participation. Students reported that due to a lack of sleep, they were unable to participate in the classroom. They were sitting blankly in the classroom.

The fourth coding was a lack of communication with the teacher. It can be due to a lack of knowledge and interest. All these factors are important because there is no literature available for these codes and themes. There can be differences in English language comprehension due to cultural differences. All the mentioned studies were conducted in Western countries.

The second subordinate theme included personal factors leading to a lack of English language comprehension. Personal factors play an important role in language comprehension. Participants reported that due to sleep deprivation, they felt inattentive, lacked concentration, experienced a language barrier, perceived the English language as difficult, had mood issues, and felt lazy in the classroom.

The first coding is inattentiveness due to sleep deprivation. Inattentiveness is a condition characterized by a lack of attention and a tendency to be inattentive. Second coding is a lack of concentration. Lack of concentration can be due to any psychological problems, such as anxiety, stress, frustration, and depression. It can be due to a medical disease, such as back pain and a headache. Participants reported that due to sleep deprivation, they did not concentrate in classes. Beebe et al. (2010) conducted a study comparing a sleep-deprived and non-deprived classroom environment. Chronic sleep restriction in adolescence is associated with inattention, diminished learning, reduced classroom participation, lower vocabulary understanding, and reduced arousal.

Participants also reported that they faced mood issues due to sleep deprivation. Mood issues can be sadness, irritation, anxiety, loss of appetite, changes in sleep patterns, and concentration issues. Global research was conducted which aimed to investigate the relationship between inadequate sleep and psychological issues in adolescence. Their sample consisted of 2,727 students. The average age of participants was fifteen years old. More than half of the research participants were men. Results showed that participants who had less sleep than the recommended amount of sleep per night faced more psychological problems and mood swings, such as anxiety, depression, frustration, anger, and boredom. These psychological problems are also referred to as substandard behavior, as described by Bauducco et

al. (2016). It was recommended that students adopt proper sleep practices, avoid stress, anxiety, and depression, minimize sleep barriers such as excessive technology use and a noisy environment, and take prescribed medication for medical conditions. It was further explained by a recent study (Sleaiy et al., 2026), concluding that poor sleep is strongly linked with modifiable lifestyle factors and severe mental health challenges.

A lack of sleep appears to have similar impacts on all age groups. It affects the psychological state of adults, adolescents, and children in a similar way. Lack of sleep (sleep deprivation) not only worsens pre-existing mood disorders, e.g., irritation, frustration, anger, anxiety, and depression, but it can also lead to confusion, fatigue, and lack of energy. Furthermore, sleep deprivation contributes to elevated impaired emotional regulation, anxiety levels, and increased susceptibility to depressive and stress symptoms (Shah et al., 2025). Short and Louca (2015) reported that only one sleepless night significantly correlated with changes in psychological and behavioral functions.

The third coding is the language barrier. A language barrier refers to problems, hurdles, and difficulties in understanding language at all levels of education, including institutions, offices, and cultural contexts. Language barriers in learning English in regions of second language such as Pakistan are due to several reasons such as examination system, student weakness and foundation in English, large class size, rote learning, uninteresting, enormous curriculum syllabus, familiarity of teacher with English language, ancient methods, noisy environment, lack of concentration of students, inconsistent temperature of classrooms and lack of basic facilities (Malik, 2025).

Impairments and abilities in language can vary according to diverse sociolinguistic divisions worldwide. It has been observed that listening becomes more complex and difficult when it is used by a non-native learner (Morley, 2001). All the personal factors align with the findings of the literature review, and all these factors can be generalized.

Limitations and Suggestions

A qualitative research approach was used in the present study. This approach often involves fewer participants, indicating that the research findings may not be generalizable. This research approach has a drawback in that it does not include numerical data from an illustrative sample of the

population. This approach does not employ statistical analysis to illustrate the degree of opinion expressed by the research participants. However, this approach does not affect the validity of the research. Validity is reasonable, reliable, trustworthy, and therefore defensible (Johnson & Christensen, 2004). Validity is more closely related to the information richness of the thesis and the selected participants than to the sample size (Patton, 2002).

Participants aged 18 to 20 years old were exclusively included in the study, which was conducted only at the COMSATS University Islamabad, Lahore campus. This still leaves a considerable portion of the population unaccounted for. Another drawback of the study is the small number of individuals involved, which is insufficient to reflect the whole population of Pakistan. Students living in hostels can be used in future research. Compared to qualitative research, quantitative research can be used in the future. Samples should be taken from different universities. The sample size can also be increased, to make it more representative of the population.

Implications

This research will benefit students by ensuring that they receive the required amount of sleep, which is necessary for their overall well-being. It will also help them better understand English language in the classroom. This research also benefits society as when individuals become more knowledgeable, the rates of sleep disorders and sleep deprivation will be significantly reduced. Students will be able to take care of themselves by getting proper sleep. This research aims to raise awareness and educate students about the potential consequences of sleep deprivation.

Conclusion

A qualitative data analysis of interviews on sleep deprivation and English language comprehension was done carefully. Analysis was conducted through thematic analysis, revealing two subordinate themes and one superordinate theme. After careful data analysis, the study concluded that most personal factors that lead to a lack of English language comprehension in the classroom included avoiding sleepiness in the classroom by talking with friends, using the phone, eating in the classroom, going to the washroom for face washing, absenteeism, lack of communication in the classroom, and lack of taking part in the classroom activities. The classroom behaviors that lead to a lack of English language comprehension include inattentiveness, lack of concentration, language

barriers, and perception issues. The English language is often perceived as difficult, which can lead to mood issues and a lack of motivation in the classroom.

Author Contribution

Kainat Saifullah: conceptualization, data curation, writing – original draft. **Farzana Ashraf:** conceptualization, writing – original draft. **Fariha Fatima:** data curation, writing – original draft. **Maryam Jahangir:** conceptualization, writing – original draft. **Faramarz Asanjrani:** writing – review & editing.

Conflict of Interest

The authors of the manuscript have no financial or non-financial conflict of interest in the subject matter or materials discussed in this manuscript.

Data Availability Statement

The data associated with this study will be provided by the corresponding author upon request.

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