SYSTEMATIC REVIEW

Frequency of mental distress among medical students from selected medical colleges of Pakistan: A systematic review

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Abstract

Objective: To find out the frequency of mental distress among medical students in Pakistani medical colleges.

Method: The systematic review comprised a search on PubMed and Google Scholar databases for articles published in English language between 2004 and 2019 having the key words 'mental distress', 'medical undergraduate', 'depression' and 'anxiety'. After a four-phase scrutiny process, articles were shortlisted for detailed review. Conventional content analysis was utilised for data analysis.

Results: Of the 30 articles, 18(60%) were reviewed in detail. Distress among Pakistani medical students was reported up to 90% which is alarmingly high. Study year, financial issues and academic burden were the noteworthy causal factors. Academics and examinations were substantial stress factors and religion was the commonly adopted coping strategy.

Conclusions: Multiple studies showed evidence of an increasing rate of mental distress among medical undergraduates having various causative factors, mainly the academic burden.

Keywords: Mental stress, Medical undergraduates, Pakistani medical college, Depression and anxiety stress.

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Introduction

The World Health Organisation (WHO) defines health as "a state of complete physical, mental and social wellbeing and not merely the absence of disease".[1] Psychologically speaking, depression, anxiety and stress levels are viewed as noteworthy factors for a population's wellbeing. It was predicted that by the year 2020, depression will have become the second-most common cause of disability worldwide.[1] Failure to address these mental disorders may adversely affect individuals belonging to different walks of life.[2] This alarming situation has also been identified in undergraduate medical students in both developed and developing countries.[3] Students are the most susceptible population group facing stressful events in life, especially those attaining a higher professional education.[4] It is seen that medical undergraduate students have increased levels of mental distress compared to their peers and the general population.[5] Increasing levels of stress, anxiety and depression among medical undergraduate students has been recognised globally.[6,7] Multiple psychological morbidities have been described in literature among medical students, including stress, anxiety, social issues, depression and suicidal tendencies. Mental health has been interlinked with students' accomplishment, happiness and success.[8] A sound psychological health of students cultivates the process of learning which is necessary to produce medical graduates who are well-informed, have good problem-solving skills, and have a good approach. Hence, it is essential for any educational institution to gauge the status of students' mental wellbeing and its associated factors.

The current systematic review was planned to find out the frequency of mental distress Pakistani medical students, to explore the causes behind their distress, and to recommend what needs to be done.

Materials and Methods

The systematic review was conducted in compliance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.[9] Two reviewers were independently searched PubMed and Google Scholar databases for peer-reviewed articles on medical undergraduate students' distress in Pakistan. The following terms and their combinations were used: Pakistani, medical student, undergraduate, stress, anxiety, depression, psychological distress, anxiety disorder, mental health etc. Reference lists of the selected articles were also explored to find similar articles. Articles were first screened on the basis of titles and abstracts. Those found relevant were reviewed. The selected articles were reviewed by a second reviewer. Further articles were extracted from the reference list of the selected articles. All the identified articles were critically evaluated according to a set of predesigned questions (Table-1).

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Table-1: Critical appraisal of articles.

Questions Asked when Critically Appraising Articles
1. Is the research question relevant?
2. Is the aim of study relevant?
3. Was the research design suitable for the research question?
4. Did the research methods address the most vital potential sources of bias?
5. Did the study test an indicated hypothesis?
6. Were the data analyses done correctly?
7. Do the data rationalize the conclusion?
8. Are there any conflict of interest?

Inclusion and Exclusion Criteria: Articles included were in the English language, related to the mental distress among medical students, and published in indexed scientific journals between 2004 and 2019. They focussed on the medical colleges in Pakistan and included students from the first to the final year of medical studies. Studies based on nursing, veterinary or any other medical allied field were excluded. Conference abstracts and studies reporting additional psychological characteristics, like sleep, quality of life, and personality parameters, not linking with the prevalence of depression, anxiety, or stress, were also excluded.

Data Organization and Analysis: The extracted information from the selected articles included author(s), publication year, study design, instruments used, participants and significant findings. The two reviewers compared and discussed their findings with respect to inclusion and exclusion criteria, data extraction process and item classification, and drawing inferences from their findings. Disagreements were resolved by discussion.

Conventional content analysis was used to analyse the data. The original expressions used by authors in their article were used without any interpretations.

Results

Of the 30 articles, 18(60%) were reviewed in detail (Figure-1). Most studies (83%) were small, cross-sectional surveys intended to document frequency and association of undergraduate medical students' mental distress with academic performance and demographic variables. All the studies were conducted at a single institute except for 2 (11.1%). In methodological terms, all the studies tended to be focused on quantitative methods except 2(11.1%) which used mixed-method approach. Various tools to measure depression, anxiety and overall mental health of undergraduate medical students were. The most common of them were the Aga Khan University Anxiety and Depression (AKHUAD) scale, 21-item and 42-item Depression and Anxiety Stress scale (DASS-21 and DASS-42), the Hospital Anxiety and Depression questionnaire (HADq), Beck Depression Inventory (BDI), the 10-item Kessler (K-10) scale, the General Health Questionnaire (GHQ), the Perceived Stress Scale (PSS), and the Health Authority-Abu Dhabi (HAAD) scale. Qualitative interviews were also used. The selected studies covered both private and public medical institutions in Pakistan (Table-2).

Prevalence of mental distress among medical undergraduate students in Pakistan: The prevalence of depression ranged from 20% to 90%. Sheikh et al.[10] reported highest frequency of 90%, Khan, et al.[11] found it to be 70%, Rab F. et al. reported anxiety 44% and depression 20%,[12] while Sohail et al.[13] reported severe stress in 20% students. A multi-centre study found 45.5% stress, depression and anxiety among medical students.[14] Additionally, Jadoon, et al.[15] reported 43.8% prevalence, while Rizvi F. et al. reported the prevalence of depression, anxiety and stress to be 40.9%, 74.2% and 50%, respectively.[16]

Factors associated with mental distress

Academic burden: Medical curriculum was recognized as the most significant factor for stress development among undergraduate medical students.[14,17-22] The main academic-related stressors were increased frequency of examinations, large content, hectic routine (47.4 %), lack of guidance from seniors (47.2 %),[18,21] and consecutive boring lectures.[19] Sohail et al.[13] found more stress in students with poor academic performance. The

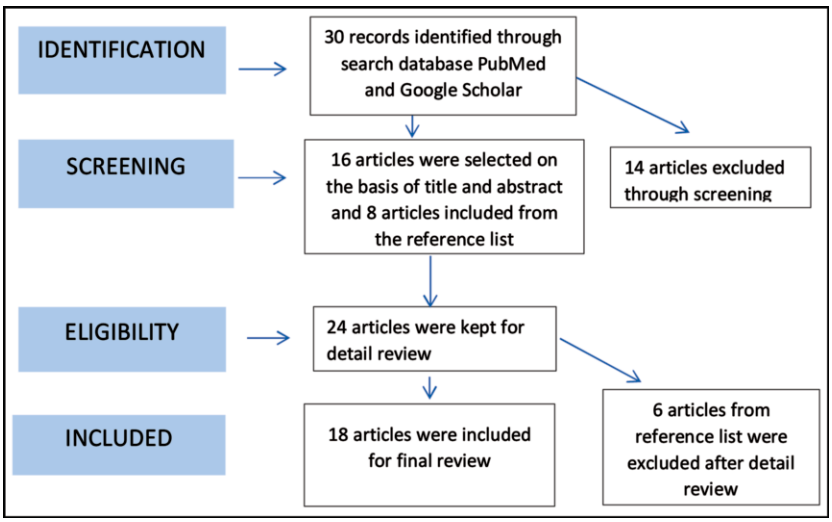

Figure-1: Flowchart of the search process.

Table-2: Brief summary of the reviewed articles.

S.#	Author/ year	Study design	Sample	Tool	Prevalence of anxiety and depression	Significant association
1	Khan et al (2006)[11]	Cross- sectional	Medical Undergraduates (public)	AKUADS	70%	Substance abuse Family history Loss of loved ones in past few years
2	Imran (2016)[18]	Cross-sectional	All years	GHQ-12	23.3 % to 52.3 %	Academic related (71.9) were residing in a dormitory More in males health-related stressors
3	Azad et al (2017)[32]	Cross Sectional	150 students All years Private	BDI	Mild =37.46% Moderate=14% Severe=19%	Exams Females Year of study
4	Shaikh et al (2004)[22]	Cross-sectional	All years 264	Self -administer Questionnaire	90%	Academic Lack of leisure activities & communication skills Males Seniors students
5	Rehmani (2018)[25]	Cross-sectional	MBBS (249) Nursing Dental hygiene Midwifery	AKUADS* SSI	Depression & Anxiety= 47.9% Stress= 57.4%	More in female students
6	Shah (2010)[21]	Cross-sectional	MBBS (161) First & second year students	Perceived stress scale	PSS	Higher in females Academics Social concern
7	Hashmi et al., (2014)[14]	Cross-sectional	Multi-centered (six medical school) Year= 1,2,3,4,5 n=437	AKUADS*	45.50%	Annual examination failure Number of hours of study Family & past history of depression
8	Rab, Mamdou, & Nasir (2008)[12]	Cross-sectional	Only females n=87 Year=1,2,3,4,5	HADS*	Anxiety: 43.7% Depression: 19.5%	More likely in students who had a recent tragic event. Less likely in students who have more friends. 1st & 2nd-year students were more stressed than other students.
9	Jadoon et al (2010)[15]	Cross-sectional	n=482 Year=1,2,3,4,5	AKUADS*	43.89%	More likely in female, Lesser in 4th year students than other students.
10	Rizvi et al. (2015)[16]	Cross-sectional	Multi-centered n=66 Year=1,2,3,4,5	DASS-42*	Depression=40.9% Anxiety =74. 2%, Stress=50%	More likely in females Private medical college students
11	Sohail (2013)[13]	Cross-sectional Mixed method	Quantitative sample=120 Qualitative sample=12 Year= 1st year	AKUADS Focus group	Severe stress=20.8%	More likely in students with poor academic performance
12	Inam et al. (2003)[24]	Cross-sectional	Private medical college n=189 Year=1,2,3,4	AKUADS	60%	Higher in 1st & 2nd year than other students
13	Azim & Baig, (2019)[17]	Cross-sectional Mixed method	Private medical college N= 188 Year=1,2,3,4,5	DASS-21 Focus interview		Academic Burden Lack of leisure activity Lack student support
14	Sajid et. al. (2015)[15]	Cross-sectional	Private medical college N=470	PSS		Academic Barrier to seek help, more in final year.
15	Chaudhry et al. (2017)[23]	Cross-sectional	Private medical college	HAAD	(26.8%) borderline abnormal and 94 (37.60%) had symptoms of anxiety. 94 cases of anxiety	38 (40.4%) were males and 56 (59.6%) were females.
16	Kumar et al (2019)[28]	Observational study Multi centered	Private medical colleges (Final year medical students)	DASS-21	Depression 57.6 % Anxiety 74 % Stress 57.7 %	Females were suffering from more stress, depression, and anxiety than their male class fellows. Stress and depression are more common in public colleges while, anxiety is more prevalent in private medical college students.
17	Akhtar Ali et al (2019)[36]	Comparative cross-sectional study	1st, 2nd and 3rd year medical students	DASS	Depression and anxiety not significantly associated with examination systems.	Various other stress causing factors like examinations and college environment with their coping mechanisms were identified were by medical students.
18	Sarwat et al. (2015)[20]	Cross sectional study	All years	Modified Kessler Scale	Stress 57.4%	International medical students harbour sociocultural and academic stressors.

dissatisfaction with examination systems was important stressor for medical students.[23]

Year of study: The prevalence of stress in medical students varied according to the year of study. Rab et al.,[12] Khan et al.[11] and Inam et al.[24] explored the occurrence of mental distress among all study years of medical undergraduate students and found increased mental distress among first-year and second-year students compared to students of senior years. Jadoon et al.[15] found lower stress among fourth-year students, while in a study by Sajid A. et al., final-year students were the most stressed.[19]

Gender: All studies showed that mental distress is more prevalent in female students compared to the males except for 2(11.1%) studies in which male students were found more distressed.[18,22]

Poor lifestyle: Poor lifestyle is another factor identified by 3(16.6%) studies.[17,18,22] Lack of time and the hefty burden of studies did not allow medical students to dedicate sufficient time for self-care. They suffered from sleep deprivation and there was hardly any time for leisure activities. This had an additional adverse effect on the mental wellbeing of the students.[17,19]

History of distress: Khan et al.[11] found association of substance abuse, family history of depression and anxiety and those who suffered family loss in the preceding one year with mental distress.[11] Lack of communication skills[22] meeting family's expectations of good academic performance, home sickness and psychosocial issues[25] were also noted. High expectations of parents and family, increased frequency of assessments, extensive academic curriculum, difficulty sleeping, concerns about the future, being alone and the journey to become a highest medical professional were found to be the most common sources of stress and anxiety.[21]

Social factors: Medical school year, experiencing failure in annual examination, hours of study, family history of depression and history of depression[14] were found more likely in students who underwent a recent tragic incident. It was found less common in students who had a big circle of friends.[12] Socially, the common reasons of high levels of stress and anxiety included the pressure of clearing assessments, the pressure to meet family's expectations, fear of walking into the practical world of medicine, and frustration with the administration.[26]

Coping Strategies used by students: Appointment of student and health counsellors could help identify stress factors in the students. The identification of these factors at an initial stage would protect these students from serious psychological problems.[27] Sports, music, hanging out with friends, sleeping or isolating oneself were some of the common coping mechanisms. Students preferred to talk to their peers when required to alleviate their anxiety and stress. They demanded recreational activities on campus, a revised and student-friendly academic schedule, improved counselling facilities and a much better student-teacher relationship.[22]

Different coping strategies were adopted by the students to handle the stressors, which included positive reframing, religion, emotional venting out etc.[28]

A recent study reported that the awareness and utilisation of spiritual wellbeing was a beneficial coping strategy among medical undergraduate students.[21] Students suggested that assessments should be scheduled with suitable study gaps so that the students may appropriately prepare for them. Students also revealed in focus group discussions (FGDs) that many of them did not attempt to ask for help even if they found themselves stressed, because there was the fear of stigma. It is critical to offer better opportunities for sports and recreational activities, e.g., monthly movies, indoor and outdoor games, gymnasium, celebration of events, and making the health of the students a priority.

Students also emphasised finance and affordability of their education as an important matter. There was a need to incorporate scholarship opportunities for the deserving and capable students and provide access to e-books and journals which would provide relief and benefit to the students.[16]

Discussion

Worldwide medical undergraduate students are at increased risk of mental distress, and reduced satisfaction in life.[26,29,30] Medical training harbours various risk factors for mental distress, including academic load, deficiency of proper sleep, nominal physical activities, and minimal time for social activities. The current systemic review showed that mental distress in Pakistani medical undergraduate students is as high as 90% which is worrying.[22] Although some amount of stress becomes a driving force for better learning performance, extreme academic load of the medical curriculum may have detrimental effects on susceptible students which further reduces their ability to learn.[31] Examinations are a significant assessment tool, but the system of evaluation, curriculum contents, teaching, and learning methods may be adapted accordingly to address this stress associated with exams.[17]

The review also found that mental stress was associated with the year of academic studies. Most of the studies in this review found that mental distress is more common among

initial years of study. The reason behind this is that many students might experience the challenge of being disconnected from their social circle and have trouble in settling down in a new environment along with a hectic academic schedule.[12,17] Mental distress is also found higher in third year students. Rab et al.[12] argued that students are liable to suffer from depression during their early clinical years when they undergo rotations in the hospitals.

The stress occurrence was higher among female students.[21] Female students are more prone to mental distress compared to males because it is seen that women get worried easily than men.[32] Females are usually more competitive than males and are more concerned about their performance in exam performances.[16,28]

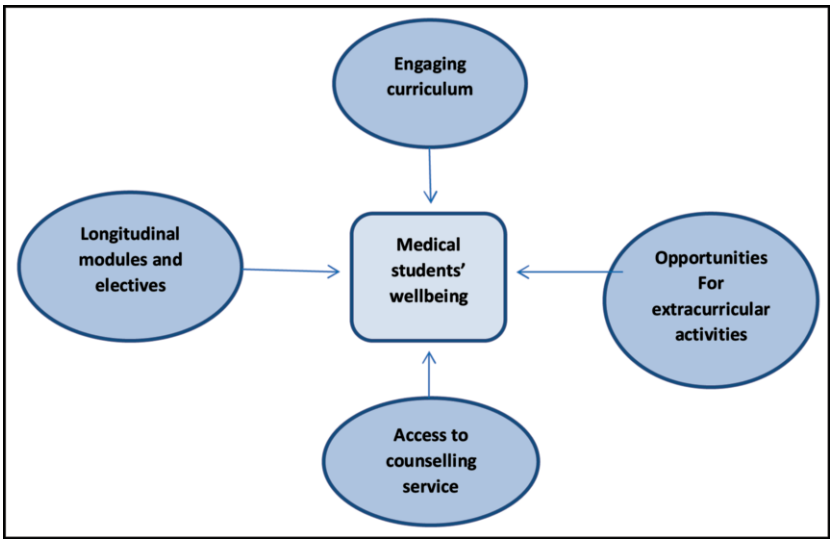

Figure-2: Recommendations for medical students' wellbeing.

Due to increased academic demands of medical education, many medical students are not able to find time for physical activities.[33] People who have least physical activity have increased risk of mood disorders, like depression, anxiety and stress.[34] Students from Pakistani medical schools face a similar state. Students can be encouraged to improve their wellbeing with regular exercise and sufficient sleep. Students can be given on-campus opportunities for sports and cultural events to minimise mental distress.[35]

Different coping strategies were adopted by the students to manage the stressors, like positive reframing, religion, emotional venting out etc. Effective and suitable managing strategies are important to reduce stressful situations. Awareness programmes about stress and mental health services on the campus will provide students a comprehensive insight about signs of anxiety and depression, and how to handle it better.[28] Stress can be primarily prevented by emphasising upon mental health literacy. This can be done by conducting workshops on time management, stress management, coping skills training etc. Secondary prevention can be done by providing timely and productive support to affected students.[35]

Recommendations

Based on literature review, a set of recommendations may help improve the situation (Figure-2). Firstly, students who get enrolled in the medical undergraduate programme can be oriented about the early symptoms of anxiety and stress and how to seek help in the hospital premises. Usually fresh medical undergraduate students are unaware about the route and access options of mental and physical healthcare. Hence, providing them information will support them to seek appropriate help.

An engaging curriculum can be followed offering different styles of learning, like small group tutorials, team-based learning and flipped classrooms.

Students should be provided periodic opportunities to voice their thoughts so that they may give their perceptions on curriculum committee meetings. Longitudinal modules on communication skills and stress management should be part of the curriculum so that medical students are well aware of their welfare during their training course. Peer-mentorship programmes may help students get suitable support from seniors. Peer mentorships will be able to perceive problems sooner and bring them under the care umbrella earlier.

Furthermore, mental healthcare services can be made readily available to the students. This may include practical steps, such as having a dedicated clinic on the campus or having alternative means of communication through a helpline or e-mail.

Conclusion

A considerable number of medical undergraduate students suffer from mental distress. Stakeholders, such as medical educationists and parents, need to be aware about the indicators of distress among medical undergraduate students in addition to the students themselves. Effective measures should be undertaken to provide help to distressed medical undergraduate students in an appropriate manner. Further research is needed on this subject, and multi-centre longitudinal studies would help to provide better answers about psychological distress among undergraduate medical students in Pakistan.

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