A SYSTEMATIC REVIEW OF PSYCHIATRIC MORBIDITY AMONG UNDERGRADUATE UNIVERSITY STUDENTS IN INDIA

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Abstract
The prevalence of mental health problems among university-going students exponentially rose during the past decade. Psychological distress among college-going students has been reported in many studies. Several studies have reported that compared to the general population, university students on average have increased mental health problems such as depression, anxiety, stress, addictions, and risk for suicide. However, there is no systematic review quantified with reviewing overall psychiatric morbidity in India. The purpose of this systematic review is to identify the Psychiatric morbidity among undergraduate university students in India. The investigator searched major databases such as Google Scholar, PubMed, PsycINFO, Scopus, and ISI Proceedings article from the year of 2012 to August 2022, and conducted a detailed review based on selection criteria.The results revealed that the majority of the studies included in the review were descriptive and mainly studied, depression, anxiety disorders, stress, suicidal thoughts, and substance use disorders among undergraduate university students. Significant predictors of mental distress among college students included academic stress, lack of social support, and current drug use. They used a variety of tools to measure psychiatric morbidity among college students.This review suggests that university students may encounter a variety of mental disorders that have an impact on their academic performance. The limited evidence does not allow conclusions to be drawn. Further multi-centric research is required in India to quantify psychiatric morbidity. So collaborative, multidimensional, and culturally sensitive preventive mental health programs can be developed for the students to promote their psychosocial well-being and improve their overall quality of life.
Keywords: Depression, Anxiety, Stress, Addiction, Suicide & University students.

Introduction

College or university years are a period that is characterized by transition from pre-adult to adulthood, period of turmoil, adjusting to the new condition, separation from parental supervision, independence, and countering new things throughout everyday life (Johnson, 2012). There is intense academic pressure and they are commonly associated with escalations in a range of health risk behaviors including alcohol, tobacco, and illicit drug use (Robinson et al., 2016). Entering college or university life is a crucial time for a young adult as this time he/she might face different mental health issues and mental health crises. It is very important to identify these stressors for early prevention and promotion of the mental health of these populations (Mayangsari et al., 2020). Compared to the general population, university students on average have increased mental health problems such as depression, anxiety, suicidal thoughts, psychosis, addictions, the risk for suicide, use of psychiatric drugs, and other chronic psychiatric disorders (Aldiabat et al., 2014).

In recent years mental health issues such as depression, anxiety, stress, addiction, and suicidal ideation among college students are growing in prevalence and severity (Blanco et al., 2018). The prevalence of mental health problems among university students exponentially rose during the last ten years (Benton et al., 2008). Depression is the most commonly diagnosed mental illness among university students in several countries, including India, Spain, England, Australia, and the United States (Duffy et al., 2019). Miller and Chung found that 43.2% of university students had such severe depressive symptoms that functioning within the academic setting was a challenge. Different studies

highlight that the prevalence of depression and anxiety symptoms among undergraduate students was high worldwide (Quek et al., 2019; Rotenstein et al., 2016). Psychological distress was identified as the most prevalent mental health problem for university students (Benton et al., 2008). There is evidence that there are factors present within academic institutions that are negatively influencing the mental well-being of university students. According to the Anxiety and Depression Association of America anxiety disorder is widely prevalent and one of the most common types of mental health problems among college students (Gibbons et al., 2019).

Substance use among undergraduate university students has been an important consideration worldwide (Perez et al., 2015). Such substance abuse may eventually result in the emergence of substance use disorders (Candido et al., 2018). Excessive substance use among undergraduate university students can lead to the professional detriment (Bahji et al., 2021). The literature on substance use among university students from India has expanded considerably in the last ten years (Brar et al., 2020). Hence, a synthesis of the literature on psychiatric morbidity among undergraduate university students is of relevance (Behere et al., 2021). This can help in understanding psychiatric morbidity so that targeted interventions can be planned for undergraduate university students in India. Suicide was the tenth leading cause of death in India across all age groups and the second leading cause of death among undergraduate students (Yang et al., 2015). Despite suicide being a leading cause of death for those between 15 and 29 years of age globally, While lower rates of suicide have been observed in tertiary students compared with their non-tertiary educated peers of the same age, higher rates of suicidal ideation and attempted suicide have been reported in undergraduate university students as compared with age-matched members of the general population (Beiter et al, 2015). In one of the meta-analyses, almost one-third (27.2%) of university students reported depression or symptoms of depression and around 1 in 10 reported suicidal ideation (Eskin et al., 2016). Various research studies have suggested that the incidence of signs of anxiety and depressive illnesses as well as suicide thoughts among university students may be rising (Cherian, 2022; Colucci, 2020).

The purpose of this systematic review was to reduce psychiatric morbidity which may be in the form of depression, anxiety disorders, stress, suicidal thoughts, and substance use disorders. The first most things that should be done are to determine the planning for effective interventions, it is significant to know the studies that have been conducted to determine to check psychiatric morbidity specifically mental illness among undergraduate university students. Hence, this systematic review has been conducted to specify studies that were conducted with undergraduate university students having depression, anxiety disorders, stress, suicidal thoughts, and substance use disorders in India and also to determine the factors that affect it, furthermore, to determine the kind of studies that are needed in this sector. Hence, the present systematic review aimed to provide a detailed view of psychiatric morbidity among undergraduate university students in India.

Material and Methods
Research Design
In the present systematic review, the researcher followed guidelines on the methodology of reviews (Roe, 2007), as well as Cochrane Handbook guidelines (Higgins et al., 2019).

Search strategy and selection criteria
The present systematic review used electronic databases viz., Google Scholar, PubMed, PsychINFO, Scopus-Elsevier, ISI Proceedings, Cochrane Central Register of Controlled Trails, CTRI registry in India, and Shodhganga were searched with a time limit between 2012 and August 2022 as well as limits with English language only. It is also categorized into two such as India and the rest of the world. The search terms in databases were psychiatric morbidity, university students, depression, anxiety, stress, addiction, and suicide. The combination of 7 keywords was used as a searching strategy in this review article. Further, all the articles which were come under the inclusion criteria were examined and reviewed.

Study Inclusion and exclusion criteria

The present study has been followed carefully about the following inclusion criteria: (1) have published between 2012 and August 2022 (2) has been published in English (3) participants must be university or college-going students who have psychiatric morbidity in the age range of 18 to 25 years (4) quantitive studies, descriptive, and observational study design (prospective or retrospective cohort study, cross-sectional study). The following exclusion criteria have been adopted in this study: (1) unrelated research works (2) studies without sufficient data (3) duplicate sources (4) pieces of research with unclear methods (5) interventional studies (6) case reports, and (7) articles that their full text was not accessible.

Data extraction

The studies which fulfilled the inclusion and exclusion criteria were assessed in detail. Information that was extracted from the records included the author and year of the study, sample size and sampling method, and the method/definition of depression, anxiety, stress, addiction, and suicide. In case the study reported several variables of interest, then the prevalence rate according to all the assessment methods was recorded. Clarifications and doubts if any were sorted out by mutual discussion with other co-authors.

Search results

While entering the keywords into databases, 202 studies were found and the selected articles were reviewed in two phases. In the first phase, the researcher reviewed the abstract of articles and removed the articles which were not matched the inclusion criteria. At the end of the first phase, the researcher finalized 77 studies. Additionally, in the second phase, the researcher studied the complete texts of the chosen articles, and those that once again did not fit the inclusion requirements were eliminated. Hence, finally, 49 articles only met the required criteria which include 2 reviews article on the different disorders. Such articles have been selected for further research process.

Flow Chart
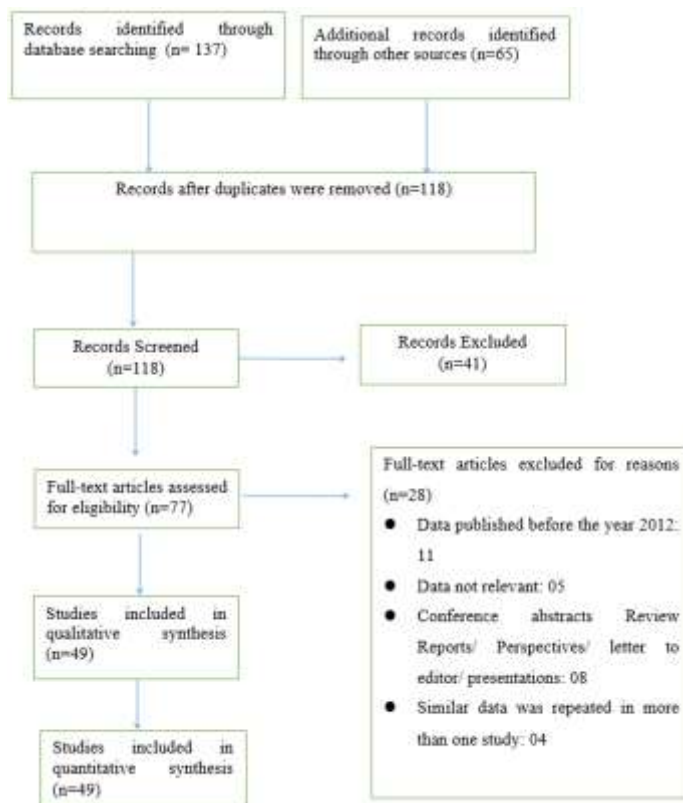
Results

A total of 49 research studies were included in the review. Among them, 17 studies reported depression, 06 studies reported anxiety, 08 studies reported stress, 13 studies reported addiction and

5 reported suicidal ideation among undergraduate university students in India. Generally, the sample comprised both male and female students in all of the studies. Twenty-five studies were excluded. Nine studies were excluded because the study was published before the year 2012. Seven studies were excluded because they were Review reports/ Perspectives/letters to editors/ presentations. Five studies were not relevant and four studies were where data was repeated more than one time. A total of 17 studies were identified that reported depression among undergraduate university students in India. The sample sizes of the studies varied from 100 to 781. The most common instrument used was the Beck Depression Inventory (Kumar, 2013; Devi, 2013; Prabhu, 2018 & Ibrahim, 2022), followed by other rating scales including the Primary Health Questionnaire (Faizal, 2015; Sidana, 2014; Sarkar, 2020 & Shamsuddin, 2021). Depression Anxiety Stress Scale (Dawood, 2018; Hassan, 2021). Quick Inventory of Depressive Symptomatology (Baste and Gadkari, 2014). Hamilton Depression Rating Scale (Verma, 2016; Jamshidi, 2022) and Kutcher Adolescent Depression Scale (Venkatesh et al., 2017). Six studies evaluated anxiety symptoms among undergraduate university students. The instruments utilized included Hamilton Anxiety Scale (Bassi, 2014). Depression Anxiety Stress Scale (Singh and Ishtaq, 2015; Sivan, 2016 & Sharma, 2019). Beck's Anxiety Inventory (Saravanan, 2019). Hospital Anxiety Depression Scale (Kunwar, 2021: Amritha, 2020) and Generalized Anxiety Disorder Scale (Chandavarkar, 2017). The sample sizes of the studies varied from 143 to 477.

Eight studies which had reported the rates of psychological stress or distress among Indian undergraduate students. A variety of instruments had been utilized to assess stress. While many of the studies used General Health Questionnaire (Nandi, 2014; Mehta, 2016). Depression Anxiety Stress Scale (Singh and Ishtaq, 2015; Sivan, 2016; Samaranayake, 2019 & Sharma, 2019). Professional Life Stress proforma (Iqbal et al., 2019). Stress Management Questionnaire (Gupta et al., 2022). Zung Scale for Stress (Kulkarni, et al., 2021). Perceived Stress Scale (Chatterjee et al., 2017) and others. The sample size varied from 113 to 635. Thirteen studies which had reported the addiction among university students in India. The sample sizes of the studies varied from 100 to 1300. The instruments utilized included AUDIT (Inderjit, 2015; Tiwari, 2018;Verenkar and Vaz, 2018 & Baba, 2019). Pre-designed questionnaire (Anuradha, 2021). Modified WHO questionnaire (Datta, 2015 & Haldar, 2021). Pretested, and pre-validated questionnaire (Adhya, 2021; Goel et al., 2020; Sharma and Bhattacharjee, 2021 & Mohan, 2021) and Daily use of tobacco, alcohol, or other drugs (Pattnaik et al., 2020). A total of five studies identified those who report Suicide thoughts or ideations. Some questionnaires had been utilized to assess suicide like Functional Assessment of Self Mutilation (Kharsati, & Bhola, 2015). The Suicidal Ideation Scale (Desai et al., 2021). Modified Scale for Suicidal Ideation (Cherian et al., 2022). Beck's Suicide Intent Scale (Bathla et al., 2022) and Adult Suicidal Inventory (Banerjee, & Chatterjee, (2019). The sample size varied from 258 to 890 respondents.

Studies that have assessed Depression among undergraduate university students of India Table No: 1

S.No	Author (s) Year	Aim of the Study	Sample Size and Method	Instrument	Conclusion
1	Kumar et al., 2013	To assess the prevalence of depression and its associated factors among students in Karnataka.	400, stratified random sampling	Beck Depression Inventory	Depression is extremely prevalent among university students and the prevalence was significantly more among those with family problems and a family history of depression.
2	Devi et al., 2013	To examine the prevalence of depression among college students in Pondicherry.	235, stratified random	Beck Depression Inventory	The prevalence of depression was significantly more among those with family or relationship problems and students put in the hostel.

3	Baste and Gadkari, 2014	To assess stress, predominant stressor and the effect of music on perceived stress.	290, random sampling	Quick Inventory of Depressive Symptomatology	The medical curriculum is associated with increased stress in students of India. Music can be used as a simple, affordable and efficient therapy for stress.
4	Faizal et al., 2015	To describe the presence of depression, anxiety and stress among medical undergraduate students.	353, convenience	PHQ-9	More than half of the undergraduate students were found to be affected by depression, anxiety and stress.
5	Sidana et al., 2014	To find the prevalence of depression in medical students and its various psychosocial factors causative to depression.	237, stratified random	PHQ-9	Year of study and academic performance of students had a statistically significant association with depression. It was also noted that students were hesitant to get medical attention for depression symptoms.
6	Verma et al., 2016	To check the predictors of depression among first-year undergraduate students of India.	100, convenience	Hamilton Depression Rating Scale	The study showed no evidence of a connection between the incidence of depression and past history of depression, family history of mental disease, kind of social support, family structure, number of siblings, or education of parents.
7	Venkatesh et al., 2017	To study the prevalence of depression among adolescent medical students and to study the other co-existing psychological symptoms.	215, convenience	Kutcher Adolescent Depression Scale	Out of 215 students, 30 were identified as depressed and they also had other co-existing psychological symptoms.
8	Dawood and Hashmi, 2018	To determine the prevalence of depression and to determine the sleep-wake pattern among university students.	128, convenience	Depression Anxiety Stress Scale	Depression was higher among females compared to males. Users of social networking websites had a slightly greater rate of depression, albeit not considerably.
9	Prabhu et al., 2018	The prevalence of depressive symptoms and its associated factors among college-going students.	400, convenience	Beck Depression Inventory	The prevalence of depression is quite high in students of Private Medical College as revealed by this study.
10	Sahu et al., 2013	To determine the prevalence of depression among medical students and to study contributing risk factors for the development of depression.	421, convenience	University Student Depression Inventory	About one-fourth of university students were suffering from mild depression. Along with academic factors certain socio-demographic and family-related factors were significantly associated with depression among study subjects.
11	Amritha et al., 2020	To assess the burden of stressors and their correlation with anxiety and depression among undergraduate female students.	400, stratified random sampling	Hospital Anxiety Depression Scale	There was no significant difference between boys and girls with anxiety or depression. A significant correlation between stressors and the Hospital Anxiety and Depression Scale has been observed The findings highlight the need for counselling and support services for vulnerable students.
12	Sarkar et al., 2020	To assess depressive symptoms among M.B.B.S students of different semesters and to find out the coping strategies of depression among the study	183, convenience	PHQ-9	The overall depression reported by the respondents was 41.1% of which 15.0% had mild and 26.1% had moderate-severe depression. The study showed more proportion of females had depression than males,

		population.			but the highest mean depression score was found among females.
13	Deb et al., 2021	To investigate the prevalence of depression among students at Pondicherry University across gender, academic stream, semesters, academic achievement, and family income.	384, convenience	University Student Depression Inventory	The results indicate that though the majority of the students are doing well, a proportion of them are severely depressed. Those who were in their earlier phase of education and belongs to social science and humanities departments, performing poorly academically, and from low socioeconomic class reported much more depression than the others.
14	Hassani et 2021	To study the prevalence of psychological mood disorders and their association with some factors.	442, stratified random sampling	Depression Anxiety Stress Scale	A substantial proportion of medical students are suffering from depression, stress, and anxiety. Ageing, female sex, being overweight, and obesity are all important co-morbidities.
15	Shamsuddin al., 2021	The purpose of the study was to determine the correlations between depression, stress, and anxiety among university students and to gauge the prevalence of each.	506 stratified random	PHQ-9	The prevalence of anxiety is much higher than either depression or stress, with some differences in their correlates except for age.
16	Jamshidi al., 2022	To study the incidence of mental illnesses (depression, social dysfunction, anxiety, and somatic symptoms) and some of their affecting variables among freshmen at Ahvaz Jundishapur University.	781, convenience	Hamilton Depression Rating Scale (HDRS	27.9% of students have been suspected of some degree of mental disorders. The act of learning and adjusting to the new environment of university can exacerbate psychiatric illnesses, particularly anxiety and sadness among students.
17	Ibrahim et al., 2022	To explore the prevalence of depression in undergraduate university students.	305, convenience	Beck Depression Inventory and Patient	The results of this study suggest that undergraduate university students suffer depression rates that are significantly greater than those observed in the general population.

Studies that have assessed Anxiety and Stress among undergraduate university students of India Table No: 2

18	Bassi et al., 2014	To assess the anxiety levels among the new MBBS students and to evaluate a correlation between BMI and anxiety levels.	477, purposive	Hamilton Anxiety Scale	Anxiety is present in newly admitted MBBS students varying from mild to severe form. When compared to males, female students' anxiety levels were much higher.
19	Singh and Ishtaq, 2015	To find the predictors of anxiety and stress among undergraduate students & their socio-demographic correlates.	352, stratified random	Depression Anxiety Stress Scale 42	More than half of the undergraduate students were found to be affected by anxiety and stress. There is a need for the counselling services to be made available to the students in the college to control this morbidity.
20	Chandavarkar, 2017	The study examines the phenomenology of anxiety symptoms in university students at two Tamil Nadu universities and relates these symptoms to self-perception of performance.	211, stratified random	Generalized Anxiety Disorder Scale (GAD-7)	Anxiety, attentional, and depressive symptoms were highest in third-year undergraduate students. Students with lower perceived performance were significantly more likely to be female, depressed, or older.
21	Samaranayake, 2019	To assess the satisfaction with life among undergraduate college students in Haryana and identify associations with depression and anxiety disorders.	409, convenience	Depression Anxiety Stress Scales-21-item	A significant proportion of students surveyed in this study have clinically significant depression and anxiety. The rate of depression and anxiety among undergraduate college students was

				16.9%. Female students had high rates of depression and anxiety as compared to male students.
22	Saravanan, 2019	To identify the prevalence of anxiety among students attending private universities students. in north India.	143, stratified random sampling	Beck Anxiety Inventory	Overall, depressed and anxious students were found to experience more stress and react differently to stressors compared to non-depressed and non-anxious students. It was found more females evidence anxiety as compared to male students.
23	Kunwar, 2021	To determine the prevalence of anxiety and stress, among the undergraduate students of Goa and its association with socio-demographic characteristics.	277, purposive	Hospital Anxiety Depression Scale.	The higher level of psychiatric morbidity anxiety 41.1% and stress 27% among undergraduate university students warrants the need for strategic plans to alleviate depression anxiety and stressors right from the time.
24	Nandi et al., 2014	To evaluate the level of stress and to identify potential "stressors" among medical students in a Kolkata teaching hospital.	384, stratified random sampling	General Health Questionnaire	The stress incidence in medical students in India is high and is negatively affecting their mental well-being in the institution. Across semesters, there is a considerable change in the incidence of stress. About 60% of the female students were stressed in contrast to 50% of the males, but this observed difference was not statistically significant.
25	Sivan et al., 2016	To collate the findings relating to the prevalence of depression, anxiety, and stress among undergraduate medical students in India.	304, purposive	Depression Anxiety Stress Scale 42	Depression, anxiety, and stress affect a considerable proportion of undergraduate medical students in India. Compared to male students, female students had higher levels of stress and depression. It is necessary to make efforts to offer nonintrusive care to distressed medical students.
26	Mehta et al., 2016	To study the prevalence of mental distress among undergraduate students and to find out the correlation between mental distress and different explanatory variables among the study population.	147, simple random sampling	General Health Questionnaire	Mental distress is more in First-year students, in female students as compared to male students, hostellers as compared to day scholars, students of rural background, and students who have repeated attempts in various entrance examinations.
27	Chatterjee et al., 2017	To study the prevalence of mental distress among the undergraduate students of Medical College, Kolkata, India and to find out the correlation between mental distress and explanatory variables among the study population.	635, convenience	Perceived Stress Scale	The prevalence of mental distress was 14.5%. The following were identified as risk factors for mental distress: current occupancy, parent's employment, an attempt at the MBBS admission test, students who were unable to handle the circumstance, socioeconomic position, and place of residence.
28	Iqbal et al., 2019	To assess the Psychiatric Morbidity among undergraduate students and its psychosocial factors.	289, stratified random sampling	Professional Life Stress proforma	More than half of the respondents were affected by depression (49.7%), anxiety (54.3%) and stress (38%). Morbidity was found to be more in First-year students rather than students in 2nd year. Comparing scores between genders, women reported greater results. The higher score was closely related to one's perception of one's academic self-assessment.
29	Sharma et al., 2019	The present study was carried out to assess stress and its effect on vital parameters during academic examinations in first year students.	113, convenience	Depression Anxiety Stress Scale 42	It was observed that academic examinations for students are stressful and produce changes in vital parameters which may affect their academic performance. Female students reported

				more stress as compared to male students. Academics and examinations are the most powerful stressors in undergraduate students.
30	Kulkarni, et al., 2021	The study was undertaken with the objectives to assess the overall mental health status and magnitude of Stress and depression of college going students.	354, stratified random sampling	Zung Scale for Stress	Among 354 students included in the study, poor mental health status and anxiety were found in 25.1% and 40.8% of subjects. This call for internal counselling services and a mentoring programme at medical colleges is intended to aid in the early identification and treatment of these issues, which will ultimately assist to enhance academic performance and curriculum.
31	Gupta et al., 2022	The study was undertaken to quantify the magnitude of various sources of stress among students of a medical college in Kolkata, West Bengal, and also to assess the reliability of the Medical Students' Stressor Questionnaire (MSSQ-40) in this context.	211, purposive	Stress Management Questionnaire	The overall prevalence of stress was 91.1% and the vast majority of students (94.9%) were stressed due to academic reasons. Students who do not speak the local language well, who transitioned from secondary school to medical school, and those who live in hostels have been reported to face greater levels of academic-related stress.

Studies that have assessed Substance Use among undergraduate university students of India
Table No: 3

32	Tiwari et al., 2018	To estimate the prevalence of cigarette smoking, alcohol and tobacco consumption among undergraduate students and ascertain the factors associated with substance use in this population.	224, Random Sampling	AUDIT	The prevalence of regular drinkers was 28% only, and of occasional drinkers was 47%. In tobacco users prevalence of regular chewers was more than 40% of occasional chewers. Peer pressure, the same habit in the family, and stress and worry are the three main factors that lead to the onset of any addiction.
33	Anuradha et al., 2021	To assess lifestyle behaviour and addiction problems among undergraduate medical students and to compare lifestyle behavioural factors between gender.	200, convenience	Predesigned questionnaire	The medical undergraduate students had a high prevalence of risk factors such as poor nutrition, inconsistent eating patterns, and physical inactivity.
34	Adhya et al., 2016	To find out the prevalence of alcohol abuse including the underline cause of alcohol intake among undergraduate students and its consequences.	244, Randomized single-blind control study	Pretested and prevalidated questionnaire	Strong relationships exist between alcohol abuse and stress and depression in the students. Two other causes of alcohol usage include living in a hostel and having a family history of alcohol intake.
35	Datta et al., 2015	To estimate the prevalence of substance abuse and to find out some socio-economic factors that may be associated with substance abuse.	800, Random Sampling	Modified WHO questionnaire	The overall prevalence of substance use was found to be 57%. Tobacco (57.4%) was the most used substance followed by alcohol (27.3%) and cannabis (10.4%). The study showed that substance abuse was common among undergraduate medical students and the abuse rate was among higher-year's students.
36	Inderjit et al., 2015	To assess and compare tobacco and alcohol usage among male engineering and medical students in Davangere city, India.	230, Random sampling	AUDIT	The main reason for alcohol consumption was to get relief from tensions. Final year students of medical background and 1st years students from engineering had more influence on tobacco and alcohol consumption habits. Academic demand, work pressure, examination stress, and anxiety were found to be significantly influencing

					tobacco and alcohol habits among both medical and engineering students.
37	Jaiswal et al., 2017	To compare substance use and abuse in undergraduate medical students of tertiary care.	100, Random sampling	Structured epidemiological survey questionnaire based on DSM-IV criteria	One-fourth of all students reported nonmedical substance use. The substances used were alcohol, tobacco smoking, caffeine, etc. Due to their accessibility, alcohol and tobacco were the most often used substances.
38	Verenkar and Vaz, 2018	To find out the alcohol prevelance among graduate adolescentsand vulnerable to alcohol-related harm from a same volume of alcohol compared to other age group individuals.	315, Random sampling	AUDIT	The prevalence of alcohol consumption was found to be 39.4%. Prevalence among female students was higher (40.6%) compared to Male students (38%). Educating people about the negative consequences of alcohol use, providing counselling to help with study stress, fending against peer pressure, etc.
39	Pattnaik et al., 2020	This study aims to screen for depression and Alcohol among undergraduate medical students and to find out the various risk factors associated with it.	902, convenience	Daily use of tobacco, alcohol, or other drugs	About two third of the students (67.1%) were found to have a certain level of depression and 35% of the students are taking alcohol. Lack of financial or family support, regular use of marijuana, cigarettes, or other illegal drugs, stress from the medical curriculum, and stress brought on by lifestyle changes were all independently linked to depression in students.
40	Haldar et. al., 2021	To find out the sociodemographic profile, prevalence, causes and types of substance abuse among undergraduate medical students of KPC medical college, Kolkata.	452, stratified random sampling	Modified WHO questionnaire	Prevalence of substance abuse was found to be 60.26% and it was predominately high among male students (75.09%). Alcohol (77.29%) was found to be the most common abuse followed by cigarettes (76.56%), gutkha (20.51%) and drugs (13.55%). Academic pressure and curiosity were the leading initiating elements.
41	Mohan et al., 2021	To find the prevalence of smoking and its associated factors among undergraduate university students of Kerala.	518, stratified random sampling	Pretested questionnaires	Findings show that 67% of male students and 46% of female students are smoking. A substantial proportion of engineering and medical students in Kerala continue to smoke. Smoking cessation programs are warranted in various schools and colleges in Kerala.
42	Sharma and Bhattacharjee, 2021	To find out the perception of alcohol intake and to assess the perception of alcohol intake regarding global positive transformation among university students.	300, Random sampling	Pretested Questionnaire	(61.66%) students' parents do not drink alcohol, Study concludes that undergraduate students are showing Alcohol is a powerful agent that makes the global positive transformation.
43	Baba et al., 2019	To find out the prevalence and pattern of substance abuse and its association with various sociocultural and demographic variables.	1300, Multi-stage sampling procedure	AUDIT	The overall lifetime prevalence of substance abuse among college students was found to be 31.3%. Comparing the prevalence of substance usage among male and female students, it was clear that the former was substantially greater (37.5% against 19.6%, respectively). The most often abused substance was tobacco (22.5%), followed by solvents (10.0%). The high prevalence of drug addiction among college students contributes to serious issues in this population.

44	Goel et al., 2020	To estimate the prevalence of alcohol and tobacco use, assess the knowledge and attitudes towards this issue, and identify factors associated with substance use among undergraduate students in India.	150, simple random sampling	A pre-tested, self-report, anonymous questionnaire	The prevalence of alcohol and tobacco use among undergraduate students was 16.6%. Positive family history of substance use and early age of initiation for tobacco and alcohol were associated with a greater difficulty to quit the habit. Over 90% of study participants felt that substance use adversely affected their skills.

Studies that have assessed Suicide among undergraduate university students of India Table No: 4

45	Kharsati, & Bhola, (2015).	To explore the occurrence, methods, characteristics and reported reasons for (NSSI) Non-suicidal self-injurious behaviour among a sample of college students in India	470, Purposive	Functional Assessment of Self Mutilation (FASM) questionnaire.	31.2% of the sample reported NSSI in the past year. The most common method was self-hitting (15.2%) followed by cutting or carving skin (13.2%). There were no appreciable gender variations in the incidence of Non-suicidal self-injurious behaviour, and the majority of self-injurers supported a variety of techniques. The most commonly endorsed reasons for NSSI were 'to feel relaxed and 'to get control of the situation and 'to make others angry' and 'to avoid college, work, or other activities.
46	Desai et al., 2021	Looking at the background vulnerability and increasing incidence of suicides among medical students, more information on its burden and causes is needed.	506, convenience	Suicidal Ideation Scale (SIS)	The prevalence of suicide ideation is alarmingly high among medical students. Researchers have identified a number of risk factors or predictors for suicidal thoughts, including academic stress, prior maltreatment, stress brought on by family expectations, and strained relationships with friends and classmates.
47	Cherian et al., 2022	To explore the awareness about suicide support services and preferred service options during a suicide crisis among college-going young adults.	890, stratified random sampling	Modified Scale for Suicidal Ideation (MSSI)	Most commonly listed options are supported from family members, peer groups, counselling and psychiatric consultation. It was found that there is a low level of awareness about suicide assistance options among young Indian adults.
48	Bathla et al., 2022	To evaluate suicidal intent, anxiety, and depression among undergraduate students and to find out the various areas of stress.	258, random sampling	Beck's Suicide Intent Scale (BSI)	Persistence of suicidal intent, anxiety and depression in undergraduate students. Male students are more prone to commit suicide. Nearly all research participants stated having suicidal intent. Diverse academic and nonacademic reasons suggest a need for modifying the current education system and creating a stress-free learning environment
49	Banerjee, & Chatterjee, (2019).	To explore whether, suicidal ideation and mental well-being differ significantly in terms of 1st semester and 3rd-semester students of medical, engineering and general field.	444, stratified random sampling	Adult Suicidal Inventory	The findings revealed that the students of 3rd semester are more stressed and prone to suicidal ideation than 1st-semester students as well a significant positive correlation exists between academic stress and suicidal thoughts both connected to mental health, however, the latter is inversely correlated with the former.

Discussion

According to the WHO, in 2015 the prevalence of anxiety and depression in the world population was estimated at 3.6% and 4.4%, respectively (World Health Organization, 2017). Therefore, it was suggested that anxiety and depression disorders affect a much higher percentage of the university population than the general one. The present systematic review suggests that depression affects roughly 32% of undergraduate university students along with academic factors certain socio-demographic and family-related factors were significantly associated with depression (Sahu et al.,2013; Faizal et al., 2015). Female students were more likely to be affected by depression as compared to male students (Dawood and Hashmi, 2018; Sarkar et al., 2020). Depression was significantly more among those with family or relationship problems and students put in the hostel and the year of study and academic performance of students had a statistically significant association with depression (Devi et al., 2013). It was also observed that students were reluctant to seek help for depressive symptoms (Sidana et al., 2014). This might be due to various predictors like lack of social interaction, unfamiliar types of exam schedules, a lower grade than anticipated, lack of vacation, love failure or breakup, language problem, family problems, and family history of depression (Kumar et al., 2013; Lloyd et al., 2019). The reported rates of depression in the present review among Indian studies varied from 7.3% to 38.5%. Even with Beck Depression Inventory, the most commonly used instrument used for the assessment of depression in Indian studies, the rates of depression ranged from 8.53% to 40.9% (Ibrahim et al., 2022; Dyrbye et al., 2017). Concerning stressful life events, students who had faced one or more stressful life events in the last 6 months were 1.5 times more likely to have depression as compared to those who had not faced stressful life events in the last six months this might be due to the death of close family members/ relatives or friends; economic crises or family problems (Venkatesh et al., 2017).

Anxiety disorders are the most prevalent common psychiatric disorders and affect approximately one-third of undergraduate university students in their lifetime (Wittchen, & Jacobi, 2015; Bandelow, & Michaelis, 2015). Together with depression, they are the most reported mental disorders by university students and may significantly impact academic performance (American College Health Association, 2018). These mental disorders are more common among females than males (Bassi et al., 2014; Samaranayake, 2019). Genetic, neurobiological, and psychosocial stressful events have been identified as possible causes of the highest prevalence in females (Bandelow, & Michaelis, 2018). It is also important to highlight those cultural variables as familial, religious, geopolitical, and economic (i.e., low, middle, or high-income countries) factors that can influence the development and reporting of mental health symptoms among university students (Hofmann et al., 2019).

The results of this review showed a prevalence of 24.5% for anxiety and 26.1% for depression in university students (Singh and Ishtaq, 2015). The present systematic review suggests that more than half of the students suffered from considerable stress. The higher level of psychiatric morbidity anxiety is 41.1% and stress is 27% among undergraduate university students (Kunwar, 2021). Stress can be conceptualized in various ways and diversity exists in the manner in which stress has been operationalized. Some amount of stress is adaptive and helps to trigger the hormonal response needed to counter situations that are challenging emotionally and physiologically. A comparison of male and female students suggested that female students were more likely to suffer from depression and stress, as compared to male students (Sivan et al., 2016). This is in line with previous literature which suggests that female students have higher rates of symptoms of depression, anxiety, and stress (Nandi et al., 2014). Hostellers as compared to day scholars, students of rural background, and students who have repeated attempts in various entrance examinations are more prone to stress as compared to the students who are coming from their respective homes (Mehta et al., 2016). This comprehensive systematic review found alarmingly high rates of depression, anxiety, and stress. This reflects that medical students are likely to experience a considerable degree of psychiatric morbidity. The genesis of anxiety, depression, and stress among university or college students may be multifactorial (Brahmbhatt et al., 2021). The inability to deal with the huge curriculum; repeated examinations; high demands from parents, teachers, and patients, and time restrictions for pursuing their alternate interests may be contributory. Depression, anxiety, and stress among undergraduate university students are often under-recognized and undertreated (Sivan et al., 2018). The stigma

surrounding mental health issues often deters students from seeking any kind of professional help (Menon et al., 2015).

In the present systematic review, it was found that the overall substance use prevalence among undergraduate university students in India is about 26.76%. Alcohol use seemed to be the most common substance use, followed by tobacco, primarily in smoked form (Haldar et. al., 2021; Pattnaik et al., 2020). Cannabis use was present in about 11% of the sample (Datta et al., 2015). Family history of alcohol consumption & living in a hostel is two other factors accountable for alcohol use (Adhya et al., 2016). Substance use was generally more common in male students than in females (Verenkar and Vaz, 2018). The most common reason behind starting any kind of addiction was peer pressure and the second reason was the same habit in family and lastly stress and anxiety (Tiwari et al., 2018). Alcohol consumption was to get relief from tensions, first years students had more influence on tobacco and alcohol consumption habits. Academic demand, work pressure, examination stress, and anxiety were found to significantly influence tobacco and alcohol habits among undergraduate university students in India (Inderjit et al., 2015). Alcohol and tobacco use reported in the present systematic review was higher than in the previous one. The use of substances has multiple consequences for university/ college students, the use of these substances may lead to regular and subsequently problematic use (Baba et al., 2019). The lifetime prevalence of substance abuse among college students was found to be 31.3%. Positive family history of substance use and early age of initiation for tobacco and alcohol were associated with a greater difficulty to quit the habits substance (Goel et al., 2020). However, the purpose of substances increases the chances of developing a substance use disorder afterward. Also, the use of substances recreationally may divert away attention from coursework and lead to deficient or failing academic performance. Moreover, substance use by the students may lead to an image of the profession being blemished, though it could be argued that the students are also humans who are equally vulnerable to human iniquities (Sharma and Bhattacharjee, 2021). The prevalence rates were calculated utilizing various approaches, and they may also be a reflection of real variations in the prevalence of drug use among various geographic areas or variations in samples and settings in the present systematic review.

Suicidal ideation is another serious mental disorder affecting undergraduate university students significantly (Eskin et al., 2016). Data from the WHO indicate that suicide was, in 2015, the second leading cause of death in the population between 15 and 29 years old, an age group commonly found in the university population (World Health Organization, 2017). Self-hitting (15.2%) and skin-cutting or skin-carving (13.2%) were the two most popular techniques. The most commonly endorsed reasons for non-suicidal self-injurious behavior were 'to feel relaxed and 'to get control of the situation and 'to make others angry' and 'to avoid college, work, or other activities (Kharsati, and Bhola, 2015). The risk variables or predictors for suicide thoughts were found to include academic stress, previous experience of abuse, stress resulting from familial demands, and strained relationships with friends and peers (Desai et al., 2021). Male students are more prone to commit suicide (Bathla et al., 2022). Considering that psychiatric disorders, such as anxiety and depression, are strong predisposing factors for suicide (Paula et al., 2020). The high prevalence of these two disorders may be associated with that of suicidal ideation among undergraduate university students found in this review.

Strengths and Limitations

The findings of this review need to be considered because of some strengths and limitations. The strengths include being the first review of this kind from India and using pooled analysis to derive the extent of depression, anxiety disorders, stress, suicidal thoughts, and substance use disorders among undergraduate university students. The limitations include a focus on limited aspects of psychiatric morbidity (i.e., Depression, anxiety disorders, stress, suicidal thoughts, substance use disorders), and other psychiatric morbidities were not included (I.e eating disorder, personality disorder, major mental illness, etc). The review didn't try sensitivity analysis, and it didn't try to figure out prevalence rates based on the study's origin location, or semester. The risk of publication bias and risk of bias for individual studies could also not be assessed. The study has generalizability

to the Indian context, and caution needs to be exercised while extrapolating the findings to other countries and other parts of the world.

Conclusion

In conclusion, mental disorders are common disorders that have a significant prevalence among undergraduate university students and are often neglected, especially in developing countries like India. Moreover, the high prevalence of mental disorders in university students found in this review highlights the importance of implementing strategies for prevention, intervention, and diagnosis/treatment of psychiatric disorders in this population. The present review will help the researcher to design a better research methodology and selection of tools in future studies in India on the topic related to psychiatry morbidity among undergraduate university students. There is a need to conduct multicentric studies with the same methodology and using comparable representative samples to assess whether the differences in rates of psychiatric morbidity are artifactual or are indeed present. Longitudinal studies can be conducted among undergraduate university students to assess depression, anxiety, stress, addiction, and suicide may be helpful to examine the same individuals to detect any changes that might occur over a period of time.

Conflicts of interest: The authors declare that there is no conflict of interest.

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