

Relationship Between Sleep and Anxiety Among Adults

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ABSTRACT

This study aimed to examine the relationship between sleep quality and anxiety among adults aged 20–35 years. Sleep and anxiety are key components of mental health and are increasingly influenced by modern lifestyle factors such as stress, academic and occupational demands, irregular sleep patterns, and excessive screen use. The objective was to determine whether a significant relationship exists between sleep quality and anxiety levels in the selected population.

A quantitative correlational research design was adopted for the study. A total of 100 participants were selected using a convenient sampling technique. Data was collected using standardized tools, the Pittsburgh Sleep Quality Index (PSQI) to assess sleep quality and the Generalized Anxiety Disorder Scale (GAD-7) to measure anxiety levels. The data was analyzed using descriptive statistics and Pearson's correlation coefficient.

The findings revealed that most participants experienced poor sleep quality and moderate levels of anxiety. The results also indicated a significant relationship between sleep quality and anxiety among the study population.

Keywords: Sleep Quality, Anxiety, PSQI, GAD-7, Adults, Correlational Study

INTRODUCTION

Anxiety is a common psychological condition characterized by excessive worry, fear, or apprehension that may vary in intensity from mild uneasiness to severe distress. It affects an individual's emotional, cognitive, and physiological functioning and can significantly interfere with daily activities and quality of life. According to the DSM-5 classification, anxiety disorders include generalized anxiety disorder, panic disorder, social anxiety disorder, specific phobias, agoraphobia, separation anxiety disorder, and selective mutism. These disorders are typically associated with symptoms such as persistent worry, restlessness, irritability, difficulty concentrating, and physical symptoms like increased heart rate and muscle tension. Sleep is a fundamental biological process that plays a crucial role in maintaining physical health, cognitive functioning, and emotional stability. It is a complex process involving different stages that contribute to energy restoration, memory consolidation, learning, and brain recovery. Sleep disturbances can manifest in various forms, including insomnia, sleep apnea, hypersomnia, circadian rhythm sleep-wake disorders, and parasomnias such as sleepwalking, night terrors, and nightmares. Poor sleep quality not only affects daytime functioning but also has a significant impact on mental health and emotional regulation.

Anxiety and sleep are closely interconnected and often influence each other in a bidirectional manner. Individuals experiencing anxiety frequently report difficulty in initiating and maintaining sleep due to excessive worrying, intrusive thoughts, and heightened physiological arousal. On the other hand, poor or insufficient sleep can lead to increased irritability, reduced emotional control, and heightened vulnerability to anxiety symptoms. This creates a cyclical pattern in which anxiety disrupts sleep, and disturbed sleep further intensifies anxiety levels.

Previous research has consistently demonstrated a strong association between anxiety and sleep disturbances. Studies have shown that individuals with higher anxiety levels are more likely to experience poor sleep quality, increased psychological stress, and disrupted sleep hygiene practices (Afonso, Fonseca, & Teodoro, 2021). Sleep is also essential for emotional regulation and cognitive functioning, and its disruption has been strongly linked with various psychiatric conditions, particularly anxiety disorders (Freeman et al., 2020; Hertenstein et al., 2019). Meta-analytic findings further suggest that individuals with anxiety disorders tend to have reduced total sleep time and poorer sleep quality compared to healthy individuals (Cox & Olatunji, 2020).

From a neurobiological perspective, the relationship between sleep and anxiety is influenced by shared brain mechanisms. The amygdala, which plays a key role in emotional processing and fear responses, and the hypothalamic-pituitary-adrenal (HPA) axis, which regulates stress responses, are both involved in the regulation of sleep and anxiety. Dysregulation in these systems can lead to heightened stress responses and disturbed sleep patterns (McEwen et al., 2015; Sapolsky, 2003).

Given the increasing prevalence of both anxiety disorders and sleep disturbances globally, understanding their relationship is essential. Anxiety disorders affect a significant proportion of the population worldwide, while sleep problems are also highly common across different age groups. This highlights the importance of studying their interaction to support early identification, prevention, and effective intervention strategies aimed at improving overall mental health outcomes.

Need and Significance of the Study

Sleep is essential for physical and mental well-being, but modern lifestyles often lead to poor sleep quality due to work pressure, stress, and excessive screen use. At the same time, anxiety is increasingly common among adults and affects emotional stability, concentration, and daily functioning.

Although sleep problems and anxiety have been studied separately, fewer studies have focused on their relationship in adults. Understanding this link is important because poor sleep may increase anxiety, and anxiety may further disturb sleep, creating a negative cycle that affects overall mental health.

This study is significant as it helps identify the connection between sleep quality and anxiety, contributing to existing literature and supporting mental health professionals in developing better interventions. It may also help individuals improve sleep habits and manage anxiety more effectively.

Objectives of the Study

1. To assess the relationship between sleep quality and anxiety among adults.
2. To measure sleep quality and anxiety levels using standardized tools.
3. To determine the correlation between sleep quality and anxiety.
4. To identify factors influencing sleep and anxiety.
5. To suggest ways to improve sleep and reduce anxiety.

Hypotheses

- **H₀:** There is no significant relationship between sleep quality and anxiety among adults.
- **H₁:** There is a significant relationship between sleep quality and anxiety among adults.

REVIEW OF LITERATURE

Sleep and anxiety have been extensively studied in adult populations, and a large body of evidence consistently highlights a strong and complex relationship between the two. Research indicates that poor sleep quality is associated with higher levels of anxiety, while anxiety itself can contribute to sleep disturbances, forming a bidirectional and cyclical relationship that significantly impacts psychological well being.

Sleep is a fundamental physiological process that plays a crucial role in maintaining cognitive functioning, emotional regulation, and physical health. According to Buysse et al. (1989), sleep quality is a multidimensional construct that includes sleep duration, sleep latency, sleep disturbances, habitual sleep efficiency, and daytime dysfunction. The Pittsburgh Sleep Quality Index (PSQI) is widely used to measure these components in both clinical and non-clinical populations. Adequate sleep is essential for brain functioning, memory consolidation, and emotional stability, whereas poor sleep is linked to irritability, reduced concentration, impaired decision-making, and decreased productivity.

Modern lifestyle factors have significantly contributed to the rising prevalence of sleep disturbances among adults. Hirshkowitz et al. (2015) reported that irregular sleep schedules, increased use of electronic devices, occupational stress, and academic pressures are major contributors to poor sleep quality. These factors not only reduce total sleep duration but also affect the depth and restorative nature of sleep, leading to long-term consequences on mental health.

Anxiety is a common psychological condition characterized by excessive worry, fear, and physiological arousal. It often affects emotional regulation, cognitive functioning, and daily performance. Several studies have highlighted the close association between anxiety and sleep disturbances. Lund et al. (2010) found that poor sleep quality among college students was significantly associated with higher levels of stress, anxiety, and depression. Their study emphasized that sleep deprivation and irregular sleep patterns were common among young adults and strongly linked to psychological distress.

Alvaro et al. (2013) conducted a systematic review and concluded that sleep disturbances act both as a symptom and a contributing factor to anxiety disorders, reinforcing the bidirectional relationship between sleep and anxiety. Babson and Feldner (2010) reported that individuals with anxiety disorders frequently experience insomnia, difficulty maintaining sleep, and nightmares, suggesting that sleep disturbances are a core feature of anxiety related conditions.

Longitudinal studies further support this association. Baglioni et al. (2011) found that insomnia significantly predicts the development of anxiety disorders over time, indicating that sleep problems may serve as an early risk factor for later psychological distress. Ramsawh et al. (2009) also observed that anxiety severity is strongly associated with poorer global sleep quality, even after controlling for depressive symptoms, highlighting the independent contribution of anxiety to sleep disruption.

Occupational and environmental factors also play an important role in this relationship. Alwahibi et al. (2023) studied working professionals and found that individuals experiencing higher levels of occupational stress and anxiety reported significantly poorer sleep efficiency and greater daytime dysfunction. The study reported a statistically significant positive correlation between anxiety and sleep disturbance ($r = 0.47$, $p < 0.01$), indicating a moderate relationship between the two variables.

Population-based studies further strengthen these findings. Huang et al. (2020), in a large rural Chinese adult population, observed a dose-response relationship between sleep quality and anxiety symptoms. Individuals with poor sleep quality (PSQI > 5) had significantly higher odds of experiencing anxiety

symptoms compared to those with good sleep. The study emphasized that both sleep duration and sleep quality play critical roles in maintaining emotional stability and mental health.

From a cognitive perspective, Cox and Olatunji (2020) identified cognitive rumination and physiological hyperarousal as key mechanisms linking anxiety and sleep disturbances. Anxious individuals often experience excessive worry and intrusive thoughts, particularly at night, which interfere with sleep initiation and maintenance, leading to chronic insomnia and non-restorative sleep.

More recent evidence by Zhou et al. (2023) further supports the bidirectional nature of this relationship. Using structural equation modeling, the study demonstrated that poor sleep predicts increased anxiety over time, and higher anxiety levels also predict worsening sleep quality, confirming a reciprocal relationship between the two constructs across different occupational groups.

In addition, Alhashim et al. (2025) reviewed multiple studies and concluded that chronic sleep disturbances are strongly associated with elevated anxiety symptoms. The authors emphasized that dysregulation of the hypothalamic–pituitary–adrenal (HPA) axis and increased physiological hyperarousal may explain this association, suggesting that improving sleep quality could help reduce anxiety symptoms among adults.

Alqahtani et al. (2022) also reported that during periods of increased psychological stress, such as the COVID-19 pandemic, individuals with higher anxiety levels experienced significantly poorer sleep quality. Their findings further indicated that fatigue and stress partially mediated the relationship between sleep and anxiety, highlighting the role of psychological distress in both conditions.

Overall, the literature consistently demonstrates that sleep quality and anxiety are closely interconnected through psychological, behavioral, and neurobiological mechanisms. Sleep disturbances not only contribute to the development and maintenance of anxiety but are also exacerbated by anxious thoughts and emotional dysregulation. This reciprocal relationship highlights the importance of further research to better understand their interaction and develop effective interventions for improving both sleep and mental health outcomes in adult populations.

METHODOLOGY

Research Design

This study adopts a correlational research design to examine the relationship between sleep quality and anxiety levels among adults. A correlational approach is appropriate as it helps identify the presence and strength of a statistical relationship between the two variables without any manipulation. In this case, it allows the researcher to understand how sleep quality is associated with anxiety levels in the selected population.

Population and Sample

The population for this study included adults aged 20 to 35 years. A sample of 80–100 adults was selected using convenience sampling based on their availability and willingness to participate.

Participants who are able to understand the questionnaire, have access to a smartphone or computer for online data collection, and are willing to participate voluntarily was included in the study.

Adults with diagnosed severe mental disorders or clinically diagnosed sleep disorders requiring medical treatment was excluded, as these conditions may influence sleep and anxiety levels and affect the study results.

Instruments Used

1. **Pittsburgh Sleep Quality Index (PSQI):** The PSQI is a standardized self-report questionnaire used

to assess sleep quality and disturbances over a one-month period. It contains 19 items covering seven components: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction. Each component is scored from 0 to 3, with higher scores indicating poorer sleep quality. The total global score is obtained by summing all components, providing an overall measure of sleep quality. The PSQI is widely validated and reliable for use in adult populations.

2. **Generalized Anxiety Disorder-7 (GAD-7) Scale:** The GAD-7 is a brief self-report tool used to assess the severity of anxiety symptoms. It consists of 7 items rated on a 4-point scale from 0 (not at all) to 3 (nearly every day), with total scores ranging from 0 to 21. Higher scores indicate greater anxiety severity. It is widely used due to its simplicity, reliability, and validity in identifying mild to severe anxiety levels.
3. **Demographic Questionnaire:** A demographic questionnaire will be used to collect basic participant information such as age, gender, occupation, lifestyle habits, screen time, and sleep-related behaviors. This helps in understanding the sample characteristics and identifying factors that may influence the relationship between sleep quality and anxiety.

Reliability and Validity

The Pittsburgh Sleep Quality Index (PSQI) demonstrates good reliability, with Cronbach's alpha values ranging from 0.70 to 0.83, along with stable test-retest reliability. It also shows strong construct and criterion validity when compared with objective sleep measures.

The Generalized Anxiety Disorder-7 (GAD-7) scale has excellent reliability, with a Cronbach's alpha of approximately 0.89 and good test-retest reliability. It also demonstrates strong construct and criterion validity in effectively assessing anxiety levels in adults.

Procedure

The study was conducted using a survey-based approach. The purpose of the study was explained to them, and informed consent was obtained to ensure voluntary participation. Participants completed three instruments: a demographic questionnaire, the Pittsburgh Sleep Quality Index (PSQI) to assess sleep quality, and the Generalized Anxiety Disorder-7 (GAD-7) scale to measure anxiety levels. Data was collected both online and in person, depending on participant accessibility, over a period of 2–3 weeks. After data collection, all responses were coded and organized for statistical analysis to examine the relationship between sleep quality and anxiety levels among adults.

Scoring

The Pittsburgh Sleep Quality Index (PSQI) was scored according to standard guidelines. It includes seven components: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction. Each component is scored from 0 to 3, with higher scores indicating poorer sleep quality. A global PSQI score was obtained by summing all seven component scores.

The Generalized Anxiety Disorder-7 (GAD-7) scale was scored by summing responses to all seven items, each rated from 0 (not at all) to 3 (nearly every day). The total score ranges from 0 to 21, with higher scores indicating greater anxiety levels. Scores were also categorized into mild, moderate, and severe anxiety based on standard cut-off values.

Statistical Analysis

Pearson's correlation coefficient was used to examine the relationship between sleep quality and anxiety levels among adults. A p-value of less than 0.05 was considered statistically significant.

Ethical Considerations

Participation in the study was voluntary, and participants were allowed to withdraw at any time without any consequences. Informed consent was obtained from all participants before data collection. Confidentiality was strictly maintained, and no personal identifying information was collected. The study adhered to ethical guidelines for research involving human participants, ensuring minimal risk and respect for participants' rights and privacy.

RESULT

This chapter presents the analysis and interpretation of data collected to examine the relationship between sleep quality and anxiety among adults. Data was obtained from 100 participants aged 20–35 years through online and in-person questionnaires. This age group was selected as they are commonly exposed to lifestyle stressors, irregular sleep patterns, and high screen use, which may affect both sleep and mental health.

Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI), and anxiety levels were measured using the Generalized Anxiety Disorder-7 (GAD-7) scale. The data was analyzed using both descriptive and inferential statistics.

Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to summarize the data and describe the overall patterns of sleep quality and anxiety levels among participants. Inferential statistics were used to test the study hypothesis and examine the relationship between the variables.

Pearson's correlation coefficient was applied to determine the relationship between sleep quality and anxiety levels. This method helped assess the strength and direction of the association between the two variables. The level of significance was set at $p < 0.05$.

Table 1: Descriptive Statistics for Sleep Quality (PSQI) and Anxiety (GAD-7)

Variable	Mean	Standard Deviation (SD)
Sleep Quality (PSQI Score)	7.42	3.15
Anxiety (GAD-7 Score)	8.85	4.22

The mean PSQI score was 7.42, indicating poor sleep quality among participants, as scores above 5 reflect sleep disturbances. This suggests that many adults aged 20–35 experienced issues such as difficulty falling asleep, frequent awakenings, and reduced sleep quality.

The mean GAD-7 score was 8.85, indicating moderate anxiety levels among participants. This shows that anxiety symptoms such as excessive worry, restlessness, and irritability were commonly present in the sample.

The standard deviation for PSQI was 3.15, showing moderate variation in sleep quality among participants. For GAD-7, the standard deviation was 4.22, indicating greater variability in anxiety levels, ranging from mild to severe symptoms.

Table 2: Frequency Distribution of Anxiety Severity Levels

GAD-7 Score	Frequency (N=100)	Percentage (%)
Minimal (0-4)	18	18%
Mild (5-9)	42	42%
Moderate (10-14)	31	31%

Severe (15-21)	9	9%
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Out of 100 participants, 18% (n = 18) had minimal anxiety (0–4), indicating low symptom levels and good emotional stability. A majority, 42% (n = 42), reported mild anxiety (5–9), suggesting occasional worry and stress commonly seen in daily life.

Moderate anxiety (10–14) was found in 31% (n = 31) of participants, indicating noticeable symptoms that may affect concentration, functioning, and daily activities. Severe anxiety (15–21) was observed in 9% (n = 9), reflecting significant psychological distress that may interfere with normal functioning.

Table 3: Correlation between Sleep Quality and Anxiety Levels

Variables	Pearson's Correlation (r)	Significance (p-value)
Sleep Quality (PSQI) & Anxiety (GAD-7)	0.52**	<0.001

Pearson's correlation coefficient was used to examine the relationship between sleep quality (PSQI) and anxiety levels (GAD-7) among adults. The analysis showed a moderate positive correlation ($r = 0.52$), indicating that poorer sleep quality is associated with higher anxiety levels.

This relationship was found to be highly significant ($p < 0.001$), suggesting that the result is statistically reliable and not due to chance. Since the p-value is below 0.05, the null hypothesis is rejected, confirming a significant relationship between sleep quality and anxiety among adults.

DISCUSSION

The study aimed to examine the relationship between sleep quality and anxiety among adults aged 20–35 years. The findings indicate a significant positive relationship between poor sleep quality and higher anxiety levels, suggesting that both conditions are closely linked in this population.

Descriptive results showed that a large proportion of participants experienced poor sleep quality, with common issues such as difficulty falling asleep, frequent awakenings, and low sleep satisfaction. Similarly, most participants reported mild to moderate anxiety, with a smaller group experiencing severe anxiety. This indicates that both sleep disturbances and anxiety symptoms are common among young adults, possibly influenced by factors such as stress, academic/work pressure, irregular routines, and high screen time.

The correlation analysis confirmed a statistically significant positive relationship between sleep quality and anxiety ($r = 0.52$, $p < 0.001$). This suggests that poorer sleep quality is associated with higher anxiety levels. The findings also indicate a likely bidirectional relationship, where poor sleep can increase emotional instability and anxiety, while anxiety can further disrupt sleep through excessive worry and heightened arousal.

These results are consistent with previous studies that report a strong association between sleep disturbances and anxiety symptoms. The findings highlight the importance of addressing both conditions together, as they tend to reinforce each other.

Overall, the study emphasizes the role of lifestyle factors such as stress, screen use, and irregular sleep patterns in influencing both sleep quality and anxiety. Improving sleep habits may therefore help reduce anxiety levels and improve overall mental well-being in adults.

CONCLUSION

The present study was conducted to examine the relationship between sleep quality and anxiety among adults aged 20–35 years. Based on data collected from 100 participants, the findings indicate a statistically significant relationship between sleep quality and anxiety levels.

The results showed that most participants experienced poor sleep quality along with mild to moderate anxiety levels. Correlation analysis revealed a moderate positive relationship between sleep quality and anxiety ($r = 0.52$, $p < 0.001$), indicating that poorer sleep quality is associated with higher anxiety levels. The study supports the alternative hypothesis and rejects the null hypothesis, confirming a significant association between sleep quality and anxiety in the selected population. This suggests that sleep disturbances and anxiety symptoms commonly coexist and may influence each other in adults.

In conclusion, sleep quality plays an important role in psychological well-being, particularly in relation to anxiety. Improving sleep patterns and addressing sleep related issues may help reduce anxiety levels among adults. The findings emphasize the importance of early attention to sleep health as part of mental health promotion and preventive strategies.

Limitations

This study has certain limitations that should be considered while interpreting the findings. First, the sample size was relatively small, which may limit the generalizability of the results to the broader population. Second, the study did not include clinical interviews or psychiatric evaluations, which could have provided more accurate diagnostic insights. Third, data was collected using self reported online questionnaires, which may introduce response bias, as participants may not always provide fully accurate or objective responses.

Recommendation

It is recommended that individuals maintain a regular sleep schedule and consistent sleep routine to improve overall sleep quality. Reducing screen time, especially before bedtime, may also help in achieving better sleep. Practicing stress management techniques such as meditation, deep breathing exercises, and relaxation strategies can be beneficial in reducing anxiety levels. Regular physical activity should be encouraged as it contributes to improved sleep quality and helps in managing anxiety. Individuals experiencing moderate to severe anxiety symptoms should seek professional help for appropriate intervention. Better time management can help reduce academic and workplace related stress, while maintaining a healthy lifestyle that includes a balanced diet and reduced caffeine intake can further support mental well being. Early identification of sleep and anxiety related issues is important for timely intervention. Future studies are recommended to include larger sample sizes and additional variables to enhance the generalizability and depth of findings.

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