Scoping review of barriers to mental health service utilization among medical students and residents

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Abstract

Background: Undergraduate medical students and resident doctors face high rates of anxiety, depression, and psychological distress. Despite these issues, their mental health service utilization is very low; this can be attributed to various structural and attitudinal factors. The current research aims to highlight such barriers to accessing mental health care and bridge the existing research gap. **Methods:** A literature search on barriers to mental health treatment for medical students was conducted involving PubMed, Web of Science and Scopus databases, along with bibliographic search, from inception till 30th April 2023 to identify relevant English records with full-text available. Studies not involving medical students or not assessing treatment barriers, and non-original papers were excluded. **Results:** Our comprehensive literature search yielded 12 articles. We identified six key themes concerning barriers to accessing mental health services: stigmatization, attitudinal barriers, confidentiality concerns, time constraints, lack of knowledge, and access to services. **Discussion:** Stigmatization was found to be a prominent barrier, while attitudinal barriers included beliefs that mental health problems are a sign of weakness and should be managed independently. Medical students and residents also worried about breaches in confidentiality affecting their interpersonal relationships and career prospects. Time constraints due to demanding academic and clinical responsibilities also posed challenges in seeking mental health care. These critical barriers to mental health service utilization among medical students and residents can be addressed through mental health awareness campaigns in college campuses, universal mental health screening in medical schools, providing internet-based services and collaborative programs with local mental health professionals to widen the treatment options.

Keywords: Medical Students, Resident Doctors, Mental Health, Mental Health Services, Depression, Stigmatization, Attitudinal Barriers, Confidentiality, Time Constraints, Psychological Well-being

Date submitted: 22-Feb-2024

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Citation: Singh Brar S, Sai Maddipatla A, Gupta S. Scoping review of barriers to mental health service utilization among medical students and residents. Educ Health 2024;37:164-177.

Online access: www.educationforhealthjournal.org
DOI: 10.62694/efh.2024.16

Published by The Network: Towards Unity for Health

Background

Medical students and residents have elevated psychological distress, depression, and suicide rates compared to the general population.[1–7] Their academic journey in medicine involves significant burnout, mistreatment, competitiveness, a pressure to excel in career or performance pressure, alongside a fear of uncertainty or low optimism about the future.[8–10] Preconceived notions and cultural factors, concerns about financial stability as future doctors, the high-intensity workload, the difficulty of their studies due to the necessity of memorization, and the extensive workload all play a role in shaping their health and coping mechanisms.

Burnout among residents is prevalent, with 27–76% residents experiencing this at some point of their training. The longer years of study required in medicine, time-demanding nature of the field, structure of the hospital hierarchy, challenging job situations and interpersonal relationships likely contribute to higher rates of depression among medical students and residents.[8,11]

Studies have correlated undiagnosed and untreated depression in medical students and residents with cognitive dysfunction, diminished quality of life, an elevated risk of errors in patient treatment, and suboptimal patient care.[12–17] Despite the substantial mental health challenges faced by medical students and residents, the utilization of mental health services remains dismal, with rates ranging from 12–40%.[3,18–20]

Attitudinal and structural barriers impede medical students' and residents' access to professional mental healthcare. These barriers include stigmas, time constraints, confidentiality concerns, underdiagnosis, and limited treatment access.[3,18–20] The available literature on barriers to mental health service utilization among medical students and residents is scattered and predominantly originates from developed nations. A comprehensive review, including research from developing nations, is still lacking. Therefore, the current research work aims to review the major barriers to seeking mental health treatment among undergraduate medical students and resident doctors, and explores measures to mitigate these barriers.

Methodology

The current scoping review was conducted by two medical students (AS, SB), and one psychiatry faculty (SG) who is actively involved in psychiatry teaching, treatment and training. In the present work we followed Arksey and O'Malley's framework for scoping reviews.[22] The review was conducted in 5 steps: 1) identifying the research question; 2) identification of relevant studies; 3) study selection; 4) data charting; and 5) summarizing and reporting the results.

Research Question

The review was guided by the question: *What are the barriers in seeking mental health support/treatment for undergraduate medical students and resident doctors with mental health conditions?* We also explored measures to overcome the prevailing treatment-seeking-related obstacles.

Data Sources, Search Strategy and Eligibility Criteria

To look for relevant studies, advanced search was conducted on PubMed, Web of Science and Scopus databases from inception till 30th April 2023. A bibliographic search was also performed to identify the relevant papers.

Search terms used for the undertaking of a database exploration pertained to 'Medical Students'; 'Mental Health'; and 'Mental Health Services'. The related terms for the above topics were combined through the Boolean operator 'AND' to obtain the relevant records. **Figure 1** shows the PRISMA flowchart and search strategy for the study.

Original articles published in English dealing with the barriers in seeking mental health treatment/care by the above populations, or providing significant findings in the above subject matter, were considered for inclusion. Studies that did not include medical students or did not evaluate barriers to seeking treatment, and non-original papers were excluded from the current review.

RESULT

Study Selection

The search yielded 126 records, out of which 18 were duplications, which were subsequently removed. The two (SB & AS) authors independently screened the rest of the articles on Rayyan (software). Articles to be included for full-text screening were agreed upon; this was also cross-checked by an independent reviewer (SG).

Out of the 108 non-duplicate studies, 12 were included (eight from the database searches and four by cross-referencing). PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines,[23] as described by Peter et al.,[24] were followed for the screening process. Supplementary **Table 1** summarizes all the studies included in the review. Figure 1 shows the PRISMA Diagram for our scoping review.

Major Findings

The critical findings of this scoping review were grouped into five themes: (1) stigmatization; (2) attitudinal barriers; (3) confidentiality; (4) time constraints; and (5) other barriers (lack of access to services, knowledge about the mental illness or treatment). We deliberately did not attempt to dissect our review's findings separately for medical students and residents, including identifying measures to overcome the barriers to seeking help, as in various medical schools´ mental health services (including student wellness center, student deanery, services through Psychiatry department) are the same for both populations. Therefore, we intended to highlight the common factors affecting help-seeking among them and provide a common solution for both of these groups so that such solutions are realistic and can be implemented in different medical colleges/varsities.

Stigmatization

The majority of studies assessing barriers to mental health treatment among medical students and residents found stigmatization as one of the most significant barriers to seeking help from mental health professionals. Kasam et al., additionally, reported that stigma was strongly associated with other barriers to mental health treatment, such as confidentiality concerns, lack of time, and attitudinal barriers.[27]

Chew-Graham et al., found that shame and embarrassment attached with seeking professional help were substantial barriers to seeking mental health services among medical students.[28] They also observed that students considered reaching out for help as a sign of personal weakness which could lead to social ostracism, a finding supported in another study by Menon et al.[26] Ey et al. also found that a majority of medical students were concerned about the social implications of receiving mental health treatment.[25]

Grover et al. and Gulle et al. also observed that a considerable proportion of senior and junior residents identified stigma as a significant barrier to accessing mental health care. They were concerned about potential judgment from others if they were to seek mental health treatment.[19,33] Likewise, Sydney et al. found that stigma was the second biggest barrier (for 27% participants) to participating in a resident wellness program.[20]

Attitudinal Barriers

Attitudinal factors for medical students and residents were also cited as crucial barriers in the utilization of mental health services. Chew-Graham et al. and Kasam et al., reported that a majority of undergraduate medical students prefer solving problems independently or seeking help and support from their family and friends rather than a professional mental health service.[27–28] A study by Brimstone et al., additionally, found that some medical students also believed that they were merely over-identifying with disorders that they had read about and were confident in their ability to self-diagnose.[35] Givens et al., underlined that some students believed that their problems were insignificant and that no one would understand them.[29]

Winter et al. investigated medical students' perceptions of mental health problems and the potential consequences of disclosing such issues.[34] They found that students believed disclosure could lead to disciplinary action—and even expulsion from college. The lack of transparency and trust in the medical school system exacerbating these concerns led many students to believe that campus mental health support systems were used to screen out students deemed unfit to become doctors, particularly those facing mental health issues. These beliefs were reinforced by the habit of concealing emotions and attending college regularly despite illness, serving as a reinforcing mechanism, notions of toughness and the perceived weakness associated with mental health problems.[25,26,28,29]

Confidentiality

Confidentiality concerns were highlighted as another crucial barrier in the utilization of mental health services by medical student and residents. Menon et al. and Kasam et al., reported that among medical students concern about confidentiality was the main barrier to seeking mental healthcare (61.2%).[26,27] Similarly, Grover et al., Sydney et al. and Guille et al., found that 36.3%, 21% and 57.3% of residents, respectively, avoided seeking mental health treatment due to confidentiality concerns.[19,20,33]

Brimstone et al. conducted a study in Australia involving medical and psychology students and found that knowing the university counsellor or General Practitioners or having a potential of future dealing with the counsellor was a major barrier to seeking help. [35] This finding was supported by a study by Chew-Graham et al.[28] Similarly, research conducted by Givens et al. found that more than one-third of the distressed students did not seek treatment due to a fear of lack of confidentiality.[29]

Time Constraints

Time constraints emerged as another significant barrier to seeking mental health treatment among medical students and residents. Grover et al., Sydney et al. and Guille et al. found that 43% –91.5% of residents were discouraged from accessing mental health care due to a lack of personal time.[19,20,33] Menon et al. and Givens et al. similarly found that almost half of medical students were not able to utilize mental health services due to lack of time.[26,29]

Other Barriers

Menon et al., Ey et al. and Guille et al. found that medical students were apprehensive about the effectiveness of counselling.[20, 26] Brimstone et al. and Chew-Graham et al. reported that medical students had limited knowledge of both in-campus and off-campus mental health care services.[28,35] Tyssen et al. noted that students with lower perceived levels of mental health problems were less likely to approach mental health services.[36]

Possible Strategies to Overcome Barriers

Sofka et al. found that the provision of a free day from work contributed to the 93% utilization rate of the mental health wellness program in their study.[32] The screening appointment being arranged by the program administrator and being built into the residents' schedules also helped tackle time constraints and reduced the feelings of shame associated with mental health service utilization. They also found that residents who attended the program were far more likely to go back if they needed any assistance with depression, burnout, anxiety, and other mental health problems. Additionally, Brimstone et al. and Chew-Graham et al., found that medical students had lower barriers to non-campus health centers as compared to campus health centers for seeking treatment of their mental health problems because of better-perceived confidentiality. [28,35]

Discussion

To the best of our knowledge, the current review represents pioneering work in highlighting and discussing the critical issues surrounding the key barriers to seeking mental health care for medical students and residents.

The stigma related to mental illness and its treatment was identified as one of the most widely and frequently reported barriers in our review. [20,27–29,33] Despite their awareness of mental health problems, medical students and residents often had preconceived notions about the social implications of seeking help for their mental health issues. They were concerned about what others would think of them if they found out about their mental

health issues and often linked help-seeking behavior with ostracism from society/medical community, feelings of shame, embarrassment, weakness, and being a failure.[20,27,28]

Medical students often have a notion that physicians should be resilient, self-sufficient, and handle stressful challenges on their own and this belief 'self-stigmatizes' help-seeking behavior. This assertion is supported by a study that found that students with higher levels of 'social perfectionism' reported a greater barrier in help-seeking and were at greater risk of psychological maladjustment.[25]

The stigmatization of mental health was also closely associated with other barriers, such as attitudinal (self-diagnosis, informal help, etc.) and instrumental barriers (lack of knowledge, lack of time, etc.) to help-seeking behavior.[27] Kasam et al. hypothesized that stigmatization encouraged medical students and residents to solve their mental health problems independently and further promote their concerns about confidentiality. The association of stigmatization with other barriers to help-seeking behavior and social perfectionism need to be further evaluated to establish causal relationships and draw firm conclusions.

The implementation of universal mental health screening as a part of routine health check-ups on psychological well-being could also be a viable approach to reducing stigmatization. Sofka et al conducted an interventional study in which residents at an institute were registered for a wellness program with an opt-out option.[32] These programs can normalize help-seeking behavior, promote positive mental health, and identify mental health problems early, thereby improving mental health outcomes of medical students and residents.

Concerns about confidentiality were also identified as one of the key barriers to help-seeking behavior related to mental health. Medical students and residents, who work closely with faculty members, had concerns about potential interactions with their treating physician in a professional setting. They felt that a breach of confidentiality would negatively affect their teacher's/faculty's attitude towards them, future career prospects, and relationships with peers and family members.

The concerns of breach of confidentiality and stigma towards mental health problems coupled with a perceived lack of transparency regarding medical school processes fostered distrust towards on-campus mental health support systems.[26] Menon et al. noted that medical students believed that these mental health screening and support programs were designed to filter out students who were not fit to be physicians, however, these results were mixed and inconsistent in other studies.[27,34] The viewpoint of medical students and residents on the on-campus mental health support system needs to be further investigated.

The establishment of off-campus mental health services, along with measures such as separating the medical records of students from administrative records and restricting access to medical records to only the treating professional, could reduce confidentiality concerns and boost utilization of mental healthcare services among medical student and residents.[28,32,35] Although these steps warrant institutional-level strategies, they create an opportunity for institutes to collaborate with local mental health services to enhance mental health service utilization. The results in terms of service utilization, mental health outcomes, and acceptability of the services of such strategic measures can be systematically researched for their feasibility and effectiveness.

Medical students and residents also struggled with accurately gauging the severity of their mental health problem and the level of care required. The participants often dismissed their problems as trivial, overestimated the level of distress considered "normal", and felt that they over-identified with medical conditions.[29,35] The students' preconceptions that physicians should be able to independently endure highly stressful or challenging environments may have contributed to these assumptions.

We also noted a greater reliance of study participants on self-diagnosis and a preference for informal help from colleagues and family over professional help.[19,26–28,35] This perspective towards existing professional mental health services may arise from the observable pre-existing attitudes of their mentors regarding self-diagnosis; uncertainties surrounding the effectiveness of mental health services; and fears of unwanted interventions.

A systemic intervention could promote an adaptive perception of mental health issues, including service utilization, normalizing having mental health problems and availing services for both medical students and their mentors. These campaigns can also establish more realistic goals for medical students and residents and help them overcome their misconceptions related to social perfectionism. The adoption of evidence-based practices for treatment and dissemination of information about the functioning of student welfare programs could decrease misconceptions regarding treatment and reduce the stigmatization of help-seeking behavior.[20]

Another critical factor affecting mental health service (non)-utilization is the lack of available time for the students and residents. They often face a significant time constraint due to the demanding nature of their training which is often tightly packed with rigorous coursework, clinical rotations, studying for exams, patient care and academic pursuits. This scarcity of time can lead to high levels of stress, burnout, and a compromised work-life balance, leaving little opportunity to prioritize personal wellbeing—especially for residents. The accommodation of welfare programs into demanding

schedules, or part of the curriculum, could increase the utilization of these services.[32]

The digital delivery of mental health services can also provide a promising solution for addressing time constraints, confidentiality concerns, and the reliable evaluation of the mental health of medical students and residents. These services could offer convenient and flexible options for support, allowing students to seek help at their own pace and to their own schedule. They could also raise awareness about mental health problems and provide coping strategies for managing subclinical conditions, as well as information regarding available welfare services on campus, or in the vicinity, for more serious mental health issues.

Some of the established models worldwide include apps such as DBT Coach, the American Foundation for Suicide Prevention Individual Screening Protocol, student wellness centers, and the Tele-Mental Health Assistance and Networking Across State (tele-MANAS) facility (launched by the government of India in 2022).[37] The feasibility and effectiveness of these platforms in terms of utilization, confidentiality, outcomes, and acceptability can be systematically studied.

The studies under consideration also highlighted additional barriers to help-seeking behavior, such as a lack of knowledge about available services, limited access to services, and concerns about the cost of these services. While these barriers are also present for individuals of a comparable age group in the general community, medical students and residents perceive confidentiality concerns, time constraints, and stigmatization as even greater obstacles. The establishment of affordable, flexible, convenient, and easily accessible counselling services— tailored to the specific needs of medical students, is essential for addressing these concerns.

The information on available mental health services, including counselling and online services, could be provided to students as part of their mental health education at the onset of their professional courses. This information can be refreshed at the start of each semester, cultural festivals, sports meets, educational workshops, club activities, etc. The feedback from students must be solicited to have a service-users´ perspective and to gain greater insight on the areas surrounding accessibility, affordability, and quality of care. This feedback could be utilized to identify gaps in mental health curriculum/training and improve the accessibility and availability of mental healthcare services.

We recommend further research on various interventions to assess their feasibility in increasing mental health service utilization among medical students and residents. Additionally, we suggest investigation of the barriers to help-seeking in resource-limited settings. These countries have significantly different socio-economic structures, resulting in unique challenges and requirements for this population.

Conclusion

This scoping review identifies several critical barriers that prevent medical students and residents from seeking help for mental health problems. The prominent barriers included the stigma surrounding mental health along with concerns about confidentiality, lack of time, attitudinal barriers, and other minor obstacles were lack of knowledge and access to services. Implementing mental health campaigns, universal mental health screening in the institute, service provision in collaboration with local mental health professionals, (including counselling centers and internet-based services) utilizing mental healthcare apps, and improving mental health education are some steps that could be taken to overcome these barriers.

Recognizing the unique challenges faced by medical students and offering flexible and accessible mental health services, both in-person and digitally, can help overcome these barriers and promote help-seeking behavior. Greater research in this area is required, particularly those studies including robust methodology, such as controlled-study design, feasibility assessment, and long-term outcomes.

Table 1: Data extracted from included studies with their respective headings

Author & Year	Objective	Type of study	Study setting & outcome measure	Study population	Results	Remarks
1. Grover et al. (2019) (India)	To determine the extent and causes of perceived stress, and the barriers that resident doctors face when seeking assistance from mental health practitioners.	Quantitative, Cross-sectional	• Government Funded Multispecialty Tertiary Care Hospital from North India. • A self-designed questionnaire based on a focused group discussion (FGD) involving reside nt doctors and mental health professionals (MHPs) involving in providing care to residents doctors.	• n =432 • 332 Junior Residents doct ors and 100 Senior residents	• The main barriers reported for not seeking help from mental health professionals are stigma of being labelled as mentally ill (54.6%), being labelled as weak amongst their peers (58.1%), lack of time to seek consultation(43.1%) and concerns about confidentiality (36.3%) .	• Large sample size • The study did not account for the participants' own deficiencies. For example, some residents may have personality traits or inherent psycho-social deficits that may make them more vulnerable to stress. • Did not focus on the positive coping mechanisms used by the participants to deal with stress. • Single centre study, hence findings may not be generalizable • There is a need for the improvement of working conditions for residents, providing them with quality food and opportunities for socialization. • The fact that medical students in India receive very little exposure to psychiatry during their under graduation, research must take this into consideration when examining barriers.
2. Sofka et al (2018) (USA)	To implement a well-being assessment for the improvement of access and use of mental health services by internal medicine residents	Quantitative, Cross-sectional	• University students, enrolled in a medium-sized academic program. • A universal well-being screening assessment was done on the Post-graduate year-1 & Post-graduate year-2 (PGY-1 and 2)students.	• n=38 (93% of total) Post-graduate year (PGY) 1 and 2 students.	• With the help of a scale between one and nine to assess the likelihood of going back to the faculty and staff assistance program (FSAP) (one being not likely and nine being very likely), residents who attended the FSAP were far more likely to go back to the FSAP (score-8.1) if they needed any assistance with depression, burnout, anxiety, and other mental health problems as compared to those who did not attend the FSAP (score-5). • When asked whether the residents would be embarrassed if they found out that their peers were attending the FSAP using a rating to measure stigma (one being very embarrassed and nine being not embarrassed at all), mean rating of those who attended the program was 7.9 • The provision of the benefit of a free day from work and appointments built into the schedules of residents helped tackle time constraints. • Having a flexible schedule for screening, jointly planned by the program co-ordinator of chief residents improved students' participation. • The ability to opt-out from the program prevented the residents from feeling forced to attend.	The level of stigma & barriers to utilizing this service by those who opted out of the study is unknown. Funding & availability of licensed therapists could be limiting factors in other settings. Generalizability to other settings and specialisations is constrained by the use of a single cohort of PGY-1 and PGY-2 residents in a single speciality at a single institution. The study could not determine if the individualized wellness plan given by the licensed therapist in the sessions was implemented by individual residents or was effective at improving their well-being.

3. Ey et al. (2013) (USA)	To implement a resident wellness program (RWP) to reduce the barriers stopping residents from accessing mental health services.	Quantitative, Cross-sectional	• Academic Medical Center (AMC) • An electronic survey form consisting of items that were pilot-tested with an earlier sample of residents was used.	• PGY-1= 80 • PGY-2=118 • PGY-3=120 • PGY-4+= 132 • Total=450	• n=315 (68% medical, 32% dental students) responded to the survey. • 82.7% were Caucasians (9.6% & 5.8% were African-American and Asian, respectively) • The biggest barriers to accessing mental health services were lack of time and confidentiality concerns; treatment-factors (time and energy to seek treatment, effectiveness of the treatments, etc.) also played a role in the therapeutic process. • Racial minority residents had greater concerns about confidentiality. • Distressed students who were not on treatment (Vs distressed students on treatment) had higher level of Socially prescribed perfectionism#	• The results are based on a single AMC, and may not generalize to other AMCs. • The cross-sectional design of the study precludes the determination of direction and causality of relationships, including role of socially-prescribed perfectionism as a marker of perceived stigma & seeking treatment. • More work is needed to address long-standing attitudes among residents which limit their ability to take a break to address personal health care needs. • In addition, more work is needed to increase the access and efficacy of mental-health services for residents in order to promote emotional and physical well-being.
4. Guille et al. (2010) (USA)	Identification of perceived barriers to seeking mental health treatment among depressed medical interns.	Quantitative, Cross-sectional	• 6 community and 13 university hospitals • The depressive symptoms were measured using a 9-item Patient Health Questionnaire (PHQ-9)*	• 740 Residents	• Only 22.7% (63 of 278) of the students screened positive for depression (on PHQ-9) • The most frequently cited barriers to seeking treatment amongst medical interns were lack of time (91.5%), preference to manage problems on their own (75.1%), lack of convenient access (61.8%), concerns about confidentiality (57.3%) and concerns about effectiveness of treatment (24.9%).	• Depression was assessed through a self-report screening inventory rather than a diagnostic interview. Hence, need for treatment might, indeed, be lesser than the clinical population. • The study was restricted to interns and thus the results may not hold true for advanced residents or physicians who have completed their training. • Equipping interns with cognitive coping skills could help them handle the stress of their residency. • In addition, internet-based mental health services and identification of factors that cause increased incidences of depression could help residents.
5. Winter et al. (2017) (UK)	To explore the belief that mental illness is a 'fitness to practice matter' that led to eventual dismissal and its underlying social mechanisms. To also investigate other beliefs that affected medical students' reluctance to disclose a mental health problem, the factors that reinforced this notion, and the feared outcomes of revealing a mental illness	Qualitative, Cross-sectional	• 5 Medical Schools in UK	• 40 medical students	• Themes identified acting as barriers to seeking mental health care • Student beliefs: (1) the unacceptability of mental illness in medicine, (2) punitive medical school support systems, and (3) the view that becoming a doctor is the only successful career outcome. • Reinforcing mechanisms: :pressure from senior clinicians, distrust of medical school staff, and expectations about conduct. • Feared consequences: mental health issues or help seeking or revelation of would lead to expulsion, and failure to meet parents' expectations.	• The sample from this research was too small to draw any definitive conclusions about medical students' beliefs. • A larger sample in a different context would be useful to support claims about the transferability of the findings. • The study findings underscore need of creating a culture in the medical schools, wherein disclosure of one's mental health issues and seeking requisite help are encouraged. • Students should be encouraged to not attend medical school and clinical postings when they are not fit to do so due to periods of physical or mental illness.

6. Menon et al. (2015) (India)	To identify the barriers to seeking treatment from healthcare services. To also compare the barriers for seeking physical and mental health services.	Quantitative, Cross-sectional	• Medical College. • Instrument used to measure barrier to seeking help: Barriers to Healthcare Seeking Questionnaire (BHSQ)	• 1st semester= 119 • 3rd semester= 115 • 5th semester= 101 • 7th semester= 68 • 9th semester= 58 • Total= 461	• Stigma, confidentiality issues, lack of awareness about where to seek help and fear of unwanted intervention(OR 4.21, 4.01, 3.19 and 2.43, respectively) were more commonly reported for mental healthcare seeking. • Compared to physical illness students were more indifferent to their mental health issues and preferred self-diagnosis and informal consultations over formal care • Some students did not perceive mental health consultations as beneficial.	• Adequate orientation to health issues and available services, may help in acquainting newcomers in accessing healthcare services in the hospital. • Their knowledge can be periodically evaluated or refreshed with the beginning of each academic year • MHPs need to clear these myths and misconceptions concerning mental illness and its treatment • A separate clinic at the vicinity of students' accommodation for their mental health issues would be less pathologizing and stigmatizing • Categorising various forms of medical/surgical healthcare into a single 'physical' healthcare group might have influenced study's findings. • Single centre sample, cross-sectional design restrict generalizability and causality of the research findings.
7. Kasam et al. (2020) (India)	To evaluate the barriers to seeking mental health care among undergraduate medical students. To also understand the correlation between barriers and demographic factors	Quantitative, Cross-sectional	• Two Medical Colleges in Telangana (South India) • Barriers were assessed using the 30item Barriers to Access to Care Evaluation (BACE) scale	• 1st year=28 • 2nd year=5 • 3rd year=29 • 4th year=21 • Interns=17 • Total= 100	• The stigmatizing beliefs, difficulty in sharing one's concerns, lack of confidentiality, preference for self-reliance, and difficulty in accessing help were the prominent barrier themes among responders. • Common Stigma-related beliefs were 'seen a crazy' if being identified by others for seeking mental health care, feeling embarrassed in accepting mental health issues. • Greatest attitudinal barrier identified was wanting to solve the problem on their own • Most common anticipated barrier was difficulty taking time off work. • The different barriers showed a very high correlation with each other.	• Desire to solve the problem on their own can be a cognitive mechanism behind the underlying stigma. • Low sample size and convenient sampling were major limitations of the study. • Regular screening for mental health problems, making mental health education compulsory and encouraging seminars and workshops on mental health could help normalize seeking of mental health services.

8. Brimstone et al. (2007) (Australia)	To evaluate the behaviour of students in seeking health care for physical and mental health problems, comparing medical with psychology students. To understand the barriers of conventional routes of healthcare seeking that may affect this.	Quantitative, Cross-sectional	• Psychology and Medical Schools. • Case-vignettes based (one mental health & physical health concerns each) as sessment (16 items) in seeking health service.	• 101 psychology students & • 71 medical students • Total=172	• Common barriers in help-seeking were worries about knowing the doctor they could consult at the university health centre or having future dealings with him or her, and cost of treatment. • Independent sample t-tests in relation to the above point indicated that only medical students considered it a barrier to seeking physical health care. It was not considered as a barrier to seeking help by psychology students. • Other barriers include feeling that both psychology and medical students were simply over-identifying with symptoms from textbooks and feeling confident enough to self-diagnose. • Furthermore, medical students had lower barriers in seeking help from non-campus health centres for their mental health problems as compared to campus health centres.	• Strict guidelines for the students concerning the extent of self-care allowed & significance of seeking professional help for their health issues, may it be physical or mental. • Interventions from universities. E.g., education about self-care and the problems of self-diagnosis can normalise accessing mental and physical health care services • Self-care as a topic should also be revisited in the later years of training, rather than being confined to the early years. • Institute may develop a co-operative care network with the local professionals/ online services for the students not comfortable in receiving treatment within institute services. • The results of the current study may be somewhat skewed by a self-selection bias. • Findings showing changes in this attitudinal behaviour among students as they move through their professional degrees must be interpreted with caution as the study was between subject design, not within-subject.
9. Chew-Graham et al. (2003) (UK)	To evaluate the attitudes of medical students to the causes of stress and understand their views on help-seeking.	Qualitative, Cross-sectional	• Medical school • Semi-structured interviews with open-ended answers.	• 22 Medical Students of year 3-5	• Avoidance of appropriate help-seeking behaviour starts early and is linked to perceived norms of experiencing mental health problems may be viewed as weakness • Shame and embarrassment attached with seeking professional help, including concern seeming weak, and concerns about the lack of confidentiality and knowing their counsellor or treating physician were substantial barriers to seeking mental health services. • A majority of undergraduate medical students prefer to seek help and support from their family, friends or non-campus mental health services. • Fear of confiding in a tutor was widely expressed by the students, as latter would be assessing formers' perform ance. • Limited knowledge about the available mental health services also acted as an impediment in seeking help. • Participants also reported admitting to problems as an undergraduate would negatively affect their future professional career	• Preparation of medical students for life as doctors involves more than facilitating the acquisition of knowledge and skills. • For them to conform to the principles of professional conduct, medical students should be supported and mentored so that stress can be identified early and dealt with appropriately. • Ways of engaging students' attention could be e-mailing and putting up of posters in common rooms.

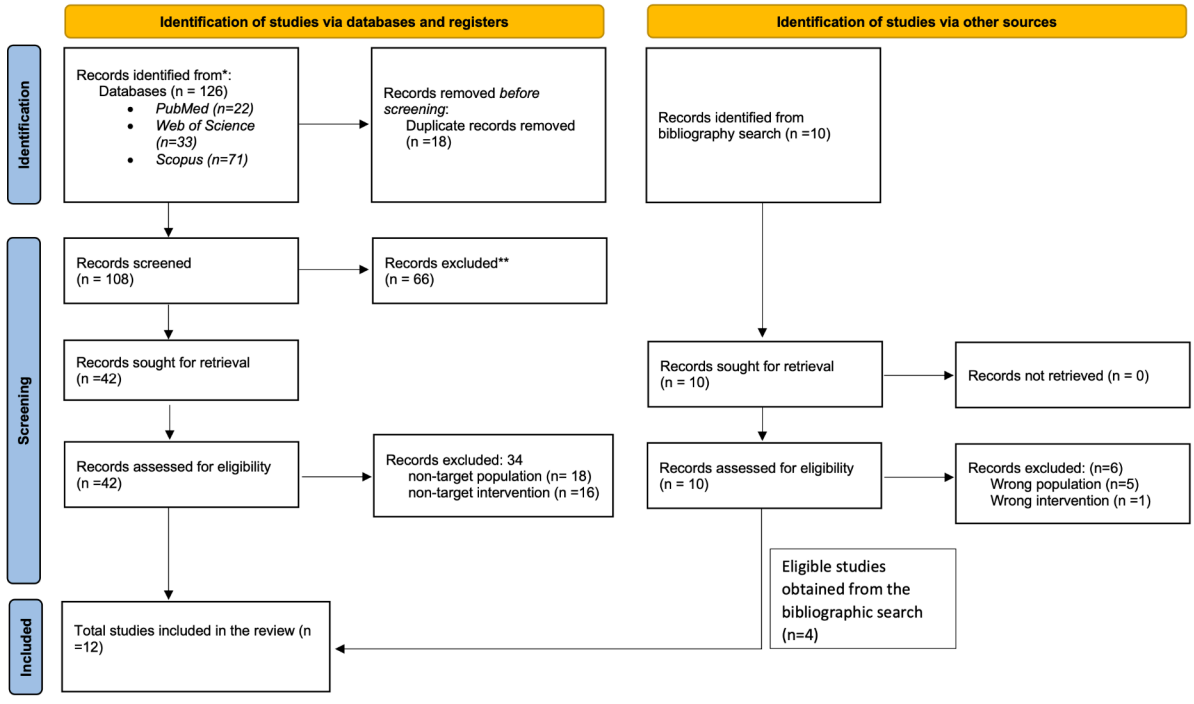
Table 1: Data extracted from included studies with their respective headings

10. Given et al. (2002) (USA)	Determination of the ex mental health service us depressed medical students and their reported barriers to use.		• 13-item Beck Depression Inventory (BDI) was used	2nd year medical students	ntly cited mental health services were lack of time (48%), lack of confidentiality (37%), stigma attached with using mental health services (30%) and fear of documentation on academic record (24%). • Some students also believed that their problems were insignificant and that no one would understand them (30%).	• The prevalence of pharmacotherapy was not investigated, which may account for a possible overestimation of under-treatment. • Students from one school were studied at one point in time. • Medical schools should address the barriers by ensuring the confidentiality, accessibility and availability of mental health services and make sure that they are well-advertised. • The data in the study also suggests that the point of contact should be separate from the academic affairs and Dean's offices, and that long-term counselling should be available, if required.
11. Ey et al. (2000) (USA)	To examine the attitudes and factors towards seeking mental health treatment among medical and dental students.	Quantitative, Cross-sectional	• College of medicine and college of dentistry • Brief Symptom Inventory(BSI): to meas ure general psychological adjustment. • 45-item Multi-dimensional Perfectionism Scale (MPS): for assessing Perfectioni sm • Fischer and Turners' 29-item scale: for evaluating atti tudes towards mental health treatment. • Two Novel scales were also created for the assessment of students' specific con cerns regarding seeking treatment at a university affiliated counselling center.	• 214 medical students and 101 dental students • Total=315	• 23.8% reported clinical levels of distress. • Despite majority of students were aware of the presence of free psychology services in the campus, only 7.6% of students were receiving mental health treatment either on campus or off-campus. • A majority of undergraduate medical students did not utilize mental health services due to concerns over its social implications, e.g., what other students might think about them going for help (45.5%) or running into their colleagues or friends at the student counselling centre (53.5%) or what their family might think of them (19.9%) • Lack of confidentiality (31.1%) and perceived lack of effectiveness of treatment (24.1%) were other critical predictors of not seeking help.	• The cross-sectional study design precludes establishing a causal relationship between attitudes about mental health services and help-seeking among distressed medical and dental students. • Distressed students who avoided treatment were more likely to have negative views of mental health treatment (vs. those who sought help). • Individuals involved in counselling centre clinicians and students' orientation-program in the medical colleges could sensitize stud ents about the ill effect of poor emotional state on academic performance and how it can be actively addressed in therapy. • Having the counselling center work in evening hours, with adequate provision for confidentiality (individual waiting rooms, separate doors for entering and leaving the therapist's office, etc.) could allay their treatm ent-related worries. • Information about the efficacy and availability of therapies could help relieve the concerns students may have about the length of mental health treatment.

12. Tyssenet al. (2004) (Norway)	To evaluate the prevalence of self-reported mental health problems and help-seeking among young physicians. To identify predictors of seeking help.	Quantitative, longitudinal	• Four Medical Schools • Three different time periods T1 (end of medical school), T2 (PGY-1) and T3 (PGY-4) were assessed. • A 5-point scale was used to determine perceived level of mental health problems. • Another 5-point scale was used to determine perceived social support. • A 36-item version of Torgersen's Basic Character Inventory (BCI) was used to measure personality. This consisted of 4 dimensions: • Vulnerability dimension • Intensity dimension • Control dimension • Reality weakness dimension	• 631 medical students who were to graduate in 1993 and 1994.	• Perceived level of mental health problems and a reality weakness** personality trait were (adjusted)predictors of help seeking behaviours for mental health issues. • Among those at T1 needing treatment during their life, 72% of students got help. • Among those needing treatment at T2 and T3, 50% and 41% sought help, respectively.	• The response rates were modest, which may have influenced the study's findings • The use of several single-item variables, such as perceived mental health problems and perceived social support might have missed nuances of the results and reduced its reliability. • It is observed that more the symptoms of serious personality problems reported by the students, less likely they were to seek treatment. This shows the importance of lowering the threshold for health-care seeking among physicians. • Symptoms of serious personality disorders should be monitored and appropriate treatment should be provided by those involved in students wellbeing.

[#] Socially prescribed perfectionism refers to the belief that significant others expect you to be perfect and closely monitor your performance; a higher level of this trait is associated with a greater stigma in seeking mental health services.
* The Primary Care Evaluation of Mental Disorders (PRIME-MD) PHQ is a screening instrument developed for the diagnosis of mental health disorders in primary care.
FGD: focused group discussion, MHPs: mental health professionals
***Reality weakness* dimension measures the perceptions that border reality and fantasy. It helps determine chronic illusions, paranoid traits, problems with identity and insecurity in relationships and traits associated with severe personality disturbances, which include borderline and schizophrenic disorders.

Figure 1: PRISMA flow diagram including searches of databases, registers and other sources



*Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/registers).
**If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools.

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