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Academic Stress And Anxiety In College Students: A Comparative Study Of Pharmacy Students With Biotech Students

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ABSTARCT

This thorough literature review investigates the connection between academic stress, anxiety, and depression and how these factors affect college students' mental health and quality of life in a variety of subject areas and cultural contexts. Numerous studies demonstrate how high levels of anxiety, depression, and psychological distress affect college students' academic performance and mental health, especially those pursuing demanding careers in medicine, pharmacy, and other disciplines. Due to frequent assessments and ongoing academic pressure, female students and those enrolled in semester-based systems reported higher levels of distress. Additionally, research shows that academic burnout is largely caused by stress brought on by personal inadequacies, poor teacher-student relationships, and fear of failing. Additionally, studies show that academic stress and anxiety directly lower quality of life by compromising self-control, even though there is no discernible indirect impact of academic stress on self-control. The necessity for culturally relevant mental health therapies is highlighted by cross-cultural comparisons that indicate international students face more self-imposed pressures while American students display stronger behavioral responses to academic stress. Stress levels are further increased by the discovery that worry, rumination, and perfectionism are important predictors of anxiety and depressive symptoms. Counselling, biofeedback, mindfulness, and life skills training are a few interventions that have demonstrated encouraging outcomes in reducing academic stress and improving emotional control. Taking care of the many risk factors for psychological discomfort by targeted interventions can greatly enhance students' mental health, academic performance. This analysis underlines the critical need for higher education

institutions to focus student mental health and implement comprehensive stress management measures to support students' holistic well-being.

Key words : academic stress , anxiety , mental health , college students , psychological distress

INTRODUCTION

College students, especially those in demanding fields like pharmacy and biotechnology, often experience high levels of academic stress and anxiety. The transition from school to college brings an increased workload, tougher assessments, research projects, and real-world applications, all of which can impact academic performance, emotional well-being, and cognitive abilities . This study aims to compare the levels of stress and anxiety between pharmacy and biotechnology students. It also explores gender differences, identifies major stressors, and examines the coping strategies these students use. The results can help shape better institutional policies and targeted interventions to improve student well-being .(NASH 2015)

Academic stress is a temporary response to intense academic demands, while anxiety is a more persistent emotional state marked by excessive worry and fear . Although stress can sometimes boost motivation, prolonged stress without effective coping strategies can lead to burnout and mental health issues (Parker2020) . Pharmacy students deal with complex subjects like pharmacology, drug formulations, and clinical training that require both theoretical knowledge and practical skills. On the other hand, biotechnology students focus on molecular biology, genetic engineering, and research projects that demand strong analytical abilities. (Kulkarni 2013) These differences in academic focus and expectations can affect how students in these fields experience and manage stress and anxiety When left unchecked, prolonged academic stress can impair cognitive function, reduce performance, and worsen mental health. Persistent anxiety, often seen in students with Generalized Anxiety Disorder (GAD) or Social Anxiety Disorder (SAD), further complicates the situation by causing excessive worry, concentration issues, and physical symptoms like fatigue and sleep disturbances (APA2) . To address these challenges, institutions must develop tailored mental health programs, counselling services, and stress management techniques that cater specifically to the unique pressures faced by pharmacy and biotechnology students. These interventions can help reduce stress and anxiety, ultimately improving overall academic performance and well-being (Sharma 2013)

RATIONALE

Despite growing research on academic stress and anxiety among college students, there is still a lack of comparative studies exploring how these issues affect students in high-intensity fields like pharmacy and biotechnology. Both disciplines come with unique challenges—pharmacy students face the pressure of clinical rotations, pharmacology coursework, and continuous assessments, while biotechnology students navigate complex lab work, research deadlines, and rapidly advancing technology. Yet, most research takes a generalized approach to stress management without considering these discipline-specific stressors. Additionally, while some

studies examine differences in stress levels between academic streams, they often overlook the nuanced stressors associated with science-based fields. Gender differences in experiencing and coping with stress remain underexplored in these contexts, as does the impact of the year of study, where academic pressure tends to increase as coursework becomes more demanding. Furthermore, most existing studies use cross-sectional designs, limiting insights into the long-term effects of stress on academic performance, mental health, and professional development. Given these gaps, this study aims to compare academic stress and anxiety between pharmacy and biotechnology students, considering factors such as discipline-specific stressors, gender variations, and year of study. By identifying these differences, the study seeks to provide a foundation for developing more targeted and effective stress management interventions that address the unique challenges faced by these student populations

THE REVIEW OF LIRATURE

The aim of this study is to review the previously done literature on the relationship between academic stress and anxiety among pharmacy and biotechnology students, focusing on identifying discipline-specific stressors, examining gender-based differences, and exploring variations across different academic years

This study highlights how academic stress, anxiety, and depression are common challenges for college students, impacting their mental health and academic This study shows that **Matthew (2010)** found medical students in the US and Canada experience higher psychological distress, particularly among females. The results show that distress affects long-term career growth, emphasizing the need for large-scale research to explore contributing factors. This study shows that **Mehmood Azam (2015)** examined pharmacy students at the University of Balochistan and found that those in the semester system experience higher anxiety than those in the annual system. The results suggest that structured assessments increase stress, highlighting the need for supportive environments and stress management programs. This study shows that **Vijay (2020)** found that 10-20% of college students face psychological challenges like depression and anxiety, which impact academic performance. The results emphasize the importance of counselling centres, mentor-mentee programs, and coping workshops. This study shows that **Menon (2020)** reported that final-year students, especially in commerce, experience moderate to high academic stress. The results show that poor teacher-student relationships and fear of failure are major stressors, suggesting the need for stream-specific interventions and improved faculty communication. This study shows that **Chang Zhang (2022)** explored how academic stress contributes to anxiety and hopelessness. The results, based on cross-sectional data, highlight the need for more rigorous research with larger sample sizes. This study shows that **Russo and Tony (2023)** highlighted a gap between faculty and student perceptions of stress. The results show that faculty often underestimate student stress, indicating the need for better communication and faculty training. This study shows that **Kumari (2020)** found that test anxiety significantly contributes to academic stress, with arts students reporting the highest

levels. The results highlight the need for identifying vulnerable students and evaluating examination methods to reduce stress. This study shows that **Guo and Zhang (2024)** examined the link between test anxiety and academic stress, finding that emotional self-regulation and supportive parental expectations reduce stress. The results emphasize the importance of emotional management and positive family support. This study shows that **Hayashino (2012)** demonstrated that combining counselling with biofeedback training effectively reduces anxiety symptoms in college students. The results support integrating biofeedback techniques in counselling programs. This study shows that **Obando (2015)** highlighted the need to identify perfectionist students prone to high stress. The results show that targeted interventions can help develop coping mechanisms and reduce stress. This study shows that **Mofatteh (2020)** explored how stigma around mental health prevents students, particularly males and minorities, from seeking help. The results emphasize the importance of reducing stigma and offering accessible mental health services. This study shows that **Puji and Madita (2023)** examined how anxiety lowers quality of life by impairing self-control, with academic stress negatively impacting well-being. The results suggest that stress management resources are essential for maintaining balance. This study shows that **Castillo (2023)** explored cultural differences in stress responses, finding that American and international students respond differently. The results suggest that culturally sensitive support systems can address diverse student needs.

CONCLUSION

The review of literature clearly highlights that academic stress, anxiety, and depression are prevalent concerns that affect the mental health and academic performance of college students across various disciplines. Several studies emphasize that high-intensity programs, such as pharmacy and biotechnology, place unique demands on students due to the combination of theoretical knowledge, practical application, and the pressure to meet professional standards. These challenges contribute to heightened stress levels, often resulting in anxiety, emotional distress, and burnout. The literature also points to notable gender differences, with female students generally experiencing higher levels of psychological distress compared to their male counterparts. While some studies suggest that women report greater anxiety and fear of failure, others highlight that differences in coping mechanisms and emotional responses may also play a role. Furthermore, year-of-study variations have been observed, where stress levels tend to increase as students advance through more complex coursework and practical requirements, indicating that academic challenges intensify over time. Another critical finding from the reviewed studies is the mismatch between faculty perceptions and student experiences of academic stress. While faculty members may observe stress during classroom interactions or assessments, they often underestimate the cumulative burden that students experience across different aspects of their academic journey. This discrepancy underscores the need for improved communication and faculty training to develop a deeper understanding of student stressors and provide appropriate support. The role of emotional self-efficacy and

parental expectations also emerges as significant in shaping students' responses to academic stress. Studies show that when students develop strong emotional regulation skills and receive supportive, yet realistic, expectations from their families, they are better equipped to manage stress and anxiety. Conversely, excessive parental pressure combined with low emotional self-efficacy can exacerbate feelings of inadequacy and increase academic stress. Strategies such as counselling services, mentorship programs, biofeedback, stress management workshops, and academic skill development can play a pivotal role in helping students build coping mechanisms and resilience. Additionally, establishing supportive learning environment that encourages open communication, provides timely feedback, and promotes mental health awareness can significantly reduce stress and enhance overall student well-being. the review highlights the urgent need for tailored interventions and ongoing support systems to address academic stress and anxiety in high-intensity academic programs.

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