

Original Article

Association Of Insomnia And Anxiety Among The Undergraduate Students Of Doctor Of Physical Therapy Affiliated With Khyber Medical University In Hayatabad Peshawar

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Abstract

Objective: This study aimed to determine the prevalence of insomnia and anxiety and to examine their association among undergraduate Doctor of Physical Therapy (DPT) students affiliated with Khyber Medical University, Peshawar.

Study Design: A cross-sectional study was conducted.

Place and duration of study: The study was conducted at the Institute of Physical Medicine and Rehabilitation (IPM&R), Rehman Medical Institute (RMI), and Mehboob Medical Institute (MMI).

Material and Methods: A cross-sectional study was conducted among 258 DPT students selected through non-probability convenience sampling from the Institute of Physical Medicine and Rehabilitation (IPM&R), Rehman Medical Institute (RMI), and Mehboob Medical Institute (MMI). Data were analyzed to determine the distribution of insomnia and anxiety severity levels and to assess their association.

Results: Of the 258 participants, 74 (28.7%) were male and 184 (71.3%) were female. Sub-threshold insomnia was the most prevalent category (39.9%), followed by moderate clinical insomnia (28.7%), no insomnia (27.1%), and severe insomnia (4.3%). Regarding anxiety, 28.7% of participants reported moderate anxiety, 27.1% mild anxiety, 22.9% minimal anxiety, and 21.3% severe anxiety. A statistically significant linear association was observed between insomnia severity and anxiety levels ($p = .000$), indicating that higher insomnia severity was associated with greater anxiety severity. Female participants demonstrated higher prevalence rates of both insomnia and anxiety across all severity categories. Institutional analysis revealed that sub-threshold and moderate insomnia were more frequently reported among students from IPM&R and RMI.

Conclusion: Insomnia and anxiety are highly prevalent among undergraduate DPT students, with sub-threshold insomnia being the most common form. The findings demonstrate a significant positive association between insomnia severity and anxiety levels. Early identification and targeted interventions are recommended to reduce the psychological burden and improve academic performance among university students.

Keywords: Anxiety, Insomnia, Undergraduate Students of Doctor of Physical Therapy

1. Introduction

Insomnia disorder is a common sleep condition characterized by persistent difficulty in initiating or maintaining sleep, early morning awakening, and significant daytime impairment. Individuals with insomnia frequently experience fatigue, reduced concentration, impaired cognitive performance, irritability, anxiety, and low mood, all of which negatively affect quality of life. ⁽¹⁾ Longitudinal

evidence indicates that individuals with insomnia are at greater risk of developing psychopathological symptoms, particularly depression, compared with those who obtain adequate sleep. ⁽²⁾ Chronic insomnia is associated with substantial functional impairment and diminished well-being. A meta-analysis has estimated the global prevalence of insomnia

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disorder to be approximately 12.4% based on DSM interview criteria, while also emphasizing the need for standardized diagnostic approaches. ⁽³⁾ The prevalence of insomnia is increasing among both adults and university students. Approximately 30% of adults in various countries report insomnia symptoms, while the prevalence among university students ranges from 14.9% to 70.3%. ⁽⁴⁾ Insomnia also contributes to significant clinical and economic burden. Individuals with major depressive disorder and comorbid insomnia symptoms experience higher healthcare utilization and costs, as well as increased metabolic and cardiovascular complications. ⁽⁵⁾ Furthermore, insomnia has been associated with suicide attempts in patients with chronic schizophrenia, particularly in those without autistic symptoms, highlighting its complex psychiatric implications. ⁽⁶⁾

A bidirectional relationship between insomnia and anxiety has been reported, suggesting that each condition may predispose to or exacerbate the other. ⁽⁷⁾ Anxiety disorders represent a major global public health concern, affecting approximately 4% of the world's population, with a 12-month prevalence of 9.8% based on DSM-IV criteria. ⁽⁸⁾ Regional data, including those from Latin America, further confirm the substantial burden of anxiety disorders. ⁽⁹⁾

University students are particularly vulnerable due to academic pressures, lifestyle changes, and psychosocial transitions. ⁽¹⁰⁻¹²⁾ Poor sleep quality has been linked to excessive daytime sleepiness, impaired academic performance, and increased stress. ^(11, 12) Insomnia and anxiety negatively influence cognitive function, stress response, and overall well-being. ⁽¹³⁾ The undergraduate period represents a sensitive developmental stage marked by psychological adjustment and heightened stress ⁽¹⁴⁾, and stress is closely interconnected with both insomnia and anxiety. ⁽¹⁵⁾

Despite the recognized association between insomnia and anxiety, limited data are available from Khyber Pakhtunkhwa, Pakistan. Therefore, this study aimed to assess the prevalence of insomnia and anxiety and to examine their association among undergraduate Doctor of

Physical Therapy students affiliated with Khyber Medical University, Peshawar.

2. Materials & Methods

A cross-sectional study was conducted to determine the prevalence of insomnia and anxiety and to examine the association between their severity levels among undergraduate Doctor of Physical Therapy (DPT) students affiliated with Khyber Medical University, Peshawar. The study was carried out at the Institute of Physical Medicine and Rehabilitation (IPM&R), Rehman Medical Institute (RMI), and Mehboob Medical Institute (MMI). A total of 258 students were selected through the Raosoft and using a non-probability convenience sampling technique. Students currently enrolled in the DPT program and willing to participate were included in the study, while those with previously diagnosed psychiatric disorders or receiving treatment for major mental health conditions were excluded. Participation was voluntary, and informed consent was obtained from all respondents. Confidentiality and anonymity were strictly maintained. Data was collected using a structured, self-administered questionnaire consisting of demographic information and standardized tools to assess insomnia and anxiety severity. Insomnia was categorized as no insomnia, sub-threshold insomnia, moderate clinical insomnia, and severe insomnia. Anxiety was classified as minimal, mild, moderate, or severe based on established scoring criteria. Data was analyzed using SPSS. Descriptive statistics, including frequencies and percentages, were calculated, and cross-tabulation analysis was performed to assess the association between insomnia and anxiety. A p-value of ≤ 0.05 was considered statistically significant.

3. Results

The present study included a total of 258 participants, comprising 74 males (28.7%) and 184 females (71.3%). Participants were recruited from three institutes: 113 (43.8%) from IPMR, 87 (33.7%) from RMI, and 58 (22.5%) from Mehboob Institute of Physiotherapy. Statistical analysis revealed a significant linear association between insomnia severity and anxiety levels ($p = .000$), indicating that higher levels of insomnia were associated with greater anxiety severity.

Table 1: Gender Distribution of Participants

Variable	Category	Frequency	Percent (%)	Cumulative Percent (%)
Gender	Male	74	28.7	28.7
	Female	184	71.3	100.0
Institute	IPMR	113	43.8	43.8
	Mehboob	58	22.5	66.3
	RMI	87	33.7	100.0

With respect to insomnia severity, sub-threshold insomnia was the most prevalent category, affecting 103 participants (39.9%). Moderate clinical insomnia was reported by 74 participants (28.7%), while 11 participants (4.3%) exhibited severe insomnia. In contrast, 70 participants (27.1%) reported no insomnia. These findings suggest that mild to moderate sleep disturbances were common within the study population.

Severity Level	Insomnia n (%)	Anxiety n (%)
Minimal / None	70 (27.1)	59 (22.9)
Mild / Sub-threshold	103 (39.9)	70 (27.1)
Moderate	74 (28.7)	74 (28.7)
Severe	11 (4.3)	55 (21.3)

Table 2: Severity of Insomnia and Anxiety among Participants

Regarding anxiety severity, 59 participants (22.9%) demonstrated minimal anxiety, 70

(27.1%) had mild anxiety, 74 (28.7%) reported moderate anxiety, and 55 (21.3%) experienced severe anxiety. Overall, moderate anxiety constituted the most frequent category.

Gender-based analysis indicated that insomnia was more prevalent and more severe among female participants. Among those reporting no insomnia (27.1%), females accounted for 21.3% compared to 5.8% of males. Sub-threshold insomnia was observed in 26.4% of females and 13.6% of males. Moderate clinical insomnia affected 19.8% of females and 8.9% of males, while severe insomnia was reported by 3.9% of females and 0.4% of males. These findings demonstrate a higher burden of sleep disturbances among female participants.

A similar pattern was observed for anxiety levels. Minimal anxiety was reported by 15.1% of females and 7.8% of males. Mild anxiety was observed in 19.0% of females and 8.1% of males, whereas moderate anxiety was reported by 20.5% of females and 8.2% of males. Severe anxiety was present in 16.7% of females compared to 4.7% of males. Collectively, these results indicate that female participants consistently exhibited higher levels of anxiety across all severity categories.

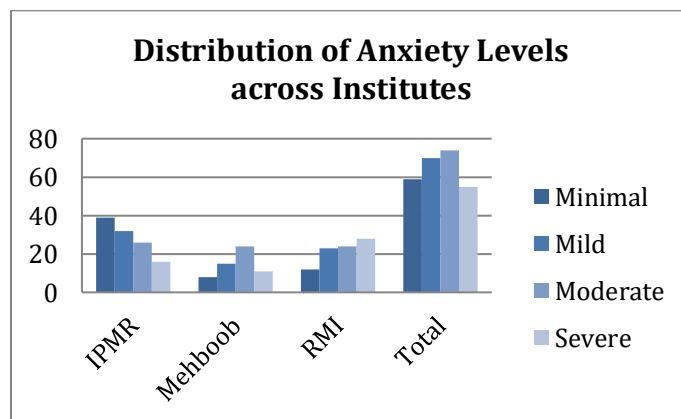


Figure 1: Distribution of Anxiety Levels across Institutes

Analysis of insomnia severity across institutes revealed that sub-threshold insomnia was most prevalent among participants from IPMR (19.0%), followed by RMI (13.2%) and Mehboob Institute (7.8%). Moderate clinical insomnia was more frequently reported in IPMR (10.5%) and RMI (11.2%) than in Mehboob Institute (7.0%). Severe insomnia, although relatively uncommon (4.3%), was identified across all three institutes. Overall, insomnia particularly in its sub-threshold and moderate forms was more frequently observed among participants from IPMR and RMI.

Table 3: Distribution of Anxiety Levels across Insomnia Severity

Insomnia Severity	Minimal Anxiety	Mild Anxiety	Moderate Anxiety	Severe Anxiety	Total	% of Total
No insomnia	35	18	12	5	70	27.1
Sub-threshold insomnia	19	33	33	18	103	39.9
Moderate clinical insomnia	5	16	27	26	74	28.7
Severe insomnia	0	3	2	6	11	4.3
Total	59	70	74	55	258	100.0

4. Discussion

The current study discovered a strong positive relationship between insomnia severity and anxiety levels among physiotherapy students, implying that individuals who had more severe sleep disruptions also reported higher anxiety. This finding is consistent with previous study, which found a high association between sleep disorders and anxiety among university populations. A cross-sectional study of university students in Pakistan during the COVID-19 lockdown found a substantial association between sleeplessness and anxiety symptoms, with females having a greater incidence of both conditions. ⁽¹⁶⁾ Similar relationships between insomnia and higher anxiety levels have been reported in different student groups, supporting that sleep disruption and psychological discomfort regularly co-occur. ⁽¹⁵⁾

In this study, sub-threshold insomnia was most prevalent (39.9%), while moderate clinical insomnia afflicted nearly one-quarter of subjects. These results are roughly in accord with studies demonstrating higher sleep issues in university students compared to general populations. A comprehensive study and meta-analysis of Saudi university students indicated a pooled insomnia prevalence of roughly 43.3%, demonstrating how pervasive sleep issues may be in academic contexts. ⁽¹⁷⁾ Another research indicated that around 22.6% of students fulfilled criteria for insomnia, a prevalence that, while considerably lower, nonetheless suggests considerable sleep disturbance and its relationship with anxiety. ⁽¹⁸⁾ Likewise, moderate and severe anxiety were widespread in our study, which accords with data demonstrating that a large number of university students suffer clinically relevant anxiety symptoms, particularly in challenging health science programs. Our gender-specific findings showed consistently higher proportions of females with both insomnia and anxiety across all severity categories. This trend mirrors broader research indicating that female students are more likely than males to report sleep problems and psychological distress. For example, population-based studies show that women are generally more susceptible to insomnia and related mental health symptoms, possibly due to biological and psychosocial factors such as hormonal influences and stress responsivity. ⁽¹⁹⁾ The higher burden of insomnia and anxiety in females observed in this study is therefore consistent with the wider literature on sex differences in sleep and mental health.

Conclusion:

This cross-sectional study of undergraduate Doctor of Physical Therapy students affiliated with Khyber Medical University demonstrated a significant linear association between insomnia severity and anxiety levels ($p = 0.000$). Sub-threshold and moderate insomnia were most prevalent, while moderate anxiety was the dominant category. Female students exhibited a higher burden of both insomnia and anxiety. Institutional differences were observed, with

higher insomnia rates among students from IPMR and RMI. The progressive increase in anxiety with greater insomnia severity underscores a meaningful relationship between sleep disturbance and psychological distress. These findings support the need for early screening, targeted mental health interventions, and sleep management strategies within undergraduate physiotherapy programs to enhance student well-being and academic outcomes.

Disclosure /Conflict of interest:

Authors declare no conflict of interest.

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