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# The Relationship Between Insomnia and Anxiety among Undergraduates of Enugu State University of Science and Technology

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## ABSTRACT

*The study examined the relationship between insomnia and anxiety among undergraduates of Enugu State University of Science and Technology (ESUT). Two hundred (200) participants, comprising 73 males and 127 females, were randomly selected from the undergraduate population of the university. The participants' ages ranged from 17 to 28 years, with a mean age of 21.12 years and a standard deviation of 2.29. A cross-sectional research design was adopted for the study. Two standardized instruments were used for data collection, namely, the Insomnia Severity Index (ISI) and the Generalized Anxiety Disorder Scale (GAD-7). Simple linear regression analysis was employed to examine the relationship between the study variables. The findings revealed a positive and statistically significant relationship between insomnia and anxiety among ESUT undergraduates. This finding indicates that higher levels of insomnia are associated with increased levels of anxiety among undergraduate students. In conclusion, the study established that insomnia is significantly associated with anxiety among ESUT undergraduates, highlighting the importance of addressing sleep-related problems as part of strategies for improving students' mental health and overall well-being.*

***Keywords:*** *Insomnia, Anxiety, Undergraduates, Sleep Disturbance, Mental Health, Psychological Well-being.*

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**Introduction**

Undergraduates constitute a central population within higher educational institutions and are exposed to multiple developmental, academic, and psychosocial demands that influence their mental health. From a developmental perspective, undergraduates are seen as emerging adults, typically between the ages of 18 and 25, who are navigating a transitional stage characterized by identity exploration, instability, and uncertainty. This explains that this period involves significant decision-making related to education, career paths, and interpersonal relationships (Arnett, 2014). However, one of the most prevalent health challenges among undergraduates is insomnia. The American Psychiatric Association defines insomnia as a sleep disorder characterized by persistent difficulty initiating sleep, maintaining sleep, early morning awakening, or experiencing non-restorative sleep despite adequate opportunity for sleep (American Psychiatric Association, 2013). This definition highlights the clinical nature of insomnia and its impact on daily functioning.

Buysse (2013) describes insomnia as a disorder of sleep regulation that reflects an interaction between biological vulnerability, psychological stress, and maladaptive sleep behaviors. Buysse emphasizes that poor sleep habits, cognitive arousal, and environmental disruptions play a central role in maintaining insomnia. The causes and triggers of insomnia among undergraduates are diverse. Academic workload, examination pressure, and irregular study schedules disrupt circadian rhythms and delay sleep onset (Hershner & Chervin, 2014). Excessive use of electronic devices before bedtime increases cognitive arousal and suppresses melatonin production, thereby interfering with sleep initiation (Cain & Gradisar, 2010). Environmental factors such as hostel noise, overcrowding, and uncomfortable sleeping conditions further contribute to sleep difficulties (Brown et al., 2017). These factors collectively increase the likelihood of persistent insomnia among undergraduates.

However, the consequences of insomnia are substantial. Chronic sleep deprivation has been associated with impaired attention, reduced memory consolidation, and poor academic performance (Curcio et al., 2006). Longitudinal studies indicate that insomnia significantly increases the risk of developing anxiety disorders among young adults (Baglioni et al., 2011). Anxiety is seen as a future-oriented mood state characterized by apprehension, perceived lack of control, and heightened vigilance. Anxiety involves cognitive, emotional, and physiological components that interact to influence behavior (Barlow, 2002).

Similarly, Beck and Emery (1985) describe anxiety as a cognitive-affective condition marked by persistent negative thoughts, threat perception, and anticipatory worry. They argue that distorted thinking patterns play a central role in the development and maintenance of anxiety. There are four types of symptoms that make up anxiety. Firstly, is physiological, or somatic, symptoms, including muscle tension, heart palpitations, stomach pain, and the need to urinate. The second is emotional symptoms-primarily a sense of fearfulness and watchfulness. Thirdly, cognitive symptoms, including unrealistic worries that something bad is happening or is about to happen. Finally behavioural symptoms, causing avoiding situations because of fears (Nolen-Hocksema, 2004).

The search for biological processes associated with the anxiety disorders has focused on several neurotransmitters in the brain. One of such transmitters is GABA (gamma aminobutyric acid). GABA is an inhibitory transmitter that reduces neural activity in the amygdale and other brain structures that stimulate physiological arousal. Some researchers believe that abnormally low levels of inhibitory GABA activity in these arousal areas may cause some people to have highly reactive nervous systems that quickly produce anxiety responses in response to stressors (Bremner, 2000). Cognitive theorists stress the role of maladaptive thought patterns and beliefs in anxiety disorders. Anxiety disordered people always think of catastrophy and magnify them into reality. They anticipate that the worst will happen and feel powerless to cope effectively (Mineka et al.,1998).

Empirical evidence strongly supports a bidirectional relationship between insomnia and anxiety. Harvey (2002) explains that anxiety increases cognitive arousal and intrusive worry at bedtime, thereby disrupting sleep initiation and maintenance. Despite extensive global research, there is limited empirical evidence focusing on Nigerian undergraduates, particularly those in public universities such as Enugu State University of Science and Technology (ESUT). Investigating the relationship between insomnia and anxiety among ESUT undergraduates is therefore essential for developing effective counseling interventions and mental health policies within the university.

**Purpose of Study**

Undergraduate students are often exposed to a range of academic, social, and personal stressors that can negatively affect their psychological well-being (Oswalt et al., 2024). Mental health challenges among university undergraduates have become a growing global concern, particularly with the increasing prevalence of sleep disturbances and anxiety-related problems. Studies have consistently shown that undergraduate students report higher levels of psychological distress compared to the general population due to academic pressure, developmental transitions, and lifestyle changes (Eisenberg et al., 2009). Among these challenges, insomnia and anxiety have emerged as two of the most common and debilitating conditions affecting students' psychological well-being and academic functioning (Hershner & Chervin, 2014).

Despite growing awareness of these issues, many undergraduate populations continue to experience inadequate assessment and intervention. Insomnia is increasingly prevalent among undergraduates, with research indicating that a significant proportion of university students experience persistent sleep difficulties. Lund et al. (2010) reported that over 60% of university students experience poor sleep quality, while Gaultney (2010) found that many students meet the clinical criteria for insomnia. Chronic insomnia among undergraduates has been linked to impaired cognitive functioning, reduced academic performance, and emotional instability (Curcio et al., 2006). These findings suggest that sleep problems are not merely temporary inconveniences but represent serious psychological and academic concerns.

In the Nigerian context, undergraduates face additional stressors such as overcrowded hostels, inadequate academic facilities, financial hardship, and limited access to mental health services. empirical studies focusing on insomnia and anxiety among Nigerian undergraduates, particularly in public universities, remain scarce (Zbigniew et al., 2025). Specifically, there is a noticeable lack of empirical research examining the relationship between insomnia and anxiety among undergraduates of Enugu State University of Science and Technology (ESUT). Without such data, university authorities, counselors, and mental health practitioners lack evidence-based information necessary for developing effective intervention and prevention programs.

Understanding how insomnia and anxiety are related among ESUT undergraduates is essential for identifying at-risk students and improving mental health support services. This study, therefore seeks to answer this question: will there be a significant relationship between insomnia and anxiety among ESUT undergraduates?

**Literature Review**

Numerous studies have shown interests in our variables of study but we will like to limit ourselves to two theories namely the cognitive model and cognitive theory.

The cognitive model emphasizes the role of dysfunctional beliefs, attentional biases, and worry in maintaining insomnia (Harvey, 2002). Individuals with insomnia often overestimate the consequences of poor sleep, which increases bedtime anxiety and perpetuates sleep disturbance (Carney & Manber, 2009). Attentional bias toward sleep-related threats, such as clock-watching or worrying about exams, amplifies arousal and prevents sleep onset (Harvey et al., 2014). The model highlights how maladaptive cognitive processes interact with emotional and

behavioral factors, creating a vicious cycle of sleeplessness (Spiguel, 2022). This model links insomnia to maladaptive thoughts and beliefs about sleep, which increase emotional and cognitive arousal, thereby preventing restful sleep (Harvey, 2002). It equally explains the persistence of sleep difficulties through cognitive processes, indicating that maladaptive beliefs about sleep or performance can increase sleep latency and nighttime awakenings (Lund et al., 2010). Cognitive restructuring and behavioral interventions based on this model are effective in reducing insomnia symptoms (Alex, 2024). Individuals with insomnia often catastrophize the effects of poor sleep, believing that one bad night will ruin their academic performance, which increases anxiety and prolongs wakefulness (Harvey, 2002).

Beck's cognitive theory proposes that anxiety arises from distorted and dysfunctional patterns of thinking that lead individuals to perceive situations as more threatening than they actually are (Beck, 1976). According to the theory, anxious individuals possess maladaptive cognitive schemas that bias their interpretation of events toward danger and vulnerability (Clark & Beck, 2010). Individuals with anxiety perceive situations as more threatening than they objectively are, leading to increased physiological arousal and avoidance behaviors (Mathews & MacLeod, 2005). Cognitive distortions amplify anxious responses, creating a self-reinforcing cycle where perception of threat leads to heightened anxiety (Eysenck et al., 2007). The theory emphasizes the role of thought patterns in both the development and maintenance of anxiety disorders. The Cognitive theory assumes that anxiety arises from distorted thinking patterns and maladaptive interpretations of events as researchers note that the theory assumes anxiety is maintained by cognitive distortions rather than purely physiological arousal (Clark & Beck, 2010). It also assumes that modifying maladaptive thought patterns can reduce anxiety symptoms (Mathews & MacLeod, 2005).

**Hypothesis**

The following hypothesis was tested in this study:

i. There will be a significant relationship between insomnia and anxiety among ESUT undergraduates.

**Participants**

The participants for this study were 200 undergraduate students comprising 73 males and 127 females drawn from Enugu State University of Science and Technology (ESUT). The participants were full-time undergraduate students selected from different faculties of the university. A multistage sampling technique was first adopted. This was used to cluster the participants into smaller groups based on their faculties and departments. A simple random sampling technique was used to select the faculties and departments. Furthermore, a simple random sampling technique was adopted to select the participants from the selected departments. The ages of the participants ranged from 17 to 28 years, with a mean age of 21.12 years and a standard deviation of 2.29. Information on participants' demographic characteristics such as gender, age and level of study was obtained using the demographic section of the questionnaire.

**Instruments**

Two standardized instruments were used to collect data for this study. These include the Insomnia Severity Index (ISI) and the Generalized Anxiety Disorder Scale (GAD-7).

**Procedure**

Permission was obtained from the relevant school authorities before the administration of the instruments. The aim and nature of the study were explained to the participants, and they were assured of the confidentiality and anonymity of their responses. Participation in the study was voluntary, and informed consent was obtained from all participants prior to questionnaire administration. The questionnaires were administered to the participants in

lecture halls and common areas with the assistance of fellow research assistants. Participants were given clear instructions on how to complete the questionnaires, and assistance was provided where necessary. A total of 220 questionnaires were distributed, 211 were returned, and 200 were properly completed and used for data analysis.

**Design and statistics**

The design adopted for this study was a cross-sectional survey research design. Pearson product moment correlation was used to examine the relationship between insomnia and anxiety among ESUT undergraduates. Data analysis was carried out using the Statistical Package for the Social Sciences (SPSS).

**Results**

**Table 1: Descriptive Statistics and Pearson Correlations (N=188)**

| SN | Variable | Mean | SD | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|
| **1** | **Age** | 21.12 | 2.29 | - | | | | |
| **2** | **Gender** | 1.65 | .48 | -.05 | - | | | |
| **3** | **Level of Study** | - | - | .63*** | .06 | - | | |
| **4** | **Insomnia** | 15.92 | 4.93 | .05 | -.09 | -.05 | - | |
| **5** | **Anxiety** | 13.09 | 3.26 | -.08 | -.03 | -.11 | .64*** | - |

The results indicate that participants had a mean age of 21.12 years (SD = 2.29), suggesting that the sample consisted largely of young adults. The mean score for insomnia was 15.92 (SD = 4.93), indicating moderate levels of sleep disturbance among respondents. Similarly, the mean score for anxiety was 13.09 (SD = 3.26), suggesting moderate levels of anxiety within the sample.

The Pearson correlation analysis revealed that insomnia was strongly and positively correlated with anxiety ($r = .64$, $p < .001$). This indicates that higher levels of insomnia are associated with higher levels of anxiety among ESUT undergraduates. Age was not significantly related to anxiety ($r = -.08$, $p > .05$), suggesting that age does not influence anxiety levels in this sample. Gender was not significantly correlated with anxiety ($r = -.03$, $p > .05$), indicating no meaningful difference in anxiety across gender. Level of study was also not significantly related to anxiety ($r = -.11$, $p > .05$), suggesting that academic level does not significantly influence anxiety. There was a strong positive relationship between age and level of study ($r = .63$, $p < .001$), as expected, since students at higher levels are generally older. Insomnia showed no significant relationship with age, gender, or level of study, indicating that sleep difficulties occur relatively equally across groups. Since the relationship between insomnia and anxiety is significant, the researcher went further to test if insomnia can equally predict anxiety. The result is presented in Table 2 below.

**Table 2: Model Summary of Hierarchical Regression showing the prediction of anxiety from demographics and insomnia**

| Variable | B | Std. Error | beta | t | Sig. | R | $R^2$ | $R^2$ Change | F Value |
|---|---|---|---|---|---|---|---|---|---|
| Age | -.04 | .13 | -.03 | -.29 | .770 | .11 | .01 | .01 | .83 |
| Gender | -.20 | .49 | -.03 | -.42 | .678 | | | | |
| Level of Study | -.01 | .01 | -.09 | -.96 | .341 | | | | |
| Insomnia | .43 | .04 | .64 | 11.60 | .001 | .65 | .42 | .40 | 134.,55 |

Table 2 presents the results of a hierarchical multiple regression analysis examining whether age, gender, level of study, and insomnia predict anxiety. The first model included age, gender, and level of study as predictors of anxiety. Findings showed that Age (β = −.03, p = .770) was not a significant predictor of anxiety. Gender (β = −.03, p = .678) was not a significant predictor. Level of study (β = −.09, p = .341) was also not significant. Model Fit **(**R = .11, $R^2$ = .01) indicates that only 1% of the variance in anxiety was explained by demographic variables. The model was not statistically significant (F = .83, p > .05). Demographic variables do not significantly predict anxiety among ESUT undergraduates. The second model added insomnia as a predictor. Findings showed that insomnia significantly predicted anxiety (β = .64, t = 11.60, p < .001). This indicates that higher levels of insomnia strongly increase anxiety. The Model Fit (R = .65, $R^2$ = .42) indicates that 42% of the variance in anxiety was explained when insomnia was added. $R^2$ change = .40, indicating that insomnia alone contributed an additional 40% variance in anxiety. The model was highly significant (F = 134.55, p < .001). The addition of insomnia dramatically improved the model, showing that insomnia is a strong and significant predictor of anxiety and that demographic variables remain non-significant even after controlling for insomnia.

**Summary of Findings**

i. Insomnia is strongly associated with anxiety (correlation and regression confirmed).

ii. Insomnia is the only significant predictor of anxiety.

iii. Demographic variables (age, gender, level of study) do not predict anxiety.

iv. Insomnia explains a substantial proportion (42%) of anxiety variance, indicating a strong psychological relationship.

v. The correlation result suggests that anxiety among ESUT undergraduates is more strongly linked to sleep disturbances than to demographic characteristics.

**Findings and implication of the study**

The findings of this study have several important implications for educational practice and mental health intervention. Firstly, the significant relationship between insomnia and anxiety suggests that efforts should be made to improve students' sleep quality as a means of reducing anxiety levels. University authorities should organize awareness programs and workshops on sleep hygiene, stress management, and healthy lifestyle practices. When students develop better sleep habits, they are more likely to experience improved psychological well-being and reduced anxiety symptoms (Ugwuanyi & Zbigniew, 2023).

Secondly, the study implies that insomnia is a strong predictor of anxiety and should be a major focus of intervention strategies. Students should be encouraged to seek professional help when experiencing persistent sleep difficulties, and university counseling centers should provide support services targeting sleep-related problems (Ugwuanyi & Zbigniew, 2024). This underscores the need for strengthening mental health services within universities. Educational stakeholders such as the Federal Ministry of Education Nigeria should integrate sleep and mental health education into student support programs (Ugwuanyi, 2020).

Moreover, the study contributes to the field of Educational and Clinical Psychology by demonstrating that psychological and physiological factors significantly influence mental health outcomes. It highlights the importance of addressing sleep-related issues in managing anxiety among undergraduates (Ugwuanyi & Zbigniew, 2024). Students should be encouraged to adopt healthy sleep routines and engage in activities that promote relaxation and emotional stability (Zbigniew & Ugwuanyi, 2024). Overall, the findings emphasize that improving sleep quality is essential for reducing anxiety and enhancing students' overall well-being (Walker, 2017).

**Limitations of the Study**

Despite its contributions, this study has several limitations. First, the use of a cross-sectional design limits the ability to establish causal relationships between insomnia and anxiety. Second, the reliance on self-report measures may introduce response bias, including social desirability bias. Third, the study was conducted within a single institution (ESUT), which may limit the generalizability of the findings. Fourth, other relevant variables such as academic stress, lifestyle habits, and social support were not examined. Finally, although demographic variables were included, their lack of predictive significance may require further investigation with a more diverse sample.

**Suggestions for Further Studies**

Future studies should include a larger and more diverse sample drawn from multiple universities to enhance generalizability. Researchers should also examine additional variables such as stress, coping strategies, and lifestyle factors in relation to insomnia and anxiety. Longitudinal and experimental research designs are recommended to better understand causal relationships and the direction of influence between sleep disturbances and anxiety.

**Summary and Conclusion**

This study examined the relationship between insomnia and anxiety among ESUT undergraduates. The findings revealed that insomnia is a significant and strong predictor of anxiety, while demographic variables such as gender, age, and level of study do not significantly predict anxiety. Students who experience higher levels of insomnia are more likely to report increased anxiety symptoms. The study highlights the importance of sleep in influencing mental health outcomes among undergraduates. Overall, improving sleep quality can play a crucial role in reducing anxiety and promoting psychological well-being among students (Zbigniew & Ugwuanyi, 2024).

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