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Prevalence of anxiety and depression among young adults in India: A descriptive analysis

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Abstract

Anxiety disorders are the most commonly experienced mental health disorders, affecting a significant section of the population including young adults. While mental health challenges related to anxiety and depression have been widely studied, there is a lack of region-specific research, particularly in emerging economies like India. This study calls for comprehensive, population-specific, and region-specific research on Indian young adults to provide evidence for developing policies and interventions. The purpose of this study is to provide a descriptive analysis of the prevalence of anxiety and depression among young adults across academic disciplines, and demographic segments. Data for this study were collected through an online survey using Beck's Anxiety Inventory (BAI), and Beck Depression Inventory (BDI-II) circulated among college students in a selected region. The participants were approached using a convenience sampling method, the study received a total of 135 responses. Data was analyzed using non-parametric statistical tests such as the Mann-Whitney U test, and the Kruskal-Wallis test. A significant portion of college students covered in this study experienced moderate to severe levels of depression and anxiety. While there were no significant differences in depression and anxiety levels across gender groups, students pursuing different academic disciplines experience anxiety differently. Moreover, depression level was observed to be significantly different across the levels of study. This study was conducted with university students in northern India; the findings might be restricted to its cultural context. Educational institutions can leverage the insights based on this research to develop and implement tailored support services, including counseling and stress management sessions, as well as workshops.

Keywords: *anxiety, depression, stress, mental health, interventions*

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1. Introduction

Anxiety and depression have emerged as the most common mental health disorders impacting young adults' academic, professional, and personal lives. In the past few decades, life has witnessed remarkable transitions in multiple dimensions, including the pursuit of higher education, pressure for career-building, evolving social roles, demanding lifestyles, etc., which can intensify mental health vulnerabilities. Nearly one-third of the young population is experiencing significant symptoms of mental health issues (American College Health Association, 2023). World Health Organization (WHO) has observed depression as one of the major reasons for disability worldwide, which is particularly high among individuals aged 18-29 (WHO, 2017). In a similar observation, the National Institute of Mental Health (NIMH) has estimated that approximately 31% of the population aged 18-25 in the United States of America experiences symptoms of anxiety disorder, moreover, nearly 21% of the reported age group encountered major depressive incidents (National Institute of Mental Health, 2023). A study based on a sample comprising individuals over 18 years in the USA indicates that about 18% of the adult population experiences anxiety disorder once a year (Kessler et al., 2005).

In the Indian context, anxiety disorders are the most commonly experienced mental health disorders, affecting nearly 18% of the population. More specifically, 6.8 million adults in India are affected by the generalized anxiety disorder (GAD). Researchers have identified various causes for such anxiety and depression, such as academic demands, career pressure, and changing social roles, which offer mental health challenges (Pedrelli et al., 2015). Anxiety disorders represent unrealistic, irrational fears or mental states that cause significant distress and impairments in normal functioning. The challenges magnify if young adults face barriers in seeking timely assistance, guidance, access to resources, and financial constraints (Eisenberg et al., 2016). Researchers have noted that mental health issues are often experienced in early adulthood or adolescence, if such problems are not addressed timely manner, they can perpetuate in the later stages of life (Kessler et al., 2005).

Given the importance of mental health challenges, researchers and agencies have assessed the prevalence of anxiety and depression worldwide. Yet, mental health statistics often lack the granularity for region-specific prevalence data, particularly in emerging economies like India (World Health Organization, 2021). Researchers have identified an emergent need for comprehensive, population-specific, and region-specific research on

Indian young adults to provide evidence for developing policies and interventions (American College Health Association, 2023; Raja et al., 2022; Shah & Pol, 2020). Though some studies have explored the prevalence of anxiety and stress among college students in certain regions, a broader descriptive assessment across academic disciplines and demographic segments in India is still missing (Beiter et al., 2015). Considering the paucity of literature, the need for assessing the prevalence of anxiety and depression across different academic disciplines and demographic segments persists (Premkumar et al., 2023).

This study addresses the gaps in existing research by providing a descriptive analysis of the prevalence of anxiety and depression among young adults across various academic disciplines and demographic segments. This study aims to provide a clear understanding of mental health needs, offering a foundation for targeted interventions to promote resilience and mental well-being in young adults. The findings from this study will help academic institutions better understand the mental health challenges faced by students in different disciplines. By identifying the specific needs of students across various academic fields and study levels, institutions can develop tailored mental health programs and support systems that address the unique pressures students experience. Additionally, the study will provide mental health practitioners with empirical data on the prevalence of anxiety and depression among young adults, enabling them to tailor interventions to the specific needs of students in diverse academic settings. Ultimately, this research will contribute to future studies aimed at developing effective interventions and resilience-building strategies for this demographic.

2. Literature Review

2.1 Anxiety

In its early form, the term anxiety relates to the Indo-Germanic root, angh, which also appears in Greek and refers to a feeling of tightness, constriction, or choking under pressure. American Psychological Association (APA, 2022) describes anxiety as an emotion characterized by apprehension and somatic symptoms of tension in which a person anticipates threat, danger, catastrophe, or misfortune. Lazarus and Folkman (1984) considered anxiety as a vague, uncomfortable feeling impaired by prolonged stress and the presence of multiple stressors. These definitions offer a common understanding of the anxiety that can be characterized by the experience of tension, prolonged stress, and an uncomfortable feeling. It relates to a mental state under multiple stressors.

In the academic setting, anxiety may refer to negative emotions such as restlessness, worry, avoidance motivation, anxious facial expressions, and physiological reactions in the periphery (Pekrun, 2006). It also includes nervousness and restlessness related to academic performance (Zeidner, 2007; Gogol et al., 2016). Researchers have considered math anxiety and test anxiety as the most studied forms of academic anxiety in academic settings (Cassady, 2010; Zeidner, 2007). Math anxiety refers to negative feelings and tension and worry experienced regarding mathematical problems and quantitative skills (Ashcraft, 2002). Individuals experiencing math anxiety may disengage with mathematics which may affect their academic performance negatively (Moore et al., 2015). On the other hand, test anxiety refers to affective, cognitive, and physiological reactions to exams or similar evaluation situations (Jiahui & Youlai, 2024; Zeidner, 2007). Students experiencing test anxiety may show negative thoughts, worries, muscular tensions, elevated heart rate, feeling sick, and sweating (Liebert & Morris, 1967). Academic anxiety negatively affects academic performance (Jiahui & Youlai, 2024).

Signs and symptoms of anxiety. Many anxiety disorders are characterized by a subjective sense of distress, as well as impairments in sleep, attention, and social and/or vocational performance. According to the Anxiety and Depression Association of America (ADAA), the most common signs and symptoms of anxiety are as follows: nervousness, impatience, or feeling "on edge", panic attacks or a sense of impending peril or catastrophe, heart rate increase, hyperventilation, sweating, or shaking, feelings of fatigue or weakness, having trouble concentrating or sleeping and, disturbances in the gastrointestinal tract.

Causes of anxiety. Previous researchers have identified various sources for anxiety disorder, such as biological, psychological, and environmental stimuli, which can lead to anxiety. Genetics can have an impact on anxiety disorders biologically (Gottschalk & Domschke, 2017) as people who have a family history of the condition may be more vulnerable. In particular, imbalances in the neurotransmitters dopamine and serotonin can cause neurochemical problems. Anxiety can be increased by psychological variables such as traumatic experiences in the past, ongoing stress, or negative thought patterns (Brewin et al., 2000). Environmental stressors, such as early life adversities, ongoing social challenges, work pressure, interpersonal issues, unstable finances, or significant life changes, can cause

or aggravate anxiety symptoms (Kessler et al., 2010). Anxiety can also be brought on by drug addiction and a few medical disorders. The intricate interaction of these elements frequently causes anxiety disorders to emerge in people and persist over time.

Assessment of anxiety. Anxiety assessment entails a thorough examination of an individual's emotional, psychological, and physical symptoms to evaluate the presence and degree of anxiety. To learn more about a person's symptoms, causes, and how anxiety affects their everyday life, mental health practitioners frequently undertake structured or semi-structured interviews with them. The assessment of or screening for anxiety disorders can be done using a variety of techniques. These include the Hamilton Anxiety Scale (HAM-A), the Depression Anxiety Stress Scale, the Beck Anxiety Inventory (BAI), the Patient Health Questionnaire, Generalized Anxiety Disorder-7, Sinha's Comprehensive Anxiety Test (SCAT), Liebowitz Social Anxiety Scale (LSAS). Observing a person's behaviour and physical symptoms helps identify signs of anxiety. Understanding a person's family history is an important factor to look at as it helps understand genetic predisposition, family dynamics and patterns.

Interventions for anxiety. Interventions for anxiety can be broadly categorized into pharmacological, and non-pharmacological interventions. The first-line pharmaceutical therapies for anxiety disorders are thought to be selective serotonin reuptake inhibitors (SSRIs) and serotonin-norepinephrine reuptake inhibitors (SNRIs). In the early weeks of an antidepressant when anxiolytic effects have not yet materialized, benzodiazepines are also used for their strong, short-term effects (e.g., flying on an airline) or to help alleviate anxiety (Goddard et al., 2001). Nowadays, people who have not responded well to antidepressants are the main patients treated with benzodiazepines (Simon et al., 2009). Because they can lessen the peripheral physical symptoms of anxiety (such as palpitations and trembling hands) in 30 to 60 minutes, beta-blockers have been prescribed as single-dose medications for performance-related anxiety (James et al., 1983). Nevertheless, they do not affect the cognitive and emotional symptoms of anxiety. A newer medication called buspirone (from a different medication category) is also effective, and it is neither sedating nor does it lead to physiological dependence.

On the other hand, non-pharmacological interventions include cognitive-behavioral therapy for anxiety disorder. The effectiveness of such interventions has increased as a result of advancements in clinical research approaches. To reduce distorted cognitions and information-processing biases associated with GAD as well as to reduce catastrophizing about small events, it typically combines behavioral techniques, such as training in applied muscle relaxation, with cognitive restructuring techniques (Barlow et al., 2007; Borkovec, 2006). CBT includes exposure therapy, which is a method for lessening anxiety and fear reactions. A patient in therapy gradually becomes less sensitive over time by being exposed to a feared circumstance or object (in a safe setting). Acceptance and Commitment Therapy (ACT) uses strategies of acceptance and mindfulness (living in the moment and experiencing things without judgment), along with commitment and behavior change, as a way to cope with unwanted thoughts, feelings, and sensations.

2.2 Depression

Depression is a mood disorder affecting nearly 300 million people across the world (World Health Organization, 2021). It causes a persistent feeling of sadness and loss of interest among individuals. American Psychological Association has described depression as a negative affective state, ranging from unhappiness and discontent to a feeling of extreme sadness, pessimism, and despondency, that interferes with daily life (APA, 2022). The American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) classifies depressive disorders into five major categories including disruptive mood dysregulation disorder, major depressive disorder, persistent depressive disorder (dysthymia), premenstrual dysphoric disorder, and depressive disorder due to another medical condition (American Psychiatric Association, 2013).

Depression accounts for 40% of all mental illnesses (Whiteford et al., 2013). It is characterized as a common but serious mood condition that impairs how a person thinks, feels, and manages daily tasks for at least two weeks. Its complicated etiology is caused by a bidirectional interaction of biological vulnerabilities, developmental adversity, and environmental stresses (Heim & Binder, 2012). Stressful life events, particularly traumatic events in childhood, are highly associated with depression, and the trajectory is influenced by socioeconomic and psychological factors (Kendler & Gardner, 2016).

Signs and symptoms of depression. Not every indication of depression or manic behavior is present in every person. A few or several symptoms may be experienced by certain people. Moreover, the severity of the symptoms also varies from person to person. According to the World Health Organization (WHO), a depressive episode is defined by a depressed mood, poor concentration, feelings of excessive guilt or low self-worth, hopelessness about the future, changes in appetite or weight, and feeling very tired or low in energy.

Causes of depression. A variety of things can have an impact on the complex mental health disorder known as depression. It can be brought on by biological factors such as hormone changes, neurotransmitter abnormalities, and hereditary predisposition. Environmental variables including social isolation, financial stress, and substance misuse can also contribute, in addition to psychological issues like traumatic experiences, chronic stress, and negative thought patterns. Adversity in childhood, specific medications, and medical illnesses also have a role in the development of depression, which is frequently made worse by a person's family history, lifestyle choices, and neurological issues. Since depression has many different causes and these causes frequently interact, getting professional support is essential for managing and treating it.

Assessment of depression. Assessing depression is a crucial step in understanding and addressing the emotional, psychological, and physical symptoms of individuals, with various tools and methods available to help evaluate the presence and severity of depressive symptoms. Conducting structured or semi-structured interviews entails knowledge about the symptoms, duration, and impact on daily life. There are several validated tools and questionnaires to measure and assess depression.

According to APA, several depression assessment tools used across the lifespan are the Beck Depression Inventory (BDI-II), Center for Epidemiologic Studies Depression Scale (CES-D), EQ-5D, Hamilton Depression Rating Scale (HAM-D), Montgomery-Asberg Depression Rating Scale (MADRS) and Social Problem-Solving Inventory-Revised (SPSI-RTM). For children and adolescents, the Behavior Assessment System for Children (BASC), Child Behaviour Checklist (CBCL), Children’s Depression Inventory (CDI), and Children’s Depression Rating Scale (CDRS) are used. For the general adult population, the Beck

Hopelessness Scale, Quick Inventory of Depressive Symptomatology-Self-Report (QIDS-SR), Patient Health Questionnaire (PHQ-9), Reminiscence Functions Scale (RFS), Short Form Health Survey (SF-36), Social Adjustment Scale (SAS-SR), Social Functioning Questionnaire (SFQ) are used. For older adults, the Geriatric Depression Scale (GDS) and Life Satisfaction Ratings (LSR) are used. These tools are used in conjunction with clinical judgment for a comprehensive evaluation of depression. In some cases, clinicians may use observer-rated scales to assess depression.

A comprehensive psychological assessment may include a battery of tests, including projective techniques like the Rorschach Inkblot Test, Thematic Apperception Test, Sentence Completion Test, and Rosenzweig Picture Frustration to reveal the person's unconscious motives and desires that are precipitating depression. Depression can also be linked to medical conditions and therefore evaluation of the functioning of the brain and body becomes important.

The foundation of evidence-based practice is careful assessment. Initial evaluations of depressed symptoms can aid in identifying potential treatments, and ongoing evaluations can direct therapy and monitor improvement.

Interventions for depression. There was a rapid increase in the treatment of depression from 1987 to 1997, and there has been a more modest increase since 1998 (Marcus & Olfson, 2010). Interventions for depression can be pharmacological or non-pharmacological. Pharmacological interventions can involve administering drugs such as antidepressants, mood stabilizers, and antipsychotics to treat unipolar and bipolar illnesses. The first class of antidepressant drugs was called monoamine oxidase inhibitors (MAOIs) developed in the 1950s. Tricyclic antidepressants were the preferred pharmacological treatment for the majority of patients with moderate to severe depression, including those with persistent depressive disorder, from the 1960s until the early 1990s. Physicians are prescribing selective serotonin reuptake inhibitors (SSRIs) more frequently due to the toxicity and side effects of TCAs (Olfson & Marcus, 2009). Numerous unconventional antidepressants, such as bupropion (Wellbutrin), are gaining popularity. Electroconvulsive therapy (ECT) is typically used with patients who are seriously depressed (particularly among the elderly) and who may demonstrate an immediate and serious suicidal risk, including those with psychotic or melancholic features (Goodwin & Jamison, 2007) in their

condition because antidepressants often take 3 to 4 weeks to generate a meaningful improvement.

Deep brain stimulation has been investigated as a possible therapeutic option in recent years for those with refractory depression who have not responded to conventional methods including medication, psychotherapy, and electroconvulsive therapy (ECT). According to Mayberg et al. (2005), deep brain stimulation entails implanting an electrode in the brain and subsequently stimulating that region with an electric current.

Non-pharmacological may include Cognitive-behavioral therapy (CBT), first established by Beck et al. (1979), which is one of the two most well-known psychotherapies for unipolar depression with documented success (Beck et al., 1979; Clark et al., 1999). It is a relatively short treatment regimen (10 to 20 sessions on average) that concentrates on immediate difficulties instead of the more distant causal issues that psychodynamic psychotherapy frequently addresses. To help those with extremely recurring depression, a different kind of cognitive treatment known as mindfulness-based cognitive therapy has been created recently (Segal et al., 2002, 2012; Teasdale, 2004). This entails teaching patients' mindfulness meditation techniques to raise their awareness of uncomfortable thoughts, feelings, and sensations so they can learn to accept them instead of reflexively trying to escape them.

Behavioural activation treatment is a relatively new and promising treatment for unipolar depression. These methods include role-playing to address particular deficiencies, exploring alternate behaviours to attain goals, organizing daily activities, and measuring mastery and pleasure while engaging in them. Furthermore, research suggests that cognitive-behavioral therapy and medication are roughly equally beneficial in treating interpersonal problems (Hollon et al., 2002; Weissman & Markowitz, 2002). IPT focuses on present-day relationship problems, attempting to assist the individual in recognizing and altering maladaptive patterns of interaction (Bleiberg & Markowitz, 2008).

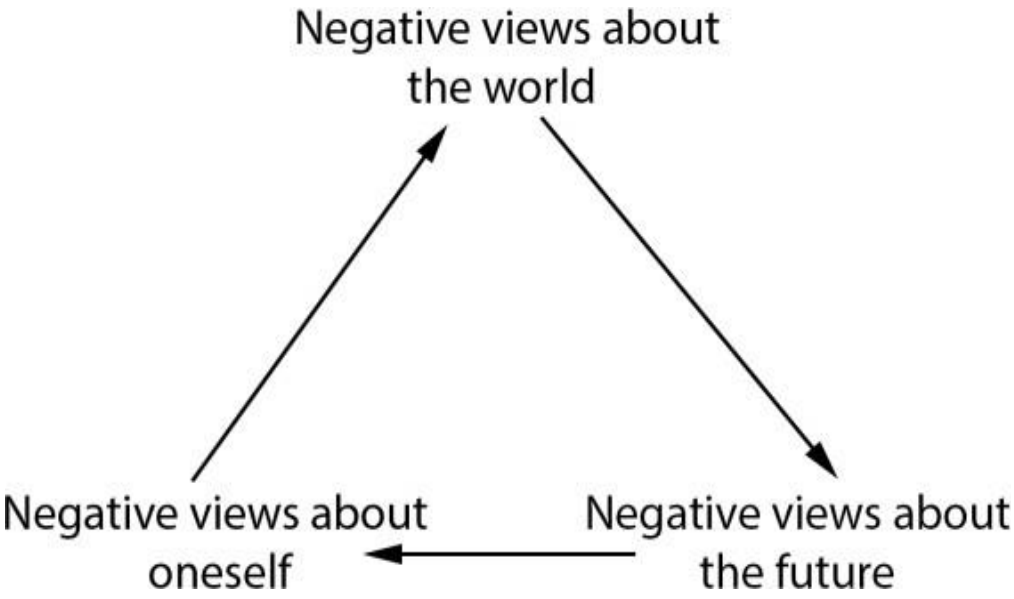
2.3 Theoretical Framework

Researchers have proposed multiple theories to explain the cognitive processes, causes, and consequences of depression, with Aaron Beck (2019) as one of the most influential. He is also considered the father of cognitive therapy. He believed that thoughts or cognitions stem from the individuals' experiences (Beck, 2019). These cognitions or

thoughts relate to schemas, which form the core beliefs based on early life experiences. Individuals' core belief creates their views of the world and determines emotional states and behaviours. According to Beck (2019), disorders are the results of negative attitudes and distorted thinking. Depression is experienced if an individual continues to hold such a negative attitude and feelings of social rejection. Depression-causing beliefs or schemas develop during the early age of adolescence. It is more prevalent in children having negative experiences with parents or other close relatives and kin (Beck, 1967; Ingram et al., 2006; Morley & Moran, 2011). Although such depressing experiences may lie dormant until dysfunctional beliefs are activated by stressors or depressed moods, they tend to stimulate the current thinking pattern, creating a pattern of negative automatic thoughts. Beck has suggested that these pessimistic thoughts can be based on the 'Cognitive Triad', which includes negative thoughts about the self, the world, and the future (see Figure 1). An individual may think "I'm worthless", "No one loves me", or "It's hopeless because things will always be this way" (Clark et al., 1999).

Figure 1

The cognitive triad



***Source**:* Clark, Beck, and Alford (1999)

Beck also proposed that the negative cognitive triad is sustained by a range of negative cognitive biases or errors. Each of these involves biased processing of negative self-

relevant information such as dichotomous or all-or-none reasoning, selective abstraction, and arbitrary inference.

While Beck's theory focuses on thought patterns, stress and coping models provide insight into how individuals manage psychological distress. Lazarus and Folkman (1984) have proposed a transactional model of stress that explains how individuals appraise and cope with stress. Stress can be a result of a relationship between the individual and their environment which is appraised as personally significant and taxing or exceeding essential psychological resources for coping (Lazarus, 1966). This definition of stress is the foundation of stress and coping theory (Lazarus & Folkman, 1984). In their later research, Lazarus and Folkman (1987) observed that the person-environment relationship is mediated by two key processes such as cognitive appraisal and coping. They have analyzed the dynamic interface between the determinants and consequences of stress. In the context of the present research, young adults can experience stress and anxiety if they perceive their surroundings as demanding. If students perceive themselves as overwhelmed by the academic demands, and if they view academic challenges as exceeding their coping abilities, they may experience heightened stress, anxiety, or burnout. However, targeted interventions can help them cope with such stress and anxiety.

Moreover, the self-determination theory suggested by Deci and Ryan (2012) explains the relationship between the social environment and the intrinsic and extrinsic motivation of individuals. Self-determination theory focuses on the importance of autonomy, competence, and relatedness in promoting mental well-being. Young adults who lack autonomy in their professional lives can experience anxiety and depression (Deci & Ryan, 2012).

Additionally, social comparison theory explains anxiety and depression from a different perspective. Festinger (1954) proposed that people evaluate themselves by comparing themselves with others. Such comparisons can take the form of upward or downward comparisons. In upward comparisons, individuals use superior others as a reference point, which may inspire self-improvement (Collins, 1996). Meanwhile, such upward comparisons can also result in dissatisfaction and lower self-esteem (Mussweiler et al., 2004). Conversely, in downward comparisons individuals compare themselves to those perceived as worse off. This may promote self-esteem and provide a sense of superiority (Wills, 1981) but it can also lead to complacency, thereby hindering personal growth (Buunk & Gibbons, 2007). Researchers hold diverse perspectives on these effects. While Gibbons

and Buunk (1999) argue that individual factors, such as self-esteem and personality traits, shape the impact of social comparisons, others emphasize the role of contextual influences, such as social media and cultural norms (Vogel et al., 2014). Upward comparisons, particularly in the context of curated online identities, have been linked to increased anxiety among young adults (Fardouly et al., 2015). In academic settings, students often compare themselves with their peers, which may foster motivation but can also lead to feelings of inadequacy, potentially contributing to psychological distress.

Young adults using social media can experience increased anxiety and depression, primarily due to social comparison, cyberbullying, and disrupted sleep patterns (Keles et al., 2020). Extended exposure to curated online content can create unrealistic expectations, which may further lower the self-esteem and heightened psychological distress (Fardouly et al., 2015). Moreover, excessive screen time interferes with sleep quality, a crucial factor in emotional regulation and mental health (Levenson et al., 2017). These factors collectively contribute to the rising prevalence of anxiety and depression among young adults in the digital age.

Learned helplessness theory suggests that young adults may experience anxiety and depression when they perceive a lack of control over their surroundings (Maier & Seligman, 1976). The theory posits that when individuals repeatedly face uncontrollable events, they learn that their actions do not influence outcomes, leading to motivational, cognitive, and emotional deficits. Maier and Seligman (1976) hypothesized that this sense of uncontrollability induces stress. Neurobiological research has linked learned helplessness to the dysregulation of serotonin and dopamine, neurotransmitters critical to mood regulation, reinforcing its role in depression (Maier & Watkins, 1998; Petty et al., 1994). In an academic context, young adults may develop anxiety and depression if they perceive little or no control over their academic challenges.

The conversation of resources theory suggests that people want to retain, protect, and develop resources and they are fearful of losing them (Hobfoll, 1989). Threats of loss or fear of failure could be a major source of anxiety and depression.

2.4 Anxiety and Depression: Prevalence and Correlates

Research conducted on 250 candidates for an entrance examination in India observed that anxiety and depression and symptoms of severe depression were high among those

candidates who were writing the examination for the first time or those who were appearing for the third time (Premkumar et al., 2023). This study was based on the data collected through an online survey comprising 45 questions from the Beck Depression Inventory-II and Beck Anxiety Inventory. The number of previous attempts had a statistically significant association with the severity of anxiety symptoms. A similar study involving 400 college students in the age group of 18-25 years shows that 48.30 percent of the students experienced depression whereas 50% of the students experienced anxiety (Shah & Pol, 2020). This study collected data through a questionnaire developed by the researchers, along with Beck's Depression and Anxiety Inventory. Shrivastava (2019) also examined depression, anxiety, stress, and their social aspects among students preparing for competitive examinations. His findings reveal that individuals covered in the study experienced a significant level of depression, anxiety, and stress. Income, family support, friends, and teaching faculty played a major role in causing such stress and depression.

A study conducted on undergraduate students in a medical college reveals that depression, anxiety, and stress were prevalent among 59%, 43%, and 11% of students, respectively. Approximately 95% of students had experienced moderate-to-severe stress in the previous month and prevalence was higher among female students (Raja et al., 2022). Moreover, a research study on a sample of 374 undergraduate students indicates that the level of anxiety varies significantly across the levels of study, and also between males and females (Beiter et al., 2015). In another study, males reported significantly higher levels of depression and anxiety than females (Zhou et al., 2013), contrary to this, some other studies have reported that female students experience a higher prevalence of symptoms of stress and anxiety compared to male students (Ramon et al., 2020). There are some other attempts to examine the level of depression and anxiety among college students. Ramon et al. (2020) observed significant differences in the level of depression and anxiety among college students grouped according to their age, place of residence and academic discipline.

In light of the context and research background, this study aims to assess anxiety and depression in young adults. This research tests the following hypotheses:

H1: There is a significant difference in the level of anxiety experienced by males and females.

H2: There is a significant difference in the level of depression experienced by males and females.

H3: There is a significant difference in the level of anxiety experienced by different age groups.

H4: There is a significant difference in the level of anxiety experienced by different education groups.

H5: There is a significant difference in the level of anxiety experienced across different academic discipline groups.

H6: There is a significant difference in the level of anxiety experienced by different groups of participants from different places.

H7: There is a significant difference in the level of depression experienced by different age groups.

H8: There is a significant difference in the level of depression experienced by different education groups.

H9: There is a significant difference in the level of depression experienced across different academic discipline groups.

H10: There is a significant difference in the level of depression experienced by different groups of participants from different places.

3. Methodology

This study is based on primary data collected through a structured questionnaire filled out by college students in India. The questionnaire was distributed online to the participants pursuing a college degree, either a bachelor's, master's, or other, including a diploma. Considering the research context and the requirements, convenience sampling was adopted to select the participants. Convenience sampling is a non-probability method that works well with time and resource constraints. It is useful to collect data with minimal cost from geographically dispersed participants. Considering the wide geographical area, the participants were approached through emails. To ensure that only active students participated, email IDs were obtained from college staff and student representatives. Participants with age more than 28 years were excluded from the study. Non-parametric tests such as the Mann-Whitney U test and Kruskal-Wallis test were conducted to assess differences in depression and anxiety across groups.

The questionnaire for this study was distributed among students from Delhi, National Capital Region (NCR), Uttar Pradesh (eastern UP, and western UP), along with other

provinces of India. A total of 135 responses were received. The online survey included four sections. The first section outlined the survey's purpose and included an ethical statement. Participants were informed of their voluntary participation and the confidentiality of their responses. The second section collected demographic details, including age, gender, residence, academic discipline, and level of study. Beck Anxiety Inventory (BAI) and Beck Depression Inventory (BDI-II) were included in the third and fourth parts, respectively. Upon submission, participants received a thank-you note, reiterating the survey's purpose and ethical data usage.

Beck Anxiety Inventory (BAI) is a rating scale developed by Aaron T Beck in 1988. It is used to examine the severity of anxiety symptoms in adults and adolescents. This inventory includes 21 self-report items. Questions in the inventory are designed to record the responses about common symptoms of anxiety that an individual has had during the past week. BAI is suitable for measuring the anxiety experienced by individuals aged 17 or older, it takes 5 to 10 minutes to complete. Participants mark their responses from no symptoms to severe symptoms for each of the items. The BAI has excellent internal consistency and a high test-retest correlation ($r = 0.67$).

Cronbach's alpha was computed to examine the reliability of BAI in the population for the present study, it was observed 0.91.

Beck Depression Inventory (BDI-II) is one of the most popular assessment tools among healthcare researchers and professionals in various settings. It was originally developed in 1961 and later modified in 1978 as the BDI-I A, which was further revised and published in 1996 as the BDI-II. It is a 21-item self-report inventory designed to assess the severity of depression in adolescents and adults (Beck et al., 1996). Though it measures the severity of depression among the young population, it is not a diagnostic tool. Researchers have tested the validity and reliability of the inventory across different populations and cultural contexts. Several researchers have used BDI-II for treatment outcome studies and on trauma-exposed individuals. The BDI-II has good convergent and discriminant validity. The test-retest reliability of the BDI-II ranged from 0.73 to 0.92, which means that the scores are consistent over time. The internal consistency of the BDI-II was 0.9.

This study used BDI-II for collecting data. The reliability of the inventory in the population for this study was 0.90.

4. Findings

Data received through an online survey was analyzed using Statistical Package for Social Sciences (SPSS). Participants were grouped in various categories (see table 1). A total of 135 responses were received, out of which 92 students (68.10%) were in the range of 18-21 years of age, 34 students (25.20%) were in the range of 22-25 years of age, and 9 students (6.70%) were in the range of 26-28. This study covers college students from the first year till their advanced graduate studies. There were 64 males (47.40%) and 71 females (52.60%) covered in this study. The participants of this study were pursuing their bachelor's, master's, and other degrees at higher levels including diploma, postgraduate diploma, and doctoral research. A total of 94 participants (69.60%) were enrolled in bachelor's degree programs, 36 participants (26.70%) were enrolled in master's degree programs, and a total of 5 participants (3.7%) were pursuing other academic degrees at various universities and institutions.

Table 1

Demographic characteristics of participants

Demographic Variable	Category	Frequency	Percentage
Age in years	18-21	92	68.1
	22-25	34	25.2
	26-28	9	6.7
Sex	Male	64	47.4
	Female	71	52.6
Education level	Bachelor's	94	69.6
	Master's	36	26.7
	Others	5	3.7
Academic Discipline	Arts and Social Sciences	40	29.6
	Science	12	8.9
	Management and Commerce	45	33.3
	Engineering	19	14.1
	Others	19	14.1
Place	Delhi	97	71.9
	Eastern UP	13	9.6
	Western UP	8	5.9
	Others	17	12.6

The participants were enrolled in various academic disciplines such as arts and social sciences, science, management and commerce, engineering, and others. A total of 40 participants (29.6%) were pursuing their studies in art and social sciences related programs, whereas a total of 12 participants (8.9%) had enrolled in the science stream, another 45 participants (33.3%) were enrolled in management and commerce-related courses, and 19 participants (14.1%) were doing engineering degrees, whereas additional 19 participants (14.1%) were pursuing other academic disciplines.

Considering the diversity of cultural and social context, the participants were selected from various geographic regions such as Delhi, National Capital Region (NCR), Eastern UP, Western UP, and others. Out of 135, a total of 97 participants (71.9%) belonged to Delhi (including NCR), 13 participants (9.6%) belonged to the eastern part of Uttar Pradesh (UP), 8 participants (5.9%) belonged to the western part of Uttar Pradesh (UP), and a total of 17 participants (12.6%) belonged to other parts of India (see Table 1).

The demographic profile of the participants covered in this study represents a wide contextual variety. It is appropriate for comparing the level of depression and anxiety experienced by the population across different categories.

4.1 Prevalence of Anxiety and Depression

Responses received were added to compute the anxiety and depression among participants. BAI items are scored on a four-point scale where “not at all” was marked zero, “mildly, but it didn’t bother me much” was marked 1, “moderately – it wasn’t pleasant at times” was marked as 2, and “severely – it bothered me a lot” was marked as 3. The final score for anxiety was computed by adding these responses. As suggested by the National Institutes of Health (based on Beck et al., 1988) a score for anxiety between a range of 0-7 shows a minimal level, whereas, mild anxiety is indicated by a score ranging 8-15, moderate anxiety has score 16-25, and score between 26-63 shows severe anxiety among participants.

Available statistics shows that 18.52% of the participants experienced severe anxiety (see table 2). Whereas, 26.67% experienced moderate, 28.15% experienced mild, and 26.67% participants experienced minimal anxiety. The data shows that more than 45% of the participants covered in this study experienced moderate to severe anxiety.

Considering the Manual for Beck Depression Inventory-II developed by Beck et al. (1996, as cited by Seppanen et al., 2022) the total score of BDI-II can be a minimum zero to

a maximum of 63, and the computed value 0-13 indicates minimal depressive symptoms, 14-19 shows mild depressive symptoms, 20-28 represents moderate depressive symptoms, and 29-63 points show severe depressive symptoms (Seppanen et al., 2022).

As data presented in table 2, 14.81% of the participants (12 out of 77) showed severe symptoms of depressive disorder whereas 17.04% had moderate depressive symptoms, and 17.04% had mild, 51.11% had minimal depressive symptoms. The available statistics show that approximately one-third of the participants had either moderate or severe depressive symptoms. This might relate to various factors such as their study level, academic discipline, or social and cultural context, which is analyzed in the later part of this research.

Table 2

Prevalence of anxiety and depression

Level	Anxiety		Depression	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Severe	25	18.52	20	14.81
Moderate	36	26.67	23	17.04
Mild	38	28.15	23	17.04
Minimal	36	26.67	69	51.11
Total	**135**	**100**	**135**	**100**

4.2 Anxiety and Depression across Gender Groups

Table 3

Comparing means across gender groups

Variable	Gender	N	Mean	Mean Rank	Sum of Ranks	Mann-Whitney U Value	p
Anxiety	Male	64	14.92	64.20	4109.00	2029.00	0.28
	Female	71	16.55	71.42	5071.00		
Depression	Male	64	14.73	66.05	4227.50	4109.50	0.58
	Female	71	15.27	69.75	4952.50		

Mean values for anxiety and depression were computed for males and females covered in this study. Mann-Whitney U test was performed to examine whether the mean values across gender groups were significant. As shown in table 3, the Mann-Whitney U test values (2029, $p>0.28$) for anxiety and (4109, $p>0.58$) for depression do not provide enough

support to sustain hypotheses H1, and H2. Hence, it cannot be concluded that "there is a significant difference in the level of anxiety experienced by males and females", and "there is a significant difference in the level of depression experienced by males and females."

4.3 Anxiety and Depression across Categories

Table 4

Comparing mean across categories

Demographic Variable	Category	F	Anxiety				Depression			
			Mean	Mean Rank	Kruskal Wallis Test Value	p	Mean	Mean Rank	Kruskal Wallis Test Value	p
Age in years	18-21	92	16.32	70.05	5.00	0.08	15.37	69.55	0.76	0.68
	22-25	34	15.97	69.90			14.56	66.35		
	26-28	9	9.56	39.83			13.11	58.33		
Education level	Bachelors	94	16.15	69.31	0.75	0.69	16.13	72.94	6.26	0.04
	Masters	36	15.42	66.43			13.22	59.28		
	Others	5	11.40	54.60			7.00	37.90		
Academic Discipline	Arts and Social Sciences	40	14.58	62.59	12.98	0.01	15.43	70.11	1.26	0.86
	Science	12	21.83	92.33			17.17	75.50		
	Management and Commerce	45	14.49	64.77			14.36	66.11		
	Engineering	19	11.11	52.87			14.84	69.95		
	Others	19	22.21	86.82			14.53	61.34		
Place	Delhi	97	16.72	70.47	2.33	0.51	14.99	67.39	4.02	0.26
	Eastern UP	13	11.31	53.12			11.23	52.85		
	Western UP	8	14.63	65.94			16.75	71.75		
	Others	17	14.35	66.26			17.24	81.29		

Mean values were computed for different groups based on age, educational levels, academic disciplines, and places of residence. To compare these mean values and find statistical evidence that there is a significant difference in the means across groups, the Kruskal-Wallis test was performed. The results indicate that the Kruskal-Wallis test value for anxiety means was significant (12.98, $p<0.01$) for groups based on academic disciplines (see table 4). The hypothesis "there is a significant difference in the level of anxiety experienced across different academic discipline groups" was supported by the statistics. However, the

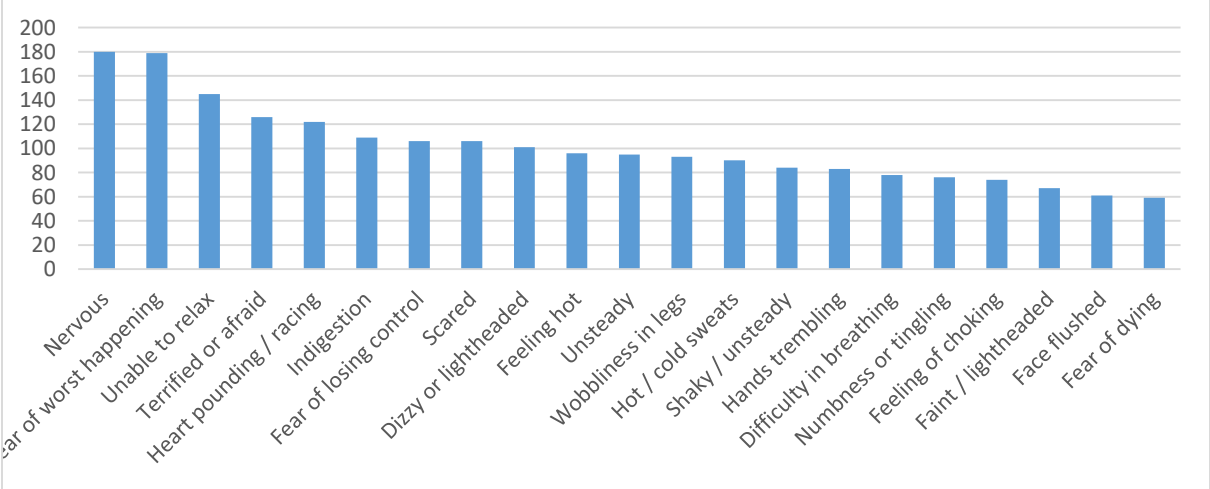
test was not significant for the three demographic variables such as age, education level, and place of residence. Hence, hypotheses number three, four, and six were rejected. Similarly, mean values were computed and the Kruskal-Wallis test was performed for depression. Data presented in table 4 shows that the Kruskal-Wallis test value (6.26, $p<0.05$) was significant for depression between groups based on different educational levels. This supports the fourth hypothesis, "there is a significant difference in the level of depression experienced by different education groups." The test value was not significant for other demographic variables such as age, academic discipline, and place of residence. Hence, the seventh, ninth, and tenth hypotheses were rejected.

4.4 Symptoms of Anxiety and Depression

To identify the most prevalent symptoms of anxiety, the responses received for each item in the BAI were added to compute a composite score for a specific item. Since the responses were collected on a four-point scale ranging from zero to three, a higher number represented a high level of anxiety. The item-wise scores were sorted from largest to lowest to identify the most important symptoms prevalent among them.

Figure 2

Symptoms of anxiety



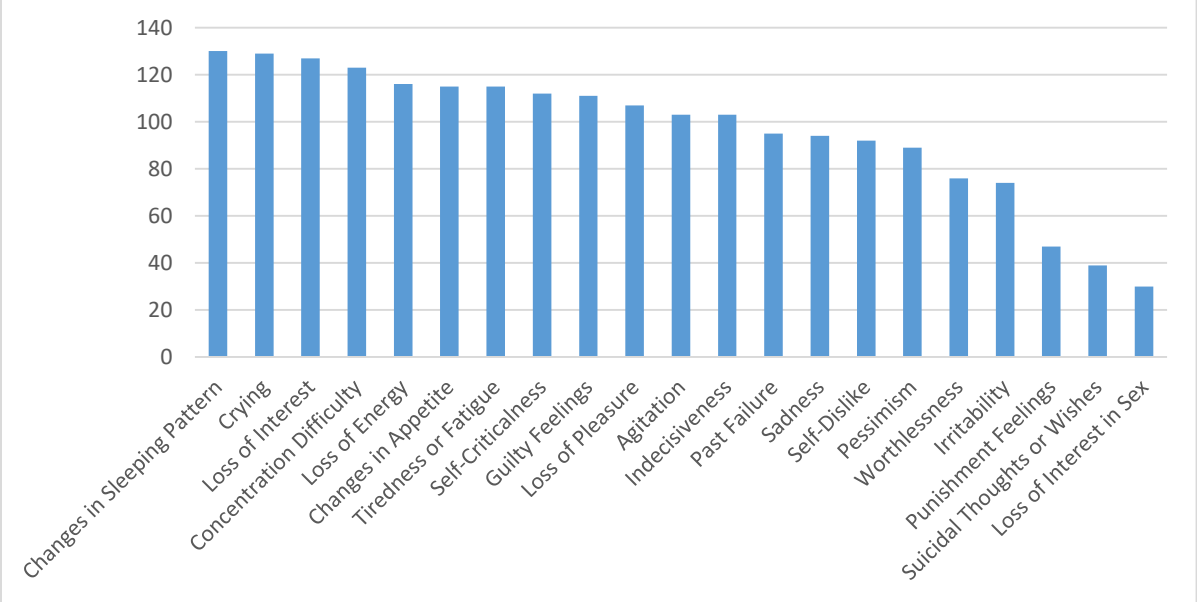
As shown in figure 2, nervousness, fear of the worst happening, unable to relax, terrified, and heart-pounding/ racing emerged as the most important five symptoms of anxiety recorded by the participants of the present study. The least important symptoms were fear of dying, face flushing, faint/lightheaded, feeling of choking, or numbness or tingling. It

seems that young adults are more concerned about academic performance, and success in their lives (American College Health Association, 2017).

Similar scores were computed for the items of BDI-II. The graph presented in figure 3 shows that changes in sleeping patterns, crying, loss of interest, concentration difficulty, loss of energy, and changes in appetite were the topmost symptoms of depression recorded by the participants. On the other hand, loss of interest in sex, suicidal thoughts or wishes, punishment feelings, irritability, and worthlessness were the least-scoring five symptoms. This indicates that young adults are finding it difficult to concentrate on things, this might relate to their social media habits that distract significantly (Meier et al., 2016; Duke & Montag, 2017). An engaging schedule and high screen time with social media could be another reason for depression.

Figure 3

Symptoms of depression



5. Discussion

Anxiety and depression have grown increasingly common among young adults in recent times, casting a shadow on their way to well-being and self-discovery. The study aimed to assess the prevalence of anxiety and depression in young adults. For the present study, an online survey was conducted with college students, aged over 18 years, and participants were selected using convenience sampling. The inventories used for this study

were the Beck Anxiety Inventory (BAI) and Beck Depression Inventory (BDI-II) developed by Aaron T Beck in 1988, and 1996, respectively.

The results indicate that the level of anxiety and depression is experienced differently among the selected sample. The scores computed for BAI indicate that nearly half of the young population covered in the study experienced symptoms of moderate to severe anxiety, conforming with other reports such as American College Health Association (2023). On the other hand, BDI-II scores indicate that approximately one-third of the participants had moderate to severe symptoms of depression, however, more than half of the surveyed young adults experienced minimal levels of depressive symptoms. The findings align with others who have observed similar mental health challenges among university students pursuing different academic disciplines including medical science (Asher et al., 2021; Ahamd et al., 2021).

Academic pressure and subsequent worry about the quality of performance appear to be the most probable reason for such anxiety and depression. According to APA (2013), work and school performance are often domains that individuals with anxiety persistently and excessively worry about. Abouserie (1994) found that college students' greatest source of academic stress was competition for grades. Students who screen positive for anxiety or depression have lower grade point averages (GPAs) than students who screen negative, and those who screen positive for depression have twice the odds of dropping out, even after controlling for personal background and prior academic performance (Eisenberg et al., 2009). Young adults may feel pressured and anxious due to the feeling that they may fail to meet the expectations of their parents.

Academic demands are significant factors within learning environments that may affect students' well-being. Bowman's (2013) psychosocial strain hypothesis proposed that "chronic environmental risk factors increase personal vulnerabilities, which, in turn, reduce psychological well-being". College-level studies are more demanding as compared to secondary education. At the same time, most of the students relocate to pursue their higher studies, which requires additional psychological resources to adapt to new social settings, they are deprived of the logistic support they have been getting while being with their parents. The transactional model of stress proposed by Lazarus and Folkman (1984) proposes that young adults can experience anxiety and depression if they find their environment taxing and more demanding than the psychological resources required to cope with such demands.

The findings of the present research do not indicate a significant difference in the anxiety and depression experienced by the males and females covered in this study. These findings are contrary to studies that report higher depression among females than males (Hyde & Mezuliz, 2020; Zhao et al., 2020). This could be because the present study was conducted with a group of young adults who belonged to similar socio-economic backgrounds. Since they have limited social and professional responsibilities in their life cycle, psychological demands may not be significantly different.

This study also examined whether the level of anxiety is significantly different across the academic disciplines. The findings indicate that anxiety level was reported to be significantly different by the participants pursuing different academic disciplines such as arts, science, commerce, and engineering. This study confirms the similar observations of previous studies that reported significant differences in the experienced anxiety across academic disciplines (Karisan & Yilmaz, 2013; Wani et al., 2016). The available statistics in the present study reveal that anxiety experienced by science students is higher than arts students. A similar finding was reported by a study on college students where science students experienced higher anxiety than arts students (Pingale, 2022). However, a contrary observation was reported by Sharma and Tiwari (2015), who observed better well-being among science students than arts students. Proponents of self-determination theory (Deci & Ryan, 2012) may forward an argument that young adults who lack autonomy in their academic pursuits are prone to anxiety and depression. Moreover, social comparison theory (Festinger, 1957) argues that students of a particular discipline can experience anxiety and depression if they find their peers more accomplished.

The present study indicates that participants at the bachelor's level experience higher levels of depression as compared to those who are pursuing masters or other levels. Bachelor level students might be experiencing difficulty adjusting to the academic challenges, and diverse social settings, away from their parents, and society. In the conversation of resources theory (Hobfoll, 1989), similar loss to gain social support, time, and self-esteem was considered as a determinant of anxiety and depression among young populations (Hobfoll, 1989). Furthermore, the findings align with the learned helplessness theory, that proposes anxiety and depression may prevail if young adults perceive a lack of control over their surroundings (Maier & Seligman, 1976). Moreover, the findings confirm the previous studies that have observed differences in experienced depression across educational levels (Ramon et

al., 2020; Cheung et al., 2020). Sassen (1980) theorized that "success anxiety" was primarily an outgrowth of competitive learning environments.

Further, this study identifies the most important symptoms of depression and anxiety reported by the participants. Nervousness, fear of the worst happening, unable to relax, terrified, and heart-pounding/ racing emerged as the most important five symptoms of anxiety reported by participants of the present study. A possible reason for such a response can be concern about academic performance, and success in the lives ahead (American College Health Association, 2017). On the other hand, changes in sleeping patterns, crying, loss of interest, concentration difficulty, loss of energy, and changes in appetite were recorded as the top five symptoms of depression. The findings of the present research confirm the observations of previous studies, and difficulty concentrating can be attributed to social media usage by young populations (Meier et al., 2016; Duke & Montag, 2017).

A wide range of sources determine anxiety and depression among young adults. Exposure to social media is one of the significant contributors to anxiety and depression among young adults (Primack et al., 2017; Keles, McCrae & Grealish, 2020). There are growing concerns about the impact of digital technologies on emotional well-being, particularly regarding fear, anxiety, and depression. Individuals who engage in sedentary activities, such as using social media, more frequently have less time for in-person social connection, which is protective against mental health illnesses. Conversely, social theories discovered that using social media influences how people interpret, maintain, and engage with their social network, which in turn affects mental health. Numerous researches on the effects of social media have been done, and the results suggest that extended usage of sites may be linked to negative symptoms and indicators of stress, anxiety, and depression (Bettmann et al., 2021).

This study was conducted with university students in the northern part of India, due to which the findings might be restricted to its cultural context. Additionally, the sample size for the current study was limited to 135 participants selected through convenience sampling, which is a non-probability sampling method. Therefore, the results of the study could not be generalized at a large scale. Moreover, knowledge of the English language was a prerequisite for the present study. People who are not well versed in the English language would be unable to understand the content of the inventory and therefore could not give appropriate responses.

The findings of this study highlight the prevalence of anxiety and depression in young adults, and it underscores the need for tailored mental health interventions within educational institutions. The mental health interventions should address the requirements of specific levels of study and academic disciplines. Educational institutes can offer stress management workshops and sessions to promote mental health among their students. Including mental health, and emotional resilience in the curriculum can help students manage mental health issues at an early stage. Providing targeted academic support services and counseling for students in high-stress disciplines could mitigate the adverse effects of academic pressures. Recognizing and addressing discipline-specific stressors may help improve students' mental well-being.

Future researchers could take insight to plan for a longitudinal study tracking mental well-being among young adults over the academic programs, prolonging several years. Further, researchers can test various mental health interventions among the groups experiencing severe levels of depression and anxiety. Researchers can explore the reasons for reported higher levels of depression and anxiety by the participants of some academic disciplines. Understanding the specific stressors associated with different fields of study could lead to more precise and effective mental health strategies.

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AI Declaration

The author declares the use of Artificial Intelligence (AI) in writing this paper. In particular, the author used OpenAI ChatGPT in finding literature and other materials. The author takes full responsibility in ensuring that research idea, analysis and interpretations are original work.

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