

Original Article

Anxiety, Insomnia and Somatoform Disorders in University Students of Punjab: A Cross-Sectional Study

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ABSTRACT

Introduction: Somatoform disorders, Anxiety, and Insomnia have a very noticeable prevalence among the general population. All these conditions overlap in different settings and conditions. They can cause a constant state of morbidity and can decrease the response to certain treatments in different patients.

Objectives: Because, little or no research has been done on the relationship between somatoform disorders, anxiety, and Insomnia. Therefore, this study aimed to find the prevalence of somatoform disorders, Anxiety, and Insomnia in a specific population of university students in Punjab and find their relationship with each other.

Methods: 849 enrolled students from different universities were reached online to fill in a self-administered questionnaire. All subjects were assessed and evaluated via Patient Health Questionnaire-15(PHQ-15), Hamilton Anxiety Rating Scale (HAM-A), and Insomnia Severity Index (ISI). Regression Analysis was done.

Results: Out of 849 subjects, 304 were males, and 545 were Females. Our study found that female subjects had a high prevalence of Somatization, Anxiety, and Insomnia. Moreover, these disorders were more prevalent in certain groups than in others. These groups include those females who live in hostels away from their homes for their university studies.

Conclusion: The study warrants further research on a bigger and general population. Also, it encourages the health care providers to have a different approach to patients in general health care settings. With proper screening and a systematic approach, effective diagnosis, and treatment of not only one but three concurring diseases are possible.

Keywords: Somatoform disorders, Anxiety, and Insomnia, university students.

Introduction

University students face a unique set of challenges that can impact their mental health and well-being. The transition to university life can be stressful, and students must navigate academic pressures, social changes, and emotional challenges. Somatoform disorders, anxiety, and insomnia are common mental health issues that can affect students' academic performance, social relationships, and overall quality of life. Despite their prevalence, these issues often go unaddressed, leading to long-term consequences. Moreover, they tend to occur with other common mental disorders^{1,2}. Such presentations make mental disorders less likely to be recognized by general practitioners, resulting in them under treatment even though there is a high comorbidity between somatoform disorders and anxiety disorders.^{3,4} Researchers have highlighted that not only a considerable percentage of referrals to the psychiatry clinic have complaints of Insomnia, but it is recognized as a risk factor in patients, with physiological, psychological, and somatoform disorders, also included in causative factor for the higher perception of pain and lower subjective well-being. The interplay of pain disorder and insomnia causes sustenance of patients' pain conditions⁵⁻⁹.

Anxiety is a psychological disorder affecting people's lifestyles in different ways worldwide. Several studies worldwide have been done to study its prevalence and various factors influencing it. It can present as long-term or short-term cases and may be as acute attacks¹⁰. In Somatoform disorder, patients present with unexplained physical symptoms, causing various concerns and sometimes misleading beliefs about their general health¹¹. The

somatoform disease occurs in 0.2-2% of females and 0.2% of males worldwide¹², 10-20% of females also have this disorder in their first-degree relatives¹². Insomnia is a sleeping disorder causing distress and irritability in a significant population worldwide¹³. Despite all the indications that Somatoform disorders, Anxiety, and Insomnia overlap under various settings and situations, little work has been done to date to establish the correlation of Somatoform disorders, Anxiety, and Insomnia and their prevalence.¹⁴

This study aims to investigate the prevalence and correlation of somatoform disorders, anxiety, and insomnia among university students of Punjab, highlighting the need for mental health support and awareness in this critical population.

Methods and Materials

A descriptive cross-sectional analytical study was conducted among the university students enrolled in different Medical and Non-Medical Universities in Punjab. In April 2021, 870 subjects were approached via social media platforms, out of which 21 did not consent to the study and were omitted. Eight hundred forty-nine subjects were asked to fill in the self-administered questionnaire made in Google Forms and shared with different people from different universities in Punjab that have a higher number of currently enrolled undergraduate students. These people were further encouraged to share the questionnaire with their class fellows and university groups on different social media platforms. This was done after getting permission from the ethical review board. Simple convenient sampling was done. People who were already diagnosed with

a psychopathological disorder or were taking treatment for such diseases were excluded from the study.

The questionnaire was made of standardized scales for Somatoform disorders, Anxiety, and Insomnia. Patient Health Questionnaire-15 (PHQ-15) was used to diagnose and assess the severity of somatoform disorders. Hamilton Anxiety Rating Scale (HAM-A) was used for the assessment of anxiety in our subjects. At the same time, the Insomnia Severity Index (ISI) was used for the Insomnia prevalence in our issues. Data collected was extracted from Google Forms in the form of an Excel spreadsheet, data was coded into SPSS v25, and then reverse coding was done. Three new variables, i.e., PHQ Score, HAM Score, and ISI Score, were transformed by adding the response values of scales of PHQ15, HAM-A, and ISI. The q-q graphs were plotted, and the non-uniform pattern of data was considered using the Shapiro-Wilk test. The data was non-parametric. Non-parametric tests were applied for data analysis in this study.

The Mann-Whitney U tests were applied to the PHQ Score, HAM Score, and ISI Score to compare the difference in mean scores with the Socio-demographic values of the study participant. The correlation between Somatoform Disorders, Anxiety, and Insomnia was calculated using the Spearman Rank correlation coefficient. Cronbach's alpha of the three scales used was determined to verify the reliability of these questionnaires.

Results

Cronbach's alpha values were determined to check the reliability of the standardized scales. The Hamilton Anxiety Rating Scale with a

Cronbach's alpha value of 0.91 was an excellently reliable Scale for the measurement of anxiety. The Insomnia Severity Index with Cronbach's alpha value of 0.872 and the Patient Health Questionnaire-15 with Cronbach's alpha value of 0.813 were determined as very good reliable scales for measuring Insomnia and Somatoform disorders, respectively.

The diagnosis and severity of the somatoform disorders in the target population were evaluated using the standardized Patient Health Questionnaire-15 (PHQ-15). A new variable, PHQ Score, was transformed by adding individual responses in SPSS. Missing values of 2 gender-based questions in Patient Health Questionnaire-15 were replaced using the Series Mean method in SPSS. Two other variables named HAM Score and ISI Score were formed by adding the response values of different questions in scales of Anxiety and Insomnia, respectively.

Tests of Normality were used to determine the distribution of data in the PHQ Score. The p-value (<0.05) of the Shapiro-Wilk test was significant, rejecting the Null Hypothesis, i.e., data were normally distributed. The p-values of HAM Score (<0.001) and ISI Score (<0.001). Non-parametric tests were applied to analyze this non-uniformly distributed data.

Mann-Whitney U tests were applied to different demographic variables, and the significance of Somatoform disorders, Anxiety, and Insomnia was determined. The p-value of PHQ Score (0.48), HAM Score (0.71), and ISI Score (0.67) in different Age groups, i.e., 17-24, 25-32, and 33-40, was more than 0.05, concluding that the Age group did not have a statistically significant effect on somatoform disorders.

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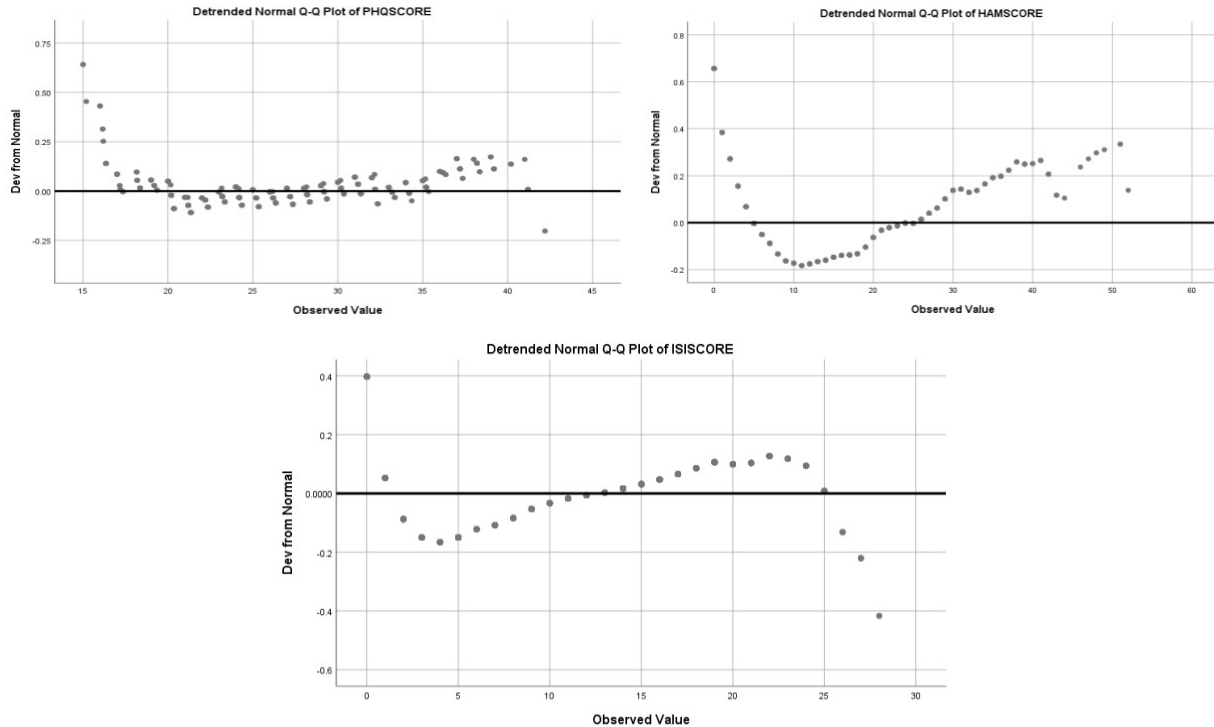


Figure 1: The q-q plot of PHQ SCORE, HAM SCORE, and ISISCORE values show non-uniformly distributed data.

Similarly, the difference in the prevalence of Somatoform diseases ($p=0.26$), Anxiety($p=0.60$), and Insomnia($p=0.39$) in Nuclear and Joint families was also statistically insignificant.

The Mann-Whitney U test applied to the PHQ Score, HAM Score and ISI Score of the opposite

gender was statistically significant ($p < 0.001, 0.005, 0.046$). The Median value of PHQ SCORE in Females was significantly raised compared to the Males . Table 1 shows the Descriptive statistics in the following group.

Table-I Comparison of Data Based on Gender

		Anxiety	Insomnia	Somatoform Disorders
Male	<i>Median</i>	13	10	25.34
	<i>Range (Min-Max)</i>	0-49	0-27	15-41
Female	<i>Median</i>	16	11	27.19
	<i>Range (Min-Max)</i>	0-52	0-28	16-42.9

However, the range of PHQ SCORE in males and females was almost comparable. The Median value of HAM SCORE in females was significantly higher compared to males. The value of the Range of HAM Score in females

was also significantly more than in males. The median value of the ISI score was also raised in Females as compared to males. Hence, females are more prone to somatoform disorders anxiety, and even insomnia.

The Mann Whitney U test applied to the PHQ Score, HAM Score, and ISI Score of subjects of different Professions, i.e., medical and non-medical students, were all statistically significant. ($p=0.00$). The median value of the

PHQ Score in non-medical students (28.3) was significantly raised compared to the medical students (26.3). Table 2 shows the mean scores in medical and non-medical groups.

Table-II Comparison of Data on Medical and Non-medical Students.

		Anxiety	Insomnia	Somatoform Disorders
Medical	Median	14	10	26.3
	Range (Min-Max)	0-52	0-27	15-42.19
Non-Medical	Median	21	13	28.3
	Range (Min-Max)	0-43	0-28	15.19-39.19

The prevalence of these disorders in subjects who had different levels of nearby healthcare centers in their area of residence was also determined. The healthcare levels measured were according to health facility classification in Pakistan, starting from a Basic Healthcare unit to Tertiary Healthcare Hospitals. The PHQ Score among the subjects of this variable was insignificant ($p=0.68$). However, the p -values of HAM Score ($p=0.008$) and ISI Score ($p=0.001$) were significant. The Median value of the HAM Score and ISI Score in subjects having access to basic healthcare facilities was significantly raised compared to the median values in subjects having access to tertiary healthcare. The prevalence of these disorders was also

determined for subjects living in different social environments, i.e., rural and urban. The PHQ score and HAM score in such subjects were insignificant. However, a statistically significant ISI score ($p=0.46$) distribution was determined. Subjects living in urban environments were more prone to insomnia.

A graph with PHQ score mean values on the x-axis and mean values of HAM score and ISI

score on the y-axis was extrapolated to determine a basic correlation between these disorders.

Non-parametric correlations between these disorders were also determined statistically by conducting a Spearman rank correlation test in SPSS. The Spearman rank correlation was statistically significant among all three variables with a $p\text{-value}<0.001$. The correlation coefficient value between the PHQ score and the HAM score was 0.709, which shows a very strong positive relationship between somatoform disorders and anxiety. The correlation coefficient value of the HAM score against the ISI Score was 0.708, which shows a very strong positive relationship between Anxiety and Insomnia. The correlation coefficient value of the PHQ score and ISI score was 0.536, concluding a strong positive relationship between somatoform disorders and Insomnia. The following Matrix Scatter-plot shows the graphical presentation of strong positive relationships among Somatoform disorders, anxiety, and insomnia. The dots represent the measures of dispersion.

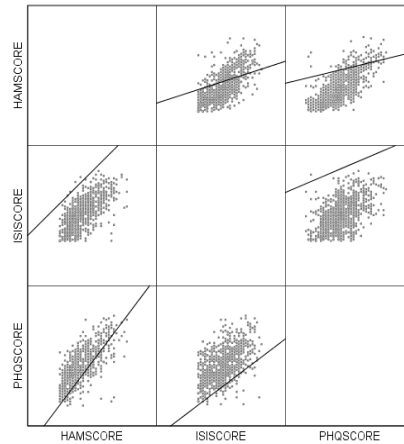


Figure 2: Matrix Scatterplot shows the graphical presentation of strong positive relationships among somatoform disorders, anxiety, and insomnia. The dots represent the measures of dispersion.

Discussion

In our study, we analyze the prevalence of somatoform disorder, anxiety, and insomnia in university students based on their age, gender, environment (rural or urban), availability of primary health facilities (basic health units or tehsil headquarters), their profession (medical or non-medical). As evident from previous studies¹⁵, somatic symptoms were more prevalent among females than males. Certain social and cultural norms contribute to greater incidences of insomnia, anxiety, and somatoform disorders among females. Another factor contributing to the prevalence of the somatoform disorder is that its diagnosis requires combined medical and psychiatric assistance, which is lacking in our healthcare setup¹⁶.

The prevalence of Anxiety and Insomnia was also analyzed. As supported by the previous studies¹⁷, anxiety, and insomnia were more prevalent in the female population than males. The intensity range of anxiety was higher in female subjects than in males. This observed gender

difference owes to multiple factors, including hormonal differences, different stress coping mechanisms in both genders, and various environmental stressors influencing them¹⁸. Additionally, childhood sexual abuse, being significantly more common in females¹⁹, can cause alterations in their stress response mechanism and brain development²⁰, increasing vulnerability to these mental disorders. However, for insomnia, the ranges for both subjects were quite comparable.

Anxiety, insomnia, and somatoform disorders were more common in non-medical than medical subjects. The reason for this is not fully understood. Still, it may be because medical students are more aware and have a better understanding of these psychiatric illnesses, their risk factors, and prevention. Interestingly, the intensity of anxiety and somatoform disorders was higher in medical subjects than in non-medical subjects. It can be due to the reluctance of medical students to seek help due to fear of stigmatization as medical professionals are expected to be knowledgeable and clear-headed in all

social aspects²¹.

According to our study, insomnia was more common in the urban population than in the rural population. In urban areas, as the population increases, pollution, traffic, and struggle for survival increases, increased workload with little or no breaks. Health and sleep become less prioritized, leading to insomnia.

In our study, anxiety and insomnia were more prevalent in people having access to only basic health facilities than those having tertiary health care facilities in their area. Poverty is a prevalent issue in rural or underdeveloped areas. There are greater incidences of disease outbreaks like TB²² and malaria²³. So, the daily fight for survival leaves people in a state of discouragement and optimism deprivation²⁴, which may be the factor harming mental health. People with tertiary health facilities have access to better and specialized healthcare.

The better the quality of healthcare services, the better the overall community health²⁵, physical and mental. Our study established a positive correlation between anxiety, insomnia, and somatoform disorders are closely linked²⁶. Anxiety disorders often overlap with somatic disorders²⁷. Summarizing our results, somatoform disorders or somatic symptoms, insomnia, and anxiety were more prevalent in females than males, more in non-medical than medical students, more in urban populations than rural populations, and more among the people living near basic health units than those living near tehsil headquarters.

To the best of our knowledge, it is the first study in this population. The prevalence of

multiple variables related to psychology was observed, and their correlation was studied, which was significantly positive, reinforced by many similar studies conducted in different populations^{28, 29}.

When considering the limitations, the sample population for this study was selected through convenience sampling so it cannot be projected to the general population. Secondly, an online questionnaire might have selection bias as the male-to-female ratio cannot be predetermined. Hence, it may be unbalanced, which can influence the results. Thirdly, as it was a cross-sectional study, the cause-effect relation between the variables cannot be studied; however, it helped us analyze multiple variables in a data snapshot.

Conclusion

This study reveals a significant correlation between somatoform disorders, anxiety, and insomnia among university students, with non-medical students, females, and those with access to basic health facilities being more affected. The findings highlight the need for mental health interventions and awareness programs in university settings to support students' well-being and productivity. The results study warrants further research on a bigger and general population. Also, it encourages the health care providers to have a different approach to patients in general health care settings. With proper screening and a systematic approach, effective diagnosis, and treatment of not only one but three concurring diseases are possible.

Recommendation

must be a proper diagnosis. To diagnose somatoform disorder, it is highly recommended that the psychiatrist and neurologist work together, which, unfortunately, is lacking in our healthcare setup. The victims of anxiety and insomnia. In our study, the strong positive correlation between somatic symptoms and these psychiatric illnesses suggests that if patients with anxiety and insomnia are managed and treated appropriately, there can be significant relief from somatic symptoms. Our study helps in invigorating the need to identify the cause and treat psychiatric illnesses accordingly as many of these, like insomnia, anxiety, and somatoform disorders, are intricately linked. So, probing the reason for one will improve our treatment and management plan. Appropriate policies should be made to increase awareness to enable early diagnosis and treatment. In many cases, symptoms of these psychiatric comorbidities might be considered a norm and may go undiagnosed, especially in our community, where lack of awareness is a common issue.

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