

International Journal of Psychology Research



ISSN Print: 2664-8903
ISSN Online: 2664-8911
Impact Factor: RJIF 5.69
IJPR 2025; 7(2): 179-183
www.psychologyjournal.in
Received: 07-07-2025
Accepted: 10-08-2025

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Prevalence and Gender Variations of Depression and Associated Mental Health Domains Among College Students in Bikramganj

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DOI: <https://doi.org/10.33545/26648903.2025.v7.i2c.110>

Abstract

This study aims to examine depression and related psychological factors among undergraduate students at A. S. College, Bikramganj, focusing on gender differences. A total of 800 students (400 males and 400 females) participated, completing a structured questionnaire adapted from validated scales including the Beck Depression Inventory and additional measures of anxiety, academic and social stress, lifestyle, and coping support. Results revealed that female students exhibited significantly higher mean scores across all domains compared to male students, indicating greater psychological distress.

The pie chart analysis for female students showed that depression symptoms accounted for the largest share (23.4%) of their mental health burden, closely followed by anxiety/stress and coping/support, each contributing 20.8%. Academic/social pressures and lifestyle factors also played notable roles, representing 18.2% and 16.9% respectively. For male students, depression accounted for 23.8%, coping/support for 22.2%, anxiety/stress for 19%, academic/social 18.3%, and lifestyle 16.7%. Independent t-tests confirmed these gender differences were statistically significant with very low p-values ($p < 0.05$).

These findings are consistent with prior research highlighting that female students are more prone to depression and anxiety than males, influenced by a complex interplay of biological and socio-cultural factors. The significant contribution of coping and support mechanisms underscores the importance of enhancing mental health resources and social support systems within educational institutions. The data also point to the impact of academic and lifestyle stressors, suggesting a need for holistic interventions that address multiple facets of student well-being.

Keywords: Mental Health, Depression, Gender, Students, Bikramganj

Introduction

Depression among university students is a growing public health concern worldwide due to its high prevalence and significant impact on academic performance, social functioning, and overall quality of life (Ibrahim *et al.*, 2013; American College Health Association, 2021) [8, 1]. Adolescence and young adulthood are critical periods marked by various psychological, social, and academic challenges, making university students particularly vulnerable to mental health disorders such as depression and anxiety (Beiter *et al.*, 2015; World Health Organization, 2017) [3, 18]. Research consistently shows that depression affects a substantial proportion of students globally, with rates often exceeding those observed in the general population (Auerbach *et al.*, 2016; Eisenberg *et al.*, 2007) [2, 5].

Gender differences in depression have been well-documented, with females generally exhibiting higher prevalence rates and symptom severity compared to males. The gender gap is attributed to a complex interplay of biological, psychological, and socio-cultural factors, including hormonal fluctuations, stress reactivity, and gender-specific social expectations (Kuehner, 2017; Nolen-Hoeksema, 2012) [10, 12]. Female students, in particular, experience greater emotional distress and are more likely to report symptoms of anxiety and depression, which can adversely affect their academic success and mental well-being (Salk *et al.*, 2017; Erol & Karakurt, 2019) [13, 6].

Despite the increasing awareness of student mental health, limited data exists focusing on the gender-specific prevalence and impact of depression among undergraduate students in smaller towns or rural settings like Bikramganj. Understanding gender disparities in such

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contexts is crucial for tailoring effective interventions and support systems that address the unique needs of both male and female students (Shamsuddin *et al.*, 2013; Moksnes *et al.*, 2020) ^[14, 11]. This study aims to fill this gap by examining the prevalence and severity of depression and related psychological domains among male and female undergraduate students at A. S. College, Bikramganj, thereby informing targeted mental health strategies in similar educational settings.

Materials and Methods

Study Design and Participants

This cross-sectional study was conducted among undergraduate students at A. S. College, Bikramganj. A total sample of 800 students participated, equally divided by gender with 400 male and 400 female students. Participants were selected using stratified random sampling to ensure balanced gender representation and diverse academic disciplines.

Data Collection Instruments

The study utilized a structured questionnaire composed of established psychometric scales to assess depression and related psychological domains. The primary tool was an adapted version of the Beck Depression Inventory (BDI-II), known for its reliability and validity in assessing depressive symptoms in student populations. Additional sections evaluated anxiety and stress levels, academic and social factors, lifestyle habits, and coping and support mechanisms. The full questionnaire comprised 50 items divided into five domains: Depression Symptoms, Anxiety and Stress, Academic and Social Factors, Lifestyle and Habits, and Coping and Support.

Procedure

Data collection was carried out through self-administered questionnaires distributed during scheduled academic sessions with prior consent from participants. Ethical approval was obtained from the college ethics committee,

ensuring confidentiality and voluntary participation. Instructions were provided to clarify questionnaire items, and students were given adequate time to complete the survey.

Data Analysis

Descriptive statistics were used to summarize demographic characteristics and mean scores for each domain. Independent samples t-tests were conducted to examine gender differences in depression and related domains. Significance levels were set at $p < 0.05$. Data were analyzed using standard statistical software Prism Version 5.

This methodology ensured a comprehensive assessment of the mental health status of male and female undergraduate students at A. S. College Bikramganj, facilitating reliable comparisons and identification of gender-specific psychological challenges.

Results

Depression Measures by Gender presents a clear comparison of mean scores across five psychological domains—Depression Symptoms, Anxiety & Stress, Academic & Social, Lifestyle & Habits, and Coping & Support—between male and female students. In every domain, female students recorded higher mean scores than male students, indicating a greater burden of psychological symptoms and related challenges among the female population.

Specifically, the mean score for Depression Symptoms was 1.40 in male students and 1.80 among female students. For Anxiety & Stress, males scored 1.10 while females scored 1.60; for Academic & Social, means were 1.10 versus 1.40; for Lifestyle & Habits, 1.00 versus 1.30; and for Coping & Support, 1.30 versus 1.60 for males and females, respectively. This consistent pattern, with female students surpassing their male counterparts in every measure, highlights a pronounced gender disparity in the experience of these psychological domains (Fig. 1).

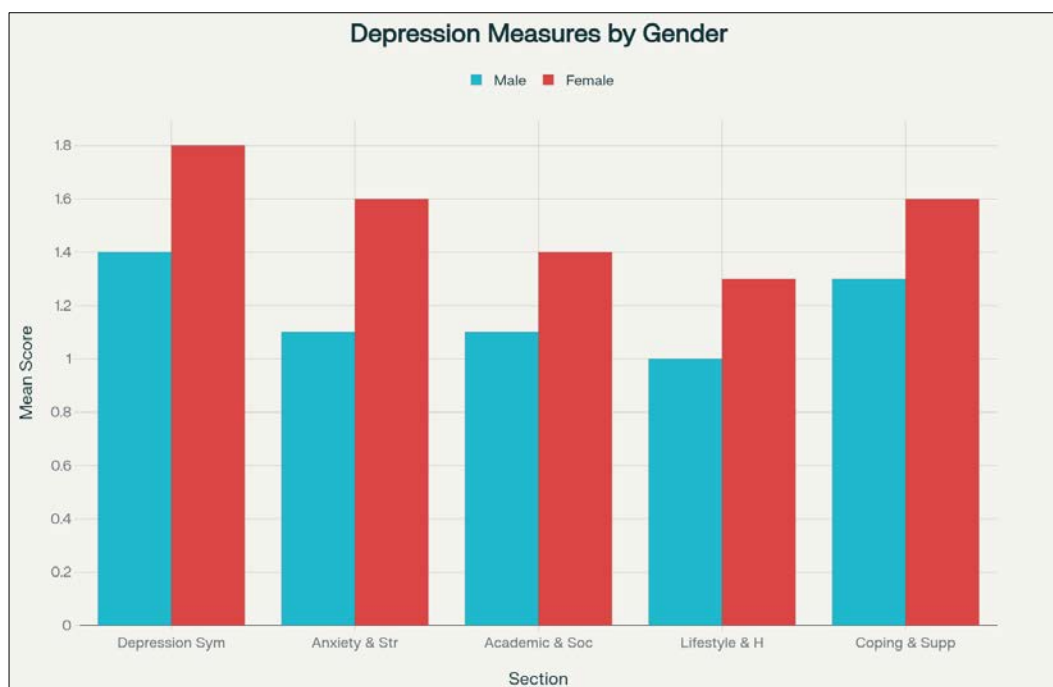


Fig 1: Comparison of mean depression-related scores by gender among undergraduate students

To assess the significance of these differences, independent samples t-tests were conducted. All comparisons yielded highly significant results: for Depression Symptoms ($p = 1.25 \times 10^{-27}$), Anxiety & Stress ($p = 2.90 \times 10^{-59}$), Academic & Social ($p = 1.11 \times 10^{-24}$), Lifestyle & Habits ($p = 1.11 \times 10^{-40}$), and Coping & Support ($p = 1.04 \times 10^{-16}$). All p-values were well below the conventional threshold of 0.05, indicating that the observed gender differences are statistically robust and very unlikely to have occurred by

chance. Overall, these results demonstrate that female students in this sample from Bikramganj experience significantly higher levels of depression, anxiety, academic and social stressors, lifestyle-related difficulties, and coping challenges than their male peers. These findings underscore the critical need for targeted mental health interventions and additional support mechanisms for female students in this context.

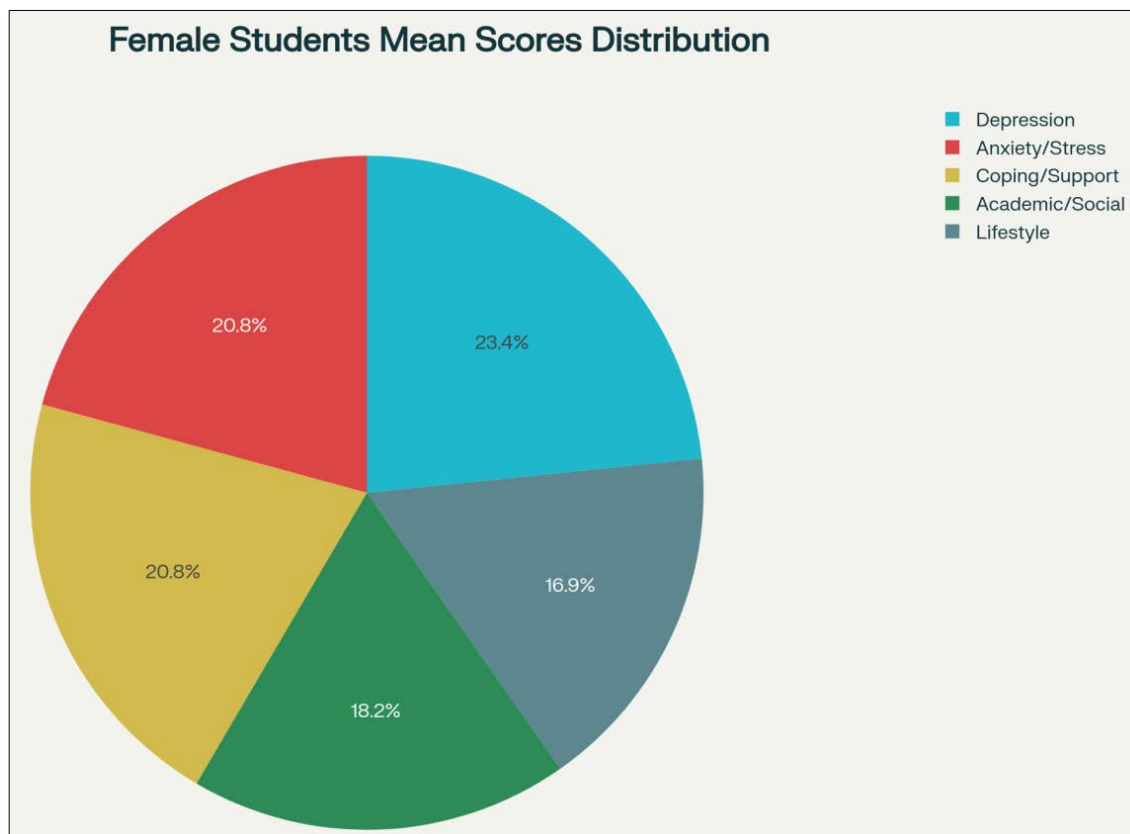


Fig 2: Percentage distribution of mean scores across depression-related domains among female undergraduate students.

The percentage distribution of mean scores across five depression-related domains provides insight into the psychological burden experienced by female students (Fig. 2). Each domain contributes differently, highlighting the most prominent factors affecting their mental health.

Depression symptoms constitute the largest proportion, accounting for 23.4% of the total mean scores. This indicates that depression is the most significant contributor to mental health issues among female students, reflecting high levels of sadness, hopelessness, and other related symptoms.

Anxiety and stress closely follow, contributing 20.8% to the overall scores. This shows that these factors are nearly as impactful as depression, pointing to considerable worry, tension, and anxiety-related challenges faced by female students.

The coping and support domain also makes up 20.8% of the scores, suggesting that many female students struggle with effective coping strategies and access to support. These challenges may increase their vulnerability to mental health problems or reflect a frequent need for emotional or social assistance.

Academic and social pressures account for 18.2% of the total scores. These pressures represent substantial sources of distress, indicating that the demands of education and social dynamics are important contributors to female students' psychological strain, though less dominant than depression or anxiety. Finally, lifestyle factors contribute 16.9% of the mean scores. Although this is the smallest segment, it still demonstrates a meaningful influence, likely related to sleep quality, daily routines, and habits that affect overall well-being.

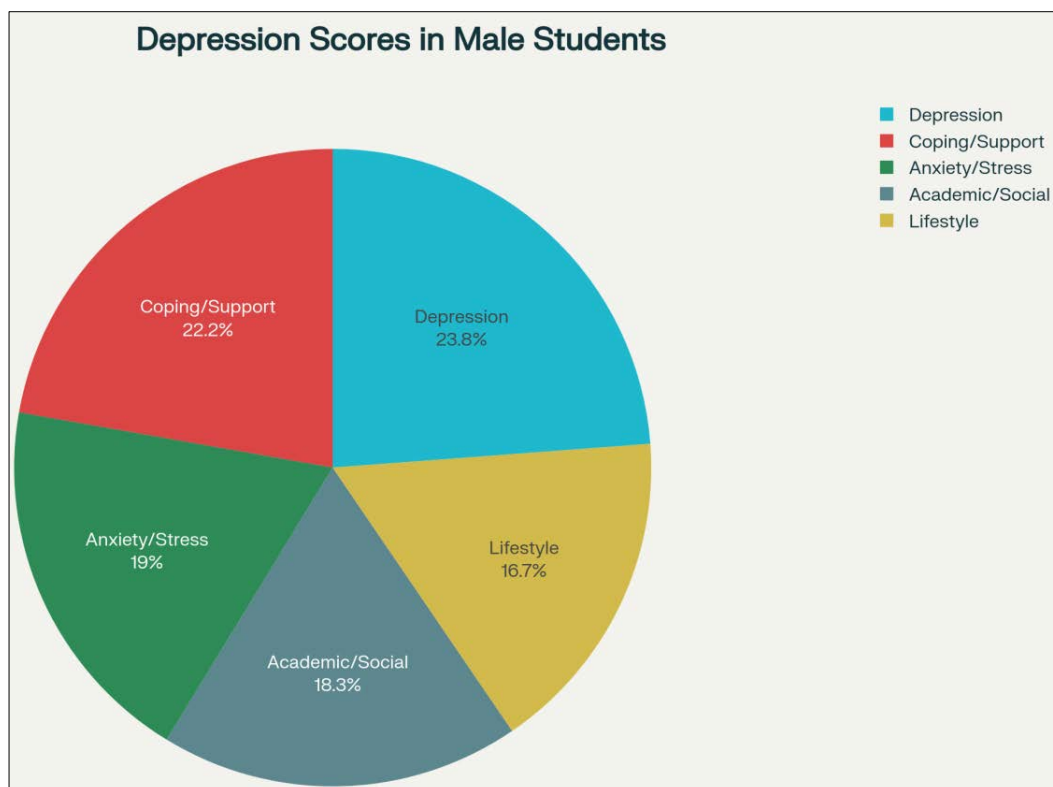


Fig 3: Percentage distribution of mean depression-related domain scores among male undergraduate students

Depression Scores in Male Students presents the percentage distribution of mean scores across five depression-related domains for male students. This visualization provides insights into the relative impact of each psychological area on the overall mental health profile of male students in the study (Fig. 3).

Depression symptoms form the largest proportion, accounting for 23.8% of the total mean scores. This indicates that depression is the most prominent concern among male students, suggesting that feelings of sadness, hopelessness, or related symptoms play a significant role in their psychological burden. Coping/support is the second largest contributor at 22.2%, demonstrating that challenges in managing stress and accessing effective support systems are also substantial for males.

Anxiety and stress account for 19% of the mean scores, highlighting their significant presence, although slightly less than depression and coping/support. This suggests that male students experience considerable levels of worry and tension, which contribute meaningfully to their overall distress. Academic and social factors represent 18.3% of the scores, reflecting the impact of educational pressures and social interactions on male students' mental health. Although not as dominant as depression or coping/support, these factors remain important drivers of psychological challenges.

Finally, lifestyle factors constitute 16.7% of the mean scores—the lowest among the five domains. While this suggests that habits and daily routines have a somewhat smaller, though still noteworthy, influence on mental health for male students, it points toward areas such as sleep and regular activity that could benefit from targeted intervention.

Discussion

The findings from the analysis demonstrate clear gender disparities in depression-related psychological domains,

with female students showing consistently higher mean scores than male students across all measured areas. This aligns with extensive research indicating that females are more vulnerable to depression and anxiety disorders, partly due to biological, psychosocial, and hormonal factors (Nolen-Hoeksema, 2012; Kuehner, 2017) [12, 10]. The significantly higher scores for female students in domains such as depression symptoms and anxiety/stress emphasize the need for gender-sensitive mental health interventions within academic settings (Salk *et al.*, 2017) [13].

The prominent role of depression symptoms in both males and females highlights the widespread influence of this disorder among students. Depression forming the largest proportion of total psychological burden reflects existing literature pointing to high prevalence rates of depressive symptoms in college-aged populations globally (American College Health Association, 2021; Ibrahim *et al.*, 2013) [1, 8]. Furthermore, the high anxiety/stress scores corroborate findings that stress-related disorders frequently co-occur with depression, exacerbating the overall mental health challenges experienced by students (Beiter *et al.*, 2015) [3].

The substantial contribution of coping/support difficulties, especially among females, suggests that beyond symptomatology, functional elements such as coping skills and social support critically affect student well-being. Prior studies underscore that limited coping resources and poor social networks can significantly heighten mental health risks and prolong recovery from depression (Taylor & Stanton, 2007; Wang *et al.*, 2014) [15, 16]. This finding echoes the importance of promoting adaptive coping strategies and fostering support systems within universities.

Academic and social pressures also formed notable components of students' mental health profiles, consistent with research identifying educational demands and peer relationships as enduring stressors that negatively impact psychological health (Wilks, 2008; Dyson & Renk, 2006)

[17, 4]. The lifestyle factor, though the smallest contributor, highlights the influence of daily habits such as sleep and physical activity on mental health outcomes, aligning with studies reiterating lifestyle's role in either mitigating or aggravating depressive symptoms (Harvey *et al.*, 2011) [7]. The statistically significant gender differences observed—where females consistently had higher mean scores with very low p-values—are supported by global mental health epidemiological data showing higher incidence and prevalence of depression and anxiety among females, especially during adolescence and young adulthood (World Health Organization, 2017; Kessler *et al.*, 2003) [18, 9]. These findings emphasize the urgency of developing tailored mental health programs that address the unique needs of female students, including gender-specific risk factors and coping mechanisms. In conclusion, this study reinforces that depression and anxiety dominate the mental health landscape of students, with gender disparities necessitating focused attention. Interventions should prioritize enhancing coping resources, reducing academic and social stressors, and promoting healthy lifestyles. Importantly, mental health services in educational institutions must adopt comprehensive, gender-responsive approaches to effectively support vulnerable student populations and improve their academic and personal outcomes.

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