

**MENTAL HEALTH LITERACY, SELF-STIGMA AND HEALTH SEEKING
BEHAVIOUR AMONG UNDERGRADUATE MEDICAL STUDENTS IN UNIVERSITY
OF SASKATCHEWAN, CANADA**

A Thesis Submitted to the
College of Graduate and Postdoctoral Studies
In Partial Fulfillment of the Requirements
For the Degree of Master of Science in Community and Population Health Sciences
In the Department of Community Health and Epidemiology
University of Saskatchewan Saskatoon, SK, Canada

By

OLUSEUN PETER OGUNNUBI (MD)

© Copyright Oluseun Peter Ogunnubi, August, 2024. All Rights Reserved.
Unless otherwise noted, copyright of the material in this thesis belongs to the author.

PERMISSION TO USE

In presenting this thesis in partial fulfillment of the requirements for a Postgraduate degree from the University of Saskatchewan, I agree that the Libraries of this University may make it freely available for inspection. I further agree that permission for copying of this thesis/dissertation in any manner, in whole or in part, for scholarly purposes may be granted by the professor or professors who supervised my thesis/dissertation work or, in their absence, by the Head of the Department or the Dean of the College in which my thesis work was done. It is understood that any copying or publication or use of this thesis/dissertation or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the University of Saskatchewan in any scholarly use which may be made of any material in my thesis.

DISCLAIMER

The project was exclusively created to meet the thesis requirements for the degree of Master of Science at the Department of Community Health and Epidemiology, University of Saskatchewan. Reference in this thesis to any specific commercial products, process, or service by trade name, trademark, manufacturer, or otherwise, does not constitute or imply its endorsement, recommendation, or favoring by the University of Saskatchewan. The views and opinions of the author expressed herein do not state or reflect those of the University of Saskatchewan and shall not be used for advertising or product endorsement purposes.

Requests for permission to copy or to make other uses of materials in this thesis in whole or part should be addressed to:

Head of the Department, Community Health and Epidemiology

Health Science Building, 107 Wiggins Road,

University of Saskatchewan Saskatoon, Saskatchewan S7N 5E5 Canada

OR

Dean,

College of Graduate and Postdoctoral Studies

University of Saskatchewan, 116 Thorvaldson Building, 110 Science Place

Saskatoon, Saskatchewan S7N 5C9 Canada

ABSTRACT

Background: Canadian medical students have been previously found to be subjected to a high-pressure environment – with long clinical weeks and significant stressors – resulting in high levels of burnout. The reluctance of young adults to seek mental health treatment has been attributed to poor mental health literacy, stigma, preference for self-reliance and concerns about confidentiality. When a medical student does not seek help, mental health issues that might have been avoided earlier could become worsened and might eventually lead to premature withdrawal from medical school as well as other negative consequences.

Purpose: To evaluate mental health literacy, self-stigma, and help-seeking behaviour among undergraduate medical students at the College of Medicine, University of Saskatchewan (U of S).

Methods: This was a descriptive cross-sectional study that was conducted within the undergraduate medical education (UGME) program, College of Medicine, U of S. It reports the objective measures of students' mental health literacy level and health-seeking behaviour of a sample of medical students (year1-year 4) who consented to participate in the study, using standardized questionnaires sent them online. Demographic information of the students was supplemented by the following scales: Mental Health Literacy Scale (MHLS), the Self Stigma of Seeking Psychological Help Scale (SSOSPH) and General Help-Seeking Questionnaire (GHSQ).

Results & Conclusion: Out of 404 students in the entire college, a total of 102 participants responded to the survey questionnaires, but only 85 attempted and completed the survey questionnaires, thus giving a response rate of 25.2%. Almost all the participants reported high mental health literacy, with only 1.2% reporting low level of mental health literacy. The majority (88.2%) had low levels of self-stigma. There is an almost equal distribution among the participants

in terms of health seeking behaviour, with 51.8% reporting high help seeking behaviour and 48.2% having low help seeking behaviour. Individuals with lower self-stigma towards seeking help are significantly more likely to engage in high HSB compared to those with high self-stigma, who predominantly fell into the low HSB category (90.0% low HSB vs. 10.0% high HSB).

In conclusion, this research emphasizes the crucial importance of reducing self-stigmatization among medical students, thorough curriculum revisions and supportive educational efforts as well as identifying other barriers to help seeking behaviour.

ACKNOWLEDGEMENTS

I hereby express my sincere gratitude to my supervisor, Dr. Kalyani Premkumar and Dr. Lilian Thorpe, my committee member, for their invaluable and unwavering support and supervision throughout this project and extension of my master's program. This project would not have been successful without their expertise and dedication.

I acknowledge my co-investigator-Harini Aiyer (PhD) for her eagle eyes at being able to detect the slightest error.

I would also like to extend my gratitude to my esteemed colleagues and friends (Josh, Isaac, Maria, Zoe, Maud, and Jermia) with whom we journeyed together in this great school. Their comradeship and collaborative spirit got me here.

Special thank you to Stephanie Kehrig- the graduate and post-doctoral programs assistant for her invaluable information, willingness to help and support at every time I needed her.

I thank my siblings (Prof TG Nubi, Mrs Bolanle Nubi, Mrs Bola Awe and Mrs Olabisi Osinloye) for their support, encouragement, and siblings' love.

I appreciate my supporter and partner-Faith and my children- Araloluwa, Olumurewa and Tabitha for bearing my absence with pain and hope

I appreciate the divine spirit that moves the whole universe, the creator of mankind and the hands that has got the whole world.

Lastly, I want to THANK ME for the resilience and doggedness against all odds...the journey was rough, but I made it!

DEDICATION

To my late parents- Pa Darius Abimbola and Mrs. Susanna Olufunke Ogunnubi and my late brother- Jonathan Adeyemi Ogunnubi. Your spirits live on!

TABLE OF CONTENTS

PERMISSION TO USE.....	i
DISCLAIMER.....	i
ABSTRACT	ii
ACKNOWLEDGEMENTS.....	iv
DEDICATION.....	v
TABLE OF CONTENTS.....	vi
LIST OF TABLES.....	x
LIST OF FIGURES.....	xi
LIST OF ABBREVIATIONS.....	xii
CHAPTER 1: INTRODUCTION.....	1
1.1. Background of the study.....	1
1.2. Objective and Research Questions.....	2
1.2.1. Objective	2
1.2.2. Research Questions.....	2
1.3. Statement of the Problem	3
1.4. Definition of Terms.....	4
CHAPTER 2: LITERATURE REVIEW	6
2.1. Mental Health Literacy among Students.....	6
2.2. Prevalence and Pattern of Mental Illness among Medical Students.....	6
2.2.1. Mental health literacy across different cultures, regions, and educational system.....	7
2.2.2. Knowledge, attitudes and perception of mental illness among medical students.....	8
2.3. Mental Health Education in Medical Curricula.....	9
2.3.1. Studies examining medical students' knowledge of various mental disorders.....	9

2.3.2.	Analysis of effective measure in assessing mental health literacy among medical students.....	10
2.3.3.	Implications for mental health education and training in medical schools.....	10
2.3.4.	Studies on impact of clinical and experiential learning on medical students' mental health literacy.....	11
2.3.5.	The role of psychiatry clerkship in shaping attitudes and clinical skills related to mental health.....	12
2.3.6.	Best practices for incorporating experiential learning into medical curricula.....	13
2.4.	Conceptual Framework of Self-Stigma.....	15
2.4.1.	Self-stigma among medical students and its components.....	15
2.4.2.	Theories and models explaining the development and perpetuation of self-stigma.....	15
2.4.3.	The impacts of self-stigma on individuals with mental illness and its implications for healthcare delivery.....	16
2.5.	Prevalence and pattern of self-stigma amongst medical students.....	17
2.5.1.	Demographic factors associated with higher levels of self-stigma among medical students.....	17
2.5.2.	Analysis of the impact of stigma on help-seeking behaviors and patient care.....	18
2.5.3.	Strategies to reduce stigma and promote empathy amongst medical students.....	19
2.6.	Help-seeking attitudes and behaviour among medical students.....	20
2.6.1.	Studies of medical students' attitude towards seeking healthcare.....	20
2.7.	Medical Students' Barriers to Seeking Help for Mental Health Issues.....	21
2.7.1.	Stigma, perceived lack of time, and concerns about confidentiality as barriers to HSB (Help Seeking Behaviour).....	23
2.7.2.	Impact of academic stress, burnout, and mental health stigma on healthcare utilization.....	24

2.8.	Access to Healthcare Services for Medical Students.....	25
2.8.1.	Analysis of the role of university of Saskatchewan health services counseling centres, and external healthcare providers in Saskatchewan.....	25
2.8.2.	Gaps in healthcare access and potential strategies for improving service delivery.....	28
2.9.	Interventions to Improve Help-Seeking Behaviors and Access to Mental Health Services....	30
2.9.1.	A review of interventions aimed at promoting positive HSB among medical students..	30
2.9.2.	Analysis of the effectiveness of educational programs, peer support initiatives, and wellness interventions to prevent adverse outcome of not seeking help such as suicide.	31
2.9.3.	Recommendations for incorporating HSB promotion into medical curricula and institutional policies.....	32
CHAPTER 3: METHODS.....		35
3.1.	Setting of the study	35
3.1.1.	Years one and two.....	35
3.1.2.	Years three and four.....	36
3.2.	Study Population.....	37
3.3.	Study Design.....	37
3.4.	Inclusion and exclusion criteria.....	37
3.5.	Sample size determination.....	38
3.6.	Ethical Consideration.....	38
3.7.	Sampling Technique.....	39
3.8.	Study Instruments.....	39
3.8.1.	Mental health literacy scale (MHLS).....	39
3.8.2.	The self-stigma of seeking psychological help Scale (SSOSH).....	40
3.8.3.	The general help-seeking questionnaire (GHSQ).....	40
3.9.	Data Collection Procedure.....	40
3.10.	Data Analysis.....	41
CHAPTER 4: RESULTS.....		44
4.1.	Socio-demographic and clinical characteristics of participants.....	44

4.2. Mean scores of Mental health literacy, self -stigma of seeking psychological help and general health seeking behavior of the participants.....	49
4.3. Prevalence of mental health literacy, self-stigma of seeking psychological help and health seeking behavior of the participants.....	50
4.4. Socio-demographic and clinical factors associated with mental health literacy (MHL) among the participants.....	52
4.5. Socio-demographic and clinical factors associated with self-stigma of seeking psychological help (SSOSH).....	52
4.6. Logistic regression analysis of factors associated with self-stigma of seeking help (SSOSH).	56
4.7. Socio-demographic and clinical factors associated with health-seeking behaviour (HSB)...	57
4.8. Logistic regression analysis of socio-demographic and clinical factors associated with help seeking behaviour (HSB).....	61
4.9. Multivariate analysis between self-stigma of seeking help (SSOSH) and help seeking behaviour (HSB) amongst the respondents.....	61
4.10. Summary of findings.....	62
CHAPTER 5: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS.....	64
5.1. Mental health literacy (MHL).....	64
5.2. The self-stigma of seeking psychological help (SSOSH).....	65
5.2.1. Factors associated with the self-stigma of seeking psychological help (SSOSH).....	66
5.3. General Health-seeking behavior of the participants.....	67
5.3.1. Factors associated with the health-seeking behaviour of the participants.....	68
5.4. Conclusion and recommendations.....	69
5.5. Strengths and Limitations	70
5.5.1. Strength of the study.....	70
5.5.2. Study Limitations.....	71
APPENDICES.....	72
REFERENCES.....	90

LIST OF TABLES

Table 1: Sociodemographic and clinical profile of the respondents.....	45
Table 2: Mean and median scores of mental health literacy, self-stigma of seeking psychological help and general health-seeking behaviour level of the participants.....	49
Table 3: Socio-demographic and clinical factors associated with self-stigma of seeking psychological help (SSOSH) Table 7: Relationship between sociodemographic attributes and SSOSH.....	53
Table 4: Logistic regression analysis of socio-demographic and clinical factors associated with self-stigma of seeking help (SSOSH).....	56
Table 5: Socio-demographic and clinical factors associated with help-seeking behaviour.....	57
Table 6: Logistic regression analysis of socio-demographic and clinical factors associated with help seeking behavior (HSB).....	61
Table 7: Multivariate analysis between SSOSH vs HSB amongst the respondents.....	62

LIST OF FIGURES

Figure 1: Mental health literacy level of the respondents.....	50
Figure 2: Self- stigma of seeking psychological help of the participants.....	51
Figure 3: General health seeking behaviour of the participants.....	51

LIST OF ABBREVIATIONS

<i>Abbreviations</i>	<i>Full names</i>
AEE.....	Association for Experiential Education
EI.....	Emotional Illness
GHSB.....	General Help Seeking Behaviour
GHSQ	General Help-Seeking Questionnaire
HSB.....	Help Seeking Behaviour
MD.....	Doctor of Medicine
MHLQ	Mental Health Literacy Questionnaire
MHL.....	Mental Health Literacy
MHLS.....	Mental Health Literacy Scale
OSA.....	Office of the Students Affairs
PSL.....	Psychological Skills Laboratory
SSOSH.....	Self-Stigma of Seeking Psychological Help Scale
SS.....	Self-Stigma
UGME.....	Undergraduate Medical Education
UK.....	United Kingdom
U of S.....	University of Saskatchewan
USasK.....	University of Saskatchewan
WHO.....	World Health Organization

CHAPTER 1: INTRODUCTION

1.1 Background of the Study

There have been great concerns about mental health issues among university undergraduates over the years, most especially medical students who are faced with a lot of stress as they rotate from one posting to the other, the stress of having to learn a lot of information and at the same time score highly in their academic assessments (Rosal et al., 1997; Styles et al., 1993). In many medical schools, the environment itself is associated with significant pressure due to its authoritarianism and rigidity as well as focus on competition rather than cooperation between learners (Rosal et al., 1997; Styles et al., 1993). Like other countries, Canadian medical students are also subject to a high-pressure environment - with a long clinical duration and a high degree of stress (Wikes et al., 2019).

The estimated prevalence of emotional disturbance found in different studies on medical students has been found to be higher than that in the general population (Abdulghani et al., 2011), which can pose major challenges. Despite these challenges, only a few students seek professional help for mental health symptoms and disorders, which has been confirmed by researchers finding that higher rates of distress do not translate into increased utilization of psychological services. Colleges and universities offer a unique setting to address mental health problems among young adults and have potential to attend to these before they grow in severity and cause long-term problems (Sæther Marie Husøy & Sivertsen Børge, 2021) but it is unclear whether these mental health services are being fully utilized. Lack of willingness to seek professional help may be due to several factors, a scoping review identified multiple individual barriers. The most reported barrier was fears of decreased opportunities for residency and career with nearly 30% of articles mentioning this barrier. This fear is related to other similar individual barriers such as those of non-confidentiality and self-stigmatization, which were the second most noted barriers in our review (Berliant *et al.*, 2016).

One way to achieve this is through mental health promotion strategies (Gorczynski et al., 2020). One such strategy is mental health literacy (MHL) which focuses on de-stigmatization of mental

illness among undergraduates. MHL is a strategy committed to promoting mental health knowledge and positive attitudes toward mental health and ensuring mental health inequities are addressed through the removal of barriers to seeking support (Gorczynski *et al.*, 2020. Rickwood *et al.*'s (2005). Theory of help-seeking succinctly further describe help-seeking as a process initiated by one's awareness of mental health symptoms and disorders, and appraisal of having a problem that may require intervention. This theory highlights the pertinent relationship between MHL and help-seeking, as individuals with higher levels of MHL are more likely to portray and act on help-seeking intentions and furthermore, in their own capacity of health care providers may be more likely to recommend professional help to others (Cheng *et al.*, 2018). Since MHL is a foundational element related to mental health, students must develop age-appropriate MHL capacity that will assist them in understanding how to obtain and maintain good mental health, understand mental disorders and their treatments, decrease stigma, and enhance help-seeking efficacy (Kutcher, Wei, & Coniglio, 2016; Kutcher *et al.*, 2016).

1.2. Objective and Research Questions

1.2.1. Objective

This study aimed to evaluate the level of mental health literacy, self-stigma, and help-seeking behaviour among undergraduate medical students at the College of Medicine, University of Saskatchewan (U of S).

1.2.2. Research Questions

This study would investigate the following research questions:

1. What is the level of mental health literacy, psychological self-stigma, and help-seeking behaviour among medical students at U of S, as measured by the Mental Health Literacy Questionnaire (MHLQ), Self-Stigma of Seeking Psychological Help Scale (SSOSH and General Help-Seeking Questionnaire (GHSQ) respectively.

2. What is the relationship between mental health literacy and self-stigma of seeking help and help seeking behaviour among medical students at U of S.

1.3. Statement of the Problem

The reluctance of young adults to seek mental health treatment has been attributed to poor mental health literacy, stigma, preference for self-reliance and concerns about confidentiality (Shahwan *et al.*, 2020). When a medical student does not seek help, mental health issues that could have been avoided earlier might become significant over time and may even eventually lead to premature withdrawal from medical school. Those who manage to scale through medical school may eventually come up with other potential negative consequences such as suicide which has been found to be of higher prevalence amongst physicians (Schernhammer & Colditz, 2004; Aasland *et al.*, 2011).

Various programs have been explored in the past as tools for improving mental health literacy. Examples include a gatekeeper-training program that teaches people the warning signs of suicide and how to respond to a suicidal peer (Hangartner *et al.*, 2019). Mental Health First Aid (MHFA) is another program that teaches individuals how to help provide immediate care for individuals going through mental health challenges and how to help them find long-term solutions to these (Corrigan, 2018). However, previous studies have shown inconsistent results concerning the effectiveness of mental health literacy programs in improving health-seeking behaviour. Even when knowledge about mental health improves, participants' behaviours related to their mental health issues may not result in the appropriate identification of these and therefore not result in appropriate care and management. While some programs have been successful in improving health literacy, many of the results have been short-lived and have not been shown to reduce stigma about mental illness nor lead to positive behavioural changes (Corrigan, 2018). The inconsistent findings for improving mental health literacy should precipitate a reform in intervention programs for mental health and prompt a more comprehensive approach to improving MHL. To achieve this goal, it is important first to understand college students' MHL so that core components of MHL

interventions can be determined and strategies can be developed to deliver interventions appropriately. The goal of this study was therefore to explore MHL among medical college students in our university and look at the impact of self-stigma on help-seeking behaviour.

1.4. Definition of Terms

i. Mental health literacy (MHL): This refers to an individual's understanding of mental health (positive and negative), mental disorders and their treatments, and ability to effectively seek help (i.e., when, where; ability to use the information to seek informed treatment; Kutcher, Wei, & Coniglio, 2016). It is comprised of the five main components: the ability to recognize early symptoms of a disorder, knowledge of mental health prevention, familiarity with community resources and available treatment options, knowledge of self-help strategies for milder symptoms, and knowledge of skills needed to support others in a mental health emergency (Jorm *et al.*, 1997a).

ii. Self-stigma of seeking psychological help (SSOSH):

Self-stigma represents “the internalized psychological impact of possessing a stigmatizing characteristic” (Bathje & Pryor, 2011, p. 163). In other words, it is the application of negative beliefs and stereotypes to oneself (Corrigan & Shapiro, 2010). It's on a personal level and can lead to lowered self-esteem, decreased self-efficacy (Corrigan & Shapiro, 2010), shame, embarrassment (Thompson, Akbar, & Bazile, 2002), and overall lowered psychological well-being (Owen, Thomas, & Rodolfa, 2013). In general, self-stigma of seeking psychological help (SSOSH) is often equated with perceived stigma, a person's recognition that the public holds prejudice and will discriminate against them because of their mental illness label (Link B, 1987). Self-stigma of seeking psychological help will be used interchangeably with self-stigma of seeking help within the context of this research.

iii. Help-Seeking Behaviour (HSB):

Help-seeking behaviour within the concept of this research is also referred to as *health-seeking behaviour (HSB)* or *general help-seeking behaviour (GHSB)*. It has been defined as any action of energetically seeking help from the health care services or trusted people in the community and includes understanding, guidance, treatment and general support when feeling in trouble or encountering stressful circumstances (Rickwook & Thomas., 2012). Help-seeking behaviour represents individuals making the decision and taking the initiative to access a mental health provider for a mental health-related concern (Ofuani, 2015).

CHAPTER 2: LITERATURE REVIEW

2.1. Mental Health Literacy among Students

Mental health literacy is foundational for mental health promotion, prevention, and care (Chris Gilham, et al., 2018; Kutcher, Wei, & Coniglio, 2016; Kutcher et al., 2016) and the early diagnosis and treatment of mental disorders is associated with better social, academic, and vocational outcomes (Larsen et al., 2011; Perkins et al., 2005; McGorry et al., 2011), whereas untreated mental illness can have a negative impact on physical health, academic outcomes, and future job prospects (Ettner, Frank, & Kessler, 1997; Kessler et al., 1995; Mojtabai et al., 2015; Scott & Happell, 2011).

Smith and Shochet suggested a positive correlation between mental health literacy and help-seeking behaviour in university students (Smith & Shochet; 2011).

University students have been found to have limited mental health literacy skills to assist them in recognizing mental health issues and seeking professional help when needed (Gorczyński *et al.*, 2017). The ability to recognize a condition and knowledge about mental health issues and sources of help are among the factors influencing the help-seeking of young individuals.

2.2. Prevalence and Pattern of Mental Illness among Medical Students

Canadian medical students have been noted to be subjected to a high-pressure environment – with long clinical weeks and significant stressors – and these soon-to-be doctors have been previously shown to already demonstrate high levels of burnout (Chris Wilkes et. al., 2019).

Students in the health profession disciplines, including medical students, encounter a high level of stress due to academic overload, sleepless nights, relentless rotations, and other factors that can hurt their mental health and well-being (Fischbein & Bonfine; 2019). The prevalence of mental health issues among medical students is higher than those in other areas of training (Zeng et al., 2019). It has been reported that medical students display poorer psychosocial well-being when compared to peers of the same age (Pagnin & de Queiro, 2015) and exhibit a higher prevalence

of depression and burnout than the general population (Dyrbye *et al.*, 2014). A survey of 69 medical students at the Cumming School of Medicine, Calgary, regarding their wellbeing and mental health revealed that 26% of the students had been diagnosed with a mental health condition prior to medical school, while 36% reported currently seeing a professional regarding their mental ill-health, with anxiety disorders forming the most reported conditions. Eighty-three percent reported their studies as a significant source of stress (Chris Wilkes *et al.*, 2019). Maser and his colleagues between 2015 and 2016 carried out a survey on 11, 469 medical students in all years of study at all the 17 Canadian medical schools. The survey included validated items and instruments to assess for psychological distress, suicidal ideation and diagnosed mood and anxiety disorders (Maser Branbdon *et al.*, 2019).

Approximately 50% of American medical students experience burnout during their training.⁸ Recovery from burnout has been associated with a decreased rate of suicidal ideation, independent of symptoms of depression, suggesting burnout and suicidal ideation are related (Dyrbye LN, Thomas MR, Massie FS, *et al.* 2008).

A meta-analysis carried out by Zeng *et al.*, in 2019 involving 30,817 Chinese medical students, found that prevalence of depression, anxiety, suicidal ideation and eating disorders was 29%, 21%, 11% and 2% respectively (Zeng *et al.*, 2019). The prevalence and morbidity of mental disorders worsens as students' progress throughout their training, particularly during the clinical years when the pressure of creating a more professional persona is higher (Munn, 2017; Firth, 1986; Whyte *et al.*, 2013). Moreover, the continuously changing learning environment during hospital placements, which is accompanied by frequent relocations, acts as a barrier to seeking help. Lastly, personality traits, such as perfectionism, lead individuals to set the bar too high, which consequently contributes to higher levels of pressure (Grant, 2020).

2.2.1. Mental health literacy across different cultures, regions, and educational system.

The concept of MHL exhibits significant variance contingent upon various geographical contexts, socio-cultural values, educational and healthcare system-related frameworks (Altweck *et al.*, 2015). Studies have reported that Western populations exhibit higher MHL and reduced stigma

surrounding mental illness compared to non-Western demographics (Krendl & Pescosolido, 2020). A comparative analysis of MHL levels among British, Hong Kong, and Malaysian populations suggested that British participants demonstrated the highest proficiency in accurately identifying and reporting mental disorders, followed by Hong Kong participants, and lastly Malaysians (Loo et al., 2012). Low levels of MHL have also been reported among African populations (Sodi et al., 2022).

Another contributing factor for the degree of MHL is level of education and field of study. Numerous studies have identified a positive correlation between MHL, academic year progression and area of study (Furnham et al., 2011; J. E. Kim et al., 2015; Reavley et al., 2012). Possessing a secondary school education has been reported to correlate with improved level of mental health awareness, as well as more positive attitudes towards individuals experiencing mental illness (Abonassir et al., 2021). Graduate students have also been reported to demonstrate higher mental health literacy compared to undergraduates (Rafal et al., 2018). Individuals majoring in psychology and medicine were reported to demonstrate the highest ability for correctly identifying symptoms associated with schizophrenia and depression when compared with peers from other disciplines (Miles et al., 2020). Moreover, undergraduates in medically oriented programs exhibited enhanced abilities in recognizing depression and familiarity with appropriate treatment options (Amarasuriya et al., 2015). These findings are corroborated by reports indicating that students specializing in psychology or psychiatry more frequently recognized and could articulate definitions of mental health disorders compared to those in other fields (Furnham et al., 2011).

2.2.2. Knowledge, attitudes and perception of mental illness among medical students

Identification of medical students' knowledge, attitudes, and behaviors toward mental health represents a crucial area of research given the pivotal role they play in healthcare delivery and patient well-being (Riffel & Chen, 2020). Valuable insights into the efficacy of mental health educational interventions and the current state of mental health literacy have also been explored (Mori et al., 2022). A Canadian qualitative study exploring the knowledge, attitudes, and behavioural responses of healthcare students reported that the students showed good mental health

knowledge and positive behaviors toward individuals with mental illnesses; however, a number of students displayed stigmatizing attitudes and did not feel prepared through their academic experiences to work with individuals with mental illnesses (Riffel & Chen, 2020). A similar study from Uganda reported high knowledge of concept of mental health among medical students; though less than half of the respondents had positive attitudes and good perceptions of mental health (Kihumuro et al., 2022). Being in fourth year and above in medical school was one of the predictive factors for good knowledge of mental health, while a positive history of mental illness was associated with poor attitude to and perceptions of mental illnesses (Kihumuro et al., 2022). However, a contrary report from a similar study among fourth year medical students in Egypt found that study participants had poor mental health-related knowledge with a median score of 17, poor beliefs about mental illness with a median score of 49.5 and poor intended behavior towards the mentally ill with a median score of 7 (Dahshan et al., 2022). Increased positive attitudes of medical students have been reported to develop after the fourth year following introduction to psychiatry (Janoušková et al., 2017), with medical students who chose to specialize in psychiatry demonstrating particularly more tolerant attitudes (Janoušková et al., 2017).

2.3. Mental Health Education in Medical Curricula

2.3.1. Studies examining medical students' knowledge of various mental disorders.

Picco *et al.*, during their cross-sectional study among medical students in Singapore to evaluate their knowledge of various medical disorders (including depression, alcohol abuse, obsessive-compulsive disorder (OCD), dementia, and schizophrenia) reported good knowledge. Most of the respondents (81.7%) were able to recognize various mental disorders; depression was most well-recognised (93.0%), followed by alcohol abuse (89.0%), OCD (87.1%) and dementia (79.2%), while only 60.0% of students correctly recognised schizophrenia (Picco et al., 2017). Female participants were significantly more likely to correctly recognise the disorders, while the odds of correct recognition were significantly higher among fourth year and fifth-year students compared with first-year students. Compared with depression, dementia and schizophrenia were significantly

more likely to be mislabelled (Picco *et al.*, 2017). In contrast to this, a similar study in Saudi Arabia reported a lower result with only a minority (4.46%) of the students having good knowledge of schizophrenia (Bakry *et al.*, 2022). Most of the students interviewed had poor levels of understanding and knowledge of mental illness, with the students from the College of Medicine significantly displaying a higher level of knowledge (P-value = 0.008). The lower rate of knowledge documented in Saudi Arabia could be due to the inclusion of other disciplines aside medical students into the study.

2.3.2. Analysis of effective measure in assessing mental health literacy among medical students.

The Mental Health Literacy Scale (MHLS) has a maximum of 160 scores and a minimum of 35 scores. The higher the score, the more literate the participant is. MHLS has been used to evaluate MHL in the United Kingdom among 251 medical students (Marwood & Hearn, 2019). The mean MHL was 127.69, with a significantly higher score in female and final-year students. Personal experience of mental illness reported by 40% of the respondents as well as having a close friend or family member with a mental illness was associated with a higher MHL ($p < 0.05$). The medical students' average MHLS scores were comparable to studies of non-medical groups. Similarly, mental health literacy was assessed among healthcare students in Taiwan using a 26-item scale-based measure. Factors generated include maintenance of positive mental health, recognition of mental illness, attitude to mental illness stigma, help-seeking efficacy, and help-seeking attitude. The scale demonstrated good content validity, construct validity and internal consistency and was concluded to be a valid, reliable and practical tool for identifying MHL gaps in medical and public health students (Chao *et al.*, 2020).

2.3.3. Implications for mental health education and training in medical schools.

Medical schools' mental health curricula and training have a significant impact on how future healthcare providers are prepared to handle the wide range of mental health issues they or others

they deal with (Hammoudi Halat et al., 2023). Studies have reported the importance of incorporating thorough mental health curricula into medical school training to improve students' understanding, attitudes, abilities and mental health literacy (Milin et al., 2016; Wiedermann et al., 2023). Poreddi *et al* reported the significance of early exposure to psychiatric education in fostering positive attitudes towards individuals with mental illnesses among medical students. Their cross-sectional descriptive study conducted among 176 medical students showed great improvement in students' attitudes after exposure to psychiatry training. In addition, Wiedermann *et al* have highlighted the necessity of continuous education and assistance during medical training to maintain and strengthen mental health competencies (Wiedermann et al., 2023). This study supports the integration of evidence-based methods and interdisciplinary teamwork into mental health education to provide medical students with the skills they need for efficient assessment, diagnosis, and treatment of mental health illnesses.

The role of faculty development initiatives in enhancing the quality of mental health education within medical schools has been addressed (Semchuk et al., 2022). The study of the multifaceted nature of mental health education and training, while emphasizing the importance of holistic approaches that encompass both didactic instruction and experiential learning opportunities has also been highlighted in studies (Nalipay et al., 2023; Semchuk et al., 2022). Finally, the evaluation of different research findings highlights the necessity of continuous initiatives to enhance mental health instruction and training in medical schools, to develop a pool of skilled and empathetic medical practitioners equipped to address the growing needs of people who suffer from mental illness.

2.3.4. Studies on impact of clinical and experiential learning on medical students' mental health literacy.

Medical students' mental health literacy is influenced by clinical and practical learning, which provides avenues for transforming abstract concepts into practical skills (Asif Naveed et al., 2023).

The substantial impact of these learning modalities on students' comprehension, attitudes, and behaviors pertaining to mental health has been reported by some studies.

Murphy *et al.*, examined the efficacy of Mental Health First Aid (MHFA) for improving the mental health literacy of medical students and assessed the value of post-training simulation experience in skills reinforcement (Murphy et al., 2023). They reported that all study participants had a statistically significant increase in mental health literacy scores ($P < 0.0005$), as well as an enhanced self-efficacy in managing mental health disorders. The effect of the Psychological Skills Lab (PSL) on medical students' MHL has also been studied and documented (Chen & Ting, 2023). This approach to MHL emphasizes experiential learning to promote self-determination and autonomy in health promotion while equipping medical students with abilities to manage their emotional well-being and assist other people.

Kolb's experiential learning model has been utilized in teaching clinical reasoning to first year medical students at an academic center in New York (Choi et al., 2023). A series of written clinical reasoning exams with assisted small group discussions were part of the curriculum. Students were asked to reflect on their experiences, make inferences about their clinical reasoning, and make plans for future clinical reasoning encounters through written self-assessments. The study reported that explicit teaching of clinical reasoning theory and cognitive biases using an experiential learning model provided the study participants with valuable insights for developing knowledge, skills, and self-efficacy required for the clinical practice (Choi et al., 2023).

2.3.5. The role of psychiatry clerkship in shaping attitudes and clinical skills related to mental health.

Psychiatry clerkships are essential parts of medical education that provide medical students with an opportunity to get hands-on experience in the field of mental health care (Amini et al., 2013). A study on the impact of psychiatry clerkship on stigma and attitudes towards psychiatry reported a significant decrease in negative and stigmatising views towards mental disorders post-clerkship along with a significant improvement of the knowledge of psychiatry (Lyons & Janca, 2015).

Similarly, a study among medical students in Florida reported that following their psychiatry rotation, there was a significant decrease in the stigmatised attitude score for depression and self-harm ($P = 0.042$), as well as a statistically significant increase in the perceived level of general interest in psychiatry ($P = 0.027$), psychiatry knowledge ($P < 0.001$), and career interest in psychiatry ($P = 0.040$) (J. Kim et al., 2023).

Psychiatry clerkships have an impact that extends beyond academic requirements; they provide students with an experiential learning journey that improves their clinical practice (Bazaid et al., 2021). Direct patient interaction under the supervision of experienced mental health providers promotes a better knowledge of mental disorders and helps debunk misconceptions that may have existed prior to the clerkship. Through close working relationships with patients who have mental health disorders, students develop the empathy, compassion, and cultural awareness that are essential for providing patients with high-quality care (Lyons, 2014). Students who have experienced firsthand the dynamic and complex nature of psychiatric practice may be motivated to consider pursuing a psychiatric specialization or incorporating mental health care into their future medical practice (Archdall et al., 2013). This would be very important not only to address the shortage of mental health specialists but also to improve the standard of psychiatric care delivery in non-psychiatric care settings such as primary practice.

2.3.6. Best practices for incorporating experiential learning into medical curricula.

Dewey and Kolb, among others, describe the history and evolution of experiential learning as a paradigm for student learning (Chorazy & Klinedinst, 2019). Unlike learning that takes place in a regular classroom, experiential learning uses careful reflection and personal experience as its primary source material (Gross & Rutland, 2017). Experiential education is the guiding theory behind experiential learning. The Association for Experiential Education (AEE) states that experiential learning happens when thoughtfully selected experiences are backed by introspection, synthesis, and critical analysis (Chorazy & Klinedinst, 2019). Some of the benefits of experiential learning for medical students include higher critical thinking abilities, better information retention, and increased engagement (Yaodum et al., 2023).

Numerous academics and students have noted the importance of fostering experiential learning in the field of medical education to address the mismatch between theory and practice. Experiential learning is learning via experience, as the name would imply. According to constructivist adult learning theories and the significant work of John Dewey, experiential learning appears to be essential for the development of a productive academic environment for future medical professionals (Roman, 2018; Yardley et al., 2012). The importance of interaction in learning between the student and the lecture material, as well as between the student and the professor has also been emphasised in medical education (Lazari et al., 2023). A growing number of health care educators are adopting interactive, team-based learning sessions. These have been reported to be essential in supporting successful teaching methods, including case-based learning, problem-based learning, and peer-assisted learning (Fatmi et al., 2013; Lazari et al., 2023).

Simulation-based learning has also been found to assist students to effectively simulate clinical scenarios in a controlled environment before interacting with actual patients. It has been increasingly used in healthcare education to teach cognitive, psychomotor, and affective skills in individuals and teams (Zafošnik et al., 2024). It is a viable solution to improving the knowledge, abilities, and attitudes of healthcare practitioners while shielding patients from unwarranted risks (Elshama, 2020). Simulation-based medical training can also provide a platform for students to gain insight to address real-world problems and decrease ethical disputes. The training techniques, tools, and strategies have been stated to be utilized in designing structured learning experiences, as well as used as a measurement tool linked to targeted teamwork competencies and learning objectives (Chernikova et al., 2020).

In general, a multimodal strategy that incorporates problem-based learning, simulation-based training, and actual clinical experience is needed for integrating experiential learning into medical curricula. Medical educators can guarantee the provision of high-quality patient care and adequately educate students on the challenges of clinical practice by implementing these best practices.

2.4. Conceptual Framework of Self-Stigma

2.4.1. Self-stigma among medical students and its components.

Self-stigma among medical students is a pertinent area of inquiry with implications for both individual well-being and professional practice. Research by Korszun et al. (2012) highlights the prevalence of self-stigmatization among medical students, noting its detrimental effects on help-seeking behaviors and mental health outcomes. Components of self-stigma, such as perceived public stigma and internalized stereotypes, have been explored in studies like those conducted by Eisenberg et al. (2010) and Reavley et al. (2013), revealing their association with diminished self-esteem and reluctance to seek mental health support. Furthermore, investigations by Schwenk et al., (2010) and Papish et al., (2013) have identified unique stressors within the medical education environment that contribute to the development and exacerbation of self-stigma among students. The interplay between self-stigma and cultural factors has also been elucidated by studies like that of Chowdhury et al. (2017), underscoring the need for culturally sensitive approaches to address self-stigmatization among diverse student populations. Despite the growing body of literature on this topic, there remains a dearth of interventions specifically tailored to mitigate self-stigma among medical students. Future research efforts should aim to develop and evaluate targeted interventions while considering the multifaceted nature of self-stigma and its impact on medical trainees' mental health and professional development.

2.4.2. Theories and models explaining the development and perpetuation of self-stigma.

Self-stigma, a phenomenon wherein individuals internalize negative societal attitudes towards mental illness, poses significant barriers to help-seeking behaviors and mental health treatment adherence. The development and perpetuation of self-stigma have been explored through various theories and models, providing valuable frameworks for understanding its complex dynamics. One prominent theory is the Social Cognitive Model of Self-Regulation, which posits that self-stigma arises from repeated exposure to societal stereotypes about mental illness, leading individuals to adopt these beliefs and internalize them as personal attributes. Similarly, Attribution Theory

suggests that individuals attribute their mental health struggles to internal, stable, and uncontrollable factors, fostering feelings of shame and self-blame. Labeling Theory emphasizes the role of societal labeling in reinforcing self-stigma, as individuals incorporate negative labels associated with mental illness into their self-concept. Research by Corrigan and Watson (2019) has highlighted the importance of examining the intersectionality of self-stigma with factors such as gender, race, and socioeconomic status, elucidating how multiple dimensions of identity influence self-stigma experiences. Additionally, interventions grounded in empowerment models, such as the ‘Coming out Proud’ program, have shown promise in mitigating self-stigma by fostering resilience and self-acceptance among individuals with mental health conditions (Livingston & Boyd, 2021). Further exploration of these theories and interventions is essential for developing targeted strategies to combat self-stigma and promote mental health equity.

2.4.3. The impacts of self-stigma on individuals with mental illness and its implications for healthcare delivery

Self-stigma, often referred to as internalized discrimination or internalized stigma, is the process by which people with mental illnesses take on unfavorable attitudes and ideas about themselves from society, leading them to feel ashamed, have poor self-esteem, and have lower levels of self-efficacy (Corrigan & Rao, 2012). In particular, it is believed that discrimination and perceived devaluation lower one's self-worth and self-efficacy (Corrigan & Rao, 2012). A study from Ethiopia to evaluate the relationship between self-stigma and medication adherence reported that patients with self-stigma were significantly more likely to have increased number of relapses ($P < 0.01$) and non-adherence to medications ($P = 0.021$) (Abdisa et al., 2020). Furthermore, individuals who experience high levels of self-stigma tend to share social stereotypes about people with psychiatric illnesses, which lead them to believe that the people are inferior or that their mental health issues are incurable (Corrigan & Rao, 2012). Henderson *et al* from their study reported disengagement with therapy and reduced help seeking behaviors among patients with self-stigma, which leads to increased mental health inequalities and ultimately impedes recovery results

(Henderson et al., 2013). Self-stigma has also been associated with high rates of suicidal thoughts and attempts (Latalova et al., 2014). Social avoidance or other forms of potentially maladaptive behavior may have been reported as common outcomes (Holubova et al., 2016) and found to be a strong predictor of social disengagement and avoidance behaviours in people with mental disorders (Park et al., 2019).

The presence of self-stigma poses significant challenges for healthcare providers in delivering effective and compassionate care to individuals with mental illness (Knaak et al., 2017). Healthcare professionals must be attuned to the impact of self-stigma on patients' perceptions of themselves and their willingness to engage in treatment. Addressing self-stigma requires a multifaceted approach that includes destigmatizing language and attitudes, providing psychoeducation and peer support, and integrating mental health services into primary care settings (Javed et al., 2021; Sun et al., 2022).

2.5. Prevalence and pattern of self-stigma amongst medical students

2.5.1. Demographic factors associated with higher levels of self-stigma among medical students.

The internalized negative views and attitudes towards oneself as a result of mental health disorders, or self-stigma, are a serious concern for medical students considering the possible effects they may have on behaviors related to seeking treatment, mental health, and patient outcomes (Sori et al., 2022). Understanding the demographic factors associated with higher levels of self-stigma among medical students is crucial for developing targeted interventions to mitigate its effects and promote a supportive learning environment.

For instance, a study examined self-stigma levels among medical students from diverse backgrounds and found that certain demographic factors, such as gender and ethnicity, were associated with variations in self-stigma scores (Pederson et al., 2020, Pederson et al., 2023). There was a correlation between higher stigma and belonging to the minority ethnic group. Stigma was also higher for those who needed mental health care more frequently. A lower level of stigma was

linked to willingness to access medical services and community support from friends and family (Pederson et al., 2020; Pederson et al., 2023).

2.5.2. Analysis of the impact of stigma on help-seeking behaviors and patient care.

Stigma surrounding mental illness continues to be a pervasive barrier to accessing mental health services and receiving appropriate care. A systematic review identified stigma as the fourth leading barrier to help-seeking, with disclosure concerns the most commonly reported stigma barrier (Clement et al., 2015). Similarly, internalized stigma was associated with reluctance to disclose mental health symptoms to healthcare providers, which ultimately impeded timely diagnosis and intervention (Knaak et al., 2017). The impact of stigma extends beyond individual help-seeking behaviors which influence their care within healthcare settings. Stigma-related biases among healthcare professionals can lead to disparities in the provision of mental health services (Knaak et al., 2017). Nyblade et al., (Nyblade et al., 2019) revealed that healthcare providers' stigma towards mental illness was associated with lower levels of empathy and quality of care provided to patients with psychiatric disorders. Moreover, stigma may exacerbate existing disparities in healthcare access and treatment outcomes, particularly among marginalized populations. The consequences of stigma are worse for racial and/or ethnic minorities compared to racial and/or ethnic majorities since the former often experience other social adversities such as poverty and discrimination within policies and institutions (Eylem et al., 2020).

Efforts to mitigate the impact of stigma on help-seeking behaviors and patient care have garnered increasing attention in recent years. Interventions aimed at reducing stigma, such as anti-stigma campaigns and educational initiatives, have shown promise in promoting mental health literacy and fostering supportive environments conducive to seeking help (Morgan et al., 2021). However, further research is needed to evaluate the effectiveness of these interventions across diverse populations and healthcare settings.

2.5.3. Strategies to reduce stigma and promote empathy amongst medical students.

To develop compassionate and capable healthcare workers, it is imperative that medical students reduce stigma and increase empathic approaches to patients, which is essential to patient-centered healthcare delivery (Stuart, 2016). Studies have identified various interventions targeting stigma reduction among medical students. These interventions include role-plays, contact-based therapies, and imparting knowledge through lectures and case studies. Areas of significant improvement have been shown to include stigma, attitude, help-seeking, knowledge of mental health including detection of depression, and social distance (Waqas et al., 2020). The promotion of self-awareness and emotional control in mindfulness-based programs have demonstrated potential in augmenting medical students' empathy. A variety of interventions are used in mindfulness-based interventions (MBIs), including Internet and smartphone application mindfulness interventions, mindfulness-based cognitive therapy (MBCT), mindfulness-based relapse prevention (MBRP), and other techniques that incorporate mindfulness training (e.g., mindfulness meditation training, dialectical behavior therapy, and integrative body-mind training) (Creswell, 2017). Increased development of empathy can be fostered with MBIs, and the outcomes are often favourable (Hu et al., 2022). Orosa *et al* (Orosa-Duarte et al., 2021) have also reported that mobile app-based mindfulness-based programs are equally as effective as in-person programs in improving self-compassion and empathy.

Studies have supported combining various approaches to combat stigma and promote empathy. For example, long-term educational initiatives that include didactic lessons, clinical exposure, and introspective exercises have shown persistent gains in medical students' ability to reduce stigma and increase empathy (Chan et al., 2009; Stuart, 2016).

Medical students must be exposed to a variety of techniques to foster empathy and lessen stigma. To address these crucial elements of medical education, educational interventions, mindfulness-based programs, narrative medicine workshops, and combination strategies have demonstrated potential.

2.6. Help-seeking attitudes and behaviour among medical students.

2.6.1. Studies of medical students' attitude towards seeking healthcare.

Recent research on medical students' attitudes towards seeking healthcare underscores the significance of understanding this demographic's perceptions and behaviors in accessing medical services. Complex interactions of factors impacting medical students' help-seeking behaviors have been reported. Although medical students generally have a reasonable understanding of health-related topics, they frequently hesitate to seek medical attention for their personal illnesses because they are concerned about privacy, anxious of being judged by their peers or specialists, or worried that it would damage their reputation as professionals (Umami et al., 2023).

A study conducted by Oren *et al* (Shahaf-Oren et al., 2021) explored disclosure and help-seeking decisions by medical students with health problems. This research identified risk-benefit analyses and variables in interconnected domains of their lives impacting medical students' disclosure and help-seeking decision-making processes. Students often avoid or delay disclosure and help-seeking, particularly when the university is involved, because they believe it will jeopardize their future. Other reported barriers include concern about a detrimental impact on career opportunities, violation of confidentiality, peer stigma and shame, lack of perceived seriousness or normalization of symptoms, lack of time, and fear of academic record documentation. Lastly, students who were afraid that their healthcare physician might be an academic preceptor frequently sought care elsewhere (Berliant et al., 2022).

Cultural factors also play a significant role in shaping medical students' attitudes towards seeking healthcare. Medical students from various cultural backgrounds differ in their help-seeking behaviors. Some groups are less likely to seek medical attention because of stigma or cultural beliefs related to mental health disorders (Joseph & Miller, 2018)

Various studies highlight the multidimensional perceptions medical students have about obtaining healthcare, which are often shaped by a wide range of personal, institutional, and cultural variables. To improve medical students' well-being and timely access to healthcare services, it is imperative to address barriers that prevent them from seeking help. It is necessary to conduct further studies

to determine the most effective methods that provide a positive atmosphere for individuals seeking healthcare in medical education settings.

2.7. Medical Students' Barriers to Seeking Help for Mental Health Issues

Approximately 18 to 34% of young people with high levels of depression or anxiety symptoms seek professional help (Gulliver *et al.*, 2010). Friends and family are often the preferred sources of help over health professionals (Rickwood *et al.*, 2007). In two reviews of help-seeking studies, Rickwood and her collaborators concluded that a high reliance on self to solve problems, a lack of emotional competence, and negative attitudes about seeking professional help were barriers to help-seeking (Rickwood *et al.*, 2007; Rickwood *et al.*, 2005). There is considerable literature about the mental health of medical students, much of it focused on student reluctance to use support services. Fears tend to be the last stage in influencing students' (negative) behaviour and are the imagined consequences of a prior belief. For example, in their paper examining medical students' barriers to the use of mental health services, Berliant M *et al.*, 2022 listed several fears such as unwanted intervention, the perception of "weakness" when using services, fear of documentation on academic records, the stigma of having received mental health care, and lack of confidentiality. In a later study, Tjia *et al.* (Tjia J, Givens JL & Shea J. 2005) revealed that 23% of medical students were fearful of the disclosure harming their career, with 23% who were fearful that a diagnosis would be entered into their academic record. Tjia *et al.* also reported that students were fearful of being recognized by a colleague associated with the institution's mental health service and believed that treatment would not help (Tjia J, Givens JL & Shea J. 2005). Another study, albeit with a low response rate (1,328/5,072, 26%), reported that 55% of medical students who responded agreed or strongly agreed that there was a stigma attached to being a medical student undergoing stress and distress, and 72% agreed or strongly agreed that there was a stigma attached to being diagnosed with a mental health condition (Hillis *et al.*, 2010). In their own literature review, Hooper *et al.* (Hooper, Meakin & Jones *et al.*) reported that very few studies have investigated the health-seeking behaviour of medical students. Similarly, Lau *et al.* (Lau *et al.*, 2007) revealed that

shame and fear of stigmatization were barriers to seeking help for students in Hong Kong. Louie et al. (Louie Coverdale & Roberts, 2007) suggested that practitioners' mental health issues began when they were students, stating their fears of stigma, poor grades, and negative career repercussions as reasons for hiding mental illness. Moutier *et al.*'s discussions with medical school leaders, medical students, and residents confirmed that students' fear of stigma could compromise their engagement with suicide prevention and depression awareness program (Moutier *et al.*, 2012). Roberts *et al.* found that female students were more likely to have fears of adverse career repercussions compared to their male counterparts (Roberts, Warner & Trumpower, 2000). Concerns over confidentiality, stigmatization, or professional repercussions (e.g., disclosure affecting their letters of recommendation for residency) are prominent sources of fear among medical students in other studies (Chew-Graham, Rogers & Yassin, 2003).

Center and her colleagues in their paper titled 'Confronting depression and suicide in physicians - A consensus statement' published in 2003, posited that the culture of medicine accords low priority to physician mental health despite evidence of untreated mood disorders and an increased burden of suicide. Barriers to physicians' seeking help are often punitive, including discrimination in medical licensing, hospital privileges, and professional advancement. This consensus statement recommends transforming professional attitudes and changing institutional policies to encourage physicians to seek help. As barriers are removed and physicians confront depression and suicidality in their peers, they are more likely to recognize and treat these conditions in patients, including colleagues and medical students (Center et al., 2003).

Personality traits, such as perfectionism, may also lead individuals to set themselves unachievable goals, which consequently contributes to higher levels of pressure (Grant, 2020).

Despite the higher levels of stress, the United Kingdom General Medical Council (UK-GMC) reported that medical students are less likely to seek help (Grant *et al.*, 2014).

The reluctance of medical students to disclose their vulnerability and reach out for support is multifactorial. One of the core reasons is the belief that disclosing mental illness will result in them being considered unfit to practice, which might influence their career progression (Grant *et al.*, 2014).

2.7.1. Stigma, perceived lack of time, and concerns about confidentiality as barriers to HSB (Help Seeking Behaviour)

In contemporary healthcare landscapes, individuals encountering health issues face a myriad of barriers that impede their willingness to seek professional medical assistance. Among these barriers, stigma, perceived lack of time, and concerns about confidentiality stand out prominently. The strong social stigma that often accompanies seeking medical attention can be a significant barrier. Studies have demonstrated how stigma associated with specific health disorders, such as substance misuse, mental illness, and STDs, discourages people from getting the care they need (Stuart, 2016). People sometimes conceal their health difficulties out of fear of social judgment, prejudice, and isolation, which causes them to put off or completely forego obtaining expert care (Florum-Smith & De Santis, 2012).

Perceived lack of time emerges as another significant barrier to accessing healthcare services. In today's fast-paced society, individuals juggle multiple responsibilities, leaving little room for attending to their health needs (Qidwai et al., 2016). The perception that seeking medical help requires substantial time investment, including scheduling appointments, waiting for consultations, and undergoing diagnostic procedures, dissuades individuals from prioritizing their health (Qidwai et al., 2016). Consequently, minor health issues may escalate into more serious conditions due to delayed intervention, underscoring the critical need for healthcare systems to streamline processes and offer flexible, time-efficient services (Huang et al., 2024).

Real or perceived breaches of confidentiality undermine public confidence in healthcare practitioners and discourage people from disclosing private health information (Beltran-Aroca et al., 2016). This is especially evident in underprivileged areas, where systematic prejudice and past injustices have bred mistrust in medical facilities (Tegegne et al., 2022). Fear of information leakage causes people to put off seeking medical attention entirely, which exacerbates health inequalities and impedes efficient disease management, particularly when it comes to stigmatized health issues or private personal information (Tegegne et al., 2022).

The combination of stigma, time constraints, and privacy worries creates strong obstacles to people seeking health care. Multifaceted initiatives that prioritize patient privacy and trust, streamline healthcare procedures, and destigmatize efforts are needed to address these hurdles (Iott et al., 2020). Healthcare systems may create a more welcoming and accessible atmosphere by addressing these obstacles, which will eventually encourage prompt access to care and enhance everyone's health results.

2.7.2. Impact of academic stress, burnout, and mental health stigma on healthcare utilization.

Medical students often experience academic stress and burnout because of the demanding nature of their programs. Furthermore, the stigma associated with mental health disorders makes these difficulties much more severe. High levels of stress and anxiety are typical of medical students, and over the first three years of their studies, these traits are seen to grow. In a study by Ruthenkova and colleagues in 2018, a considerable risk of suicide has also been reported, with between 45% and 83% of these students reporting having suicidal thoughts, especially during academic sessions and examinations (Ruzhenkova et al., 2018).

More than half of the students report often having less than six hours of sleep due to their heavy study schedules and the need to get ready for courses the following day. Some may also smoke tobacco and consume alcohol to cope with stress, which increases the risk of addiction (Ruzhenkova et al., 2018).

As a result of prolonged exposure to stressors, students are more likely to experience burnout, which is defined by emotional exhaustion, depersonalization, and decreased personal accomplishment (Ayinde et al., 2022). Burnout has a negative impact on students' academic performance as well as their capacity to deliver high-quality patient care once they enter clinical practice (Ruzhenkova et al., 2018).

Even with increased awareness, stigma surrounding mental health issues still prevents many medical students from getting the assistance they need. Many times, people are afraid of being judged, discriminated against, or face professional consequences if they disclose their mental health issues and seek the right kind of help (Joseph & Miller, 2018).

The combined impacts of mental health stigma, academic stress, and burnout significantly impact students' use of healthcare services. Rather than seeking professional assistance, people who are very stressed or burned out are more prone to utilize unhealthy coping strategies including drug misuse or avoidance behaviors (Maresca et al., 2022). Furthermore, stigmatized people's unwillingness to accept mental health issues may delay or prevent access to essential healthcare treatments (Eylem et al., 2020).

2.8. Access to Healthcare Services for Medical Students

2.8.1. Analysis of the role of university of Saskatchewan health services counseling centres, and external healthcare providers in Saskatchewan

There has been a rise in global concern about university students' mental health. University health services counselling centers and external healthcare providers play pivotal roles in addressing the mental health needs of students. Counselling centers in universities offer confidential services directed at addressing various mental health concerns including stress, academic pressure, anxiety and depression (Cohen et al., 2022). These centers typically employ licensed psychologists, counsellors, and social workers who provide individual and group therapy sessions (Fazel et al., 2014). They also often offer workshops, outreach programs, and crisis intervention services to enhance mental health awareness and support on campus (Cohen et al., 2022). University counseling centers strive to create a safe and inclusive environment where students feel comfortable seeking help without stigma or judgment.

University counselling centres are vital, but they often have challenges keeping up with the demand for their services and limited resources (Cohen et al., 2022). University counselling centres' services are supplemented by external healthcare professionals such as private practitioners and community mental health clinics. Beyond the reach of university resources, these professionals may provide long-term therapy alternatives, mental examinations, and specialized therapies (Waqas et al., 2020). Integrated care models, where university counselling centres maintain close partnerships with external providers, have shown promising outcomes in improving

access to mental health services and reducing treatment gaps (Isaacs & Mitchell, 2024). Collaborative efforts may include shared treatment planning, joint staff training, and streamlined referral processes to facilitate seamless transitions between care settings (Cohen et al., 2022). Ideally, universities foster partnerships with local healthcare networks to expand access to specialized services and enhance community-based support for students. By leveraging their respective strengths and fostering collaboration, universities can create comprehensive support systems that effectively address the diverse needs of students throughout their academic journey. The strategy focuses on supporting students in post-secondary education in the province and includes a toolkit and awareness campaign that were developed in a way that other Saskatchewan post-secondary institutions can use and repurpose to fit their needs.

The National College Health Assessment completed in 2019 found that approximately 16 percent of students across Canadian institutions seriously considered suicide. In a 2021 Canadian Campus Wellbeing Survey, 10 per cent of the 3,553 students surveyed in Saskatchewan said they thought about suicide over the last 12 months and of those, 34 per cent planned.

Approximately 4,000 people die by suicide each year in Canada, according to a 2020 Statistics Canada report, and it is the second leading cause of death for people aged 15 to 24. The report showed that Canadian suicide rates are approximately 10 per 100,000 people.

In Saskatchewan, the rates of suicide are higher than the national per capita average. Between 2015 and 2019, Saskatchewan Coroners Services reported suicide rates were 15.4 per 100,000 people.

To estimate the rate of suicide among Canadian medical student population and to examine the prevalence of institutional response policies for suicide, Zivanovic and his colleagues in 2018 carried out a survey. The survey was sent to all 17 Canadian medical undergraduate programs (MDUPs) to collect information on deaths by suicide over the past 10 years. In the case of a reported suicide, basic demographic data was collected. Respondents were asked to indicate whether internal statistics or response policies for suicide existed at their MDUP. Responses were obtained from 16 of 17 (94%) MDUPs. Six suicides (50% female) were reported over the ten-year period from 2006 to 2016. The estimated cause-specific mortality rate was 5.9-8.7/100,000 medical students/year. There were seven (44%) MDUPs that kept statistics on student deaths

including suicides and 10 (63%) reported having policies or guidelines regarding what to do in the event of a suicide (Zivanovic, McMillan & Lovato et al., 2018).

From Statistics Canada, the most recent calculation of the suicide rate for the general population was 11.5/100 000. When looking at appropriate age comparison groups for medical students, those numbers were slightly higher at 11/100 000 for ages 20 to 24, 11.7/100 000 for ages 25 to 29, and 12/100 000 for ages 30 to 34. This suggests that unlike practicing physicians, medical students may be at a decreased risk of death by suicide compared with their age-matched counterparts in the general population (Zivanovic et al. 2018).

Support for USask's suicide prevention strategy is one of the action items stemming from the government's *Pillars for Life: The Saskatchewan Suicide Prevention Plan*, which was released in May 2020.

Healthy Campus Saskatchewan (HCSK), a community of 22 post-secondary institutions in Saskatchewan who have come together to support student mental health and wellness, will be the driving force in sharing the material with other Saskatchewan institutions (USasK media relations). Aside from the office of the students' affairs' (OSA) lead student wellness center that provide 24 hours emergency service to medical students with emotional issues, the University of Saskatchewan (USask) recently launched a suicide prevention strategy to help students in the province who are experiencing thoughts of suicide, those wanting to support someone experiencing thoughts of suicide and those impacted by a suicide loss.

In addition to the suicide prevention strategy, USasK also assist the medical students and other students through USAFE safety app which students can download and have access to a lot of wellness informations and contacts to call in case of emergency.

The Students Medical Society of Saskatchewan (SMSS) also organizes student wellness programme for the students.

There is also a student volunteer opportunity called PEER HEALTH which is an initiative of the students' wellness centre who assist to identify early signs and symptoms in any student going through distress.

All the students are also covered by health insurance from the University of Saskatchewan students' union (USSU) which takes care of their physical health, vision and dental. The UGME further covers the students with mental healthcare and one-on-one counselling.

2.8.2. Gaps in healthcare access and potential strategies for improving service delivery.

Access to healthcare services should be a fundamental human right, yet significant disparities persist globally, leaving many individuals underserved or entirely without care. Four main aspects of access have been documented which includes acceptability, affordability, geographic accessibility, and availability (Jacobs et al., 2012). Both the supply and/or demand sides may be the source of obstacles to receiving health care (Bakibinga et al., 2022). Demand-side determinants are elements that affect an individual's, household's, or community's needs and capacity to utilize health services, whereas supply-side determinants are features of the health system that may prevent people, families, or communities from using services (Jacobs et al., 2012).

Disparities in healthcare access can be caused by a variety of variables, such as structural inequality, geographic location, financial position, and cultural barriers (Okoli et al., 2020). Financial obstacles, such as inadequate insurance coverage or excessive out-of-pocket expenses, frequently keep individuals with limited incomes from getting essential medical treatment. In particular, the lack of infrastructure and service availability renders it difficult for residents in rural and isolated areas to access healthcare (Florio et al., 2023). Disparities in healthcare delivery are exacerbated when minority communities face additional obstacles to access, such as language and cultural barriers (Chauhan et al., 2020; de Moissac & Bowen, 2017).

Several methods have been employed to reduce patients' barriers to accessing healthcare. For the treatment of mental health conditions, telemedicine may be a useful option, reducing some of the obstacles that prevent patients from accessing this essential type of care (Bhaskar et al., 2020). With telemedicine, patients may access care without lengthy travel and costs associated with that, while also minimizing spread of transmissible diseases (a major problem during the worst of the pandemic) (Haleem et al., 2021).

Over time, health care providers' (HCPs') usage of mobile devices has changed several facets of clinical practice (August, 2013). Due to the widespread use of mobile devices in healthcare settings, the number of medical software applications (apps) on these platforms has also increased (Ventola, 2014). Clinicians can now get assistance with a wide range of crucial tasks with the help of numerous apps, including time and information management, access to and maintenance of health records, communications, consultation, reference, and information gathering, patient management and monitoring, clinical decision-making, and medical education and training (Ventola, 2014). For healthcare professionals, mobile devices and applications provide numerous advantages. Among them is the potential for greater accessibility to point-of-care tools, which has been demonstrated to enhance clinical decision-making and enhance patient outcomes (Mickan et al., 2013).

Addressing systemic disparities in healthcare access requires legislative measures focused on lowering financial obstacles, increasing insurance coverage, and fortifying the healthcare system. For underprivileged people, efforts like Medicaid expansion, subsidized insurance plans, and investments in primary care services can increase access to healthcare (Jindal et al., 2023). Enhancing service delivery and minimizing care inequities can also be achieved by adopting quality improvement efforts, encouraging interdisciplinary collaboration, and increasing cultural competency within healthcare institutions (Nair & Adetayo, 2019).

To close the gaps in healthcare access, a variety of strategies including policy reforms, community-based interventions, and technological advancements are needed. Stakeholders should endeavor to guarantee that every individual, regardless of socioeconomic class or geography, has access to high-quality healthcare services by putting evidence-based methods into practice and promoting equality in healthcare delivery.

2.9. Interventions to Improve Help-Seeking Behaviors and Access to Mental Health

Services.

2.9.1. A review of interventions aimed at promoting positive HSB among medical students.

Several aforementioned interventions have been recommended to encourage positive health-seeking behaviours among medical students, Integrating wellness programmes into medical school curricula is one of such initiative (Moss et al., 2021). It has been demonstrated that these programmes' elements such as mindfulness training, stress management seminars, and counselling services improve mental health outcomes and lessen medical students' burnout (Alzahrani et al., 2023).

Peer support is also crucial in encouraging students to seek support and streamlining referrals to counseling services. Students often do not feel as comfortable turning to faculty for mental health concerns, but peer supporters may be ideally situated to recognize warning signs in a classmate (Khurram et al., 2020). Medical students may also worry that showing signs of depressive symptoms or mental health problems may cause them to be deemed unfit by peers and professors. Peer support programs support students facing a range of challenges, ranging from sub-clinical mental health struggles to clerkship experiences and discrimination to relationship issues (Robledo-Gil et al., 2018). Abrams *et al* (Abrams et al., 2020) in their study of peer support on wellness services and mental health stigma reported that peer support reduces the stigma surrounding academic stress and psychological distress.

Including self-care education in medical school curricula additionally provides students with the knowledge and abilities they need to prioritize their health. This could involve instruction in stress reduction, physical activity, healthy eating, and sleep hygiene. Self-care education can encourage positive health-seeking behavior by giving students the resources they need to take care of their physical and emotional well-being (Wan et al., 2024).

2.9.2. Analysis of the effectiveness of educational programs, peer support initiatives, and wellness interventions to prevent adverse outcome of not seeking help such as suicide

The significance of addressing mental health and wellness in educational environments has gained attention in recent years. To promote students' mental health, educational programs, peer support efforts, and wellness interventions have become essential techniques. Peer support initiatives leverage the power of social networks to provide emotional support and guidance to individuals facing mental health challenges (Sun et al., 2022). These initiatives often involve peer mentoring, support groups, and peer-led workshops aimed at reducing feelings of isolation and stigma associated with mental illness. Dodd *et al* (Dodd et al., 2022) during their study of school-based peer education intervention reported a 52.2% level of effectiveness, 11.9% with mixed findings and 35.8% with limited or no evidence of effectiveness. Improvement in health-related knowledge was most common with less evidence for positive health behaviour change (Dodd et al., 2022). A similar study also documented that structured peer support for depression may have benefits in improving student mental wellbeing, though it is unlikely to have a significant impact in improving early and preventative interventions (Byrom, 2018). Unfortunately, another study from Australia found that 80% of the total number of participants reported no statistically significant intervention effect on wellbeing outcomes (Gunawardena et al., 2023). Peer education and counselling effectiveness tend to improve when organizational factors and cultural context of the population are taken into consideration during sessions (Topping, 2022). Generally, peer support has been linked to better mental health, including increased happiness, self-esteem, and efficient coping as well as decreased anxiety, despair, and loneliness (Richard et al., 2022). Young adults, members of racial or sexual minorities, and university students all seem to benefit from this intervention. Peer support, both in person and in groups, seems to improve mental health and has favorable benefits for even the coordinators (Richard et al., 2022).

In a bid to create a supportive environment for the promotion of mental health, wellness interventions typically focus on both individual behaviors and environmental factors. Examples of these activities encompass physical activity, nutrition, mindfulness practices, and stress

management techniques. Hallam *et al* (Hallam et al., 2023) reported that following a 50-day workplace physical wellness program, there was a significant reduction in anxiety (18.2%), stress (13.0%) and sleep related disorders (6.9%), with an overall increase in wellbeing (6.7%). By fostering healthy habits and providing resources for stress management, wellness interventions contribute to creating a culture of wellness among different populations (Russell et al., 2020; Toma et al., 2023). Supporting students' mental health and well-being requires a combination of wellness treatments, peer support programs, and educational activities. These approaches help create supportive learning environments where they can flourish intellectually and emotionally by addressing the intricate interplay of individual, social, and environmental elements.

2.9.3. Recommendations for incorporating HSB promotion into medical curricula and institutional policies.

Medical education should encompass comprehensive training on health promotion and disease prevention (Klement et al., 2011). This includes teaching students about the social determinants of health, cultural competency, and effective communication skills. Incorporating case studies, simulations, and role-playing exercises can enhance students' understanding of diverse health seeking behaviors and their determinants (Rukadikar et al., 2022). Longitudinal experiences in community health settings can provide students with practical exposure to promoting health seeking behaviour (Haidar et al., 2020).

Promoting health-seeking behavior on a wider scope requires collaboration with public health agencies, community organizations, and policymakers (Century et al., 2003). Medical schools can form partnerships with nearby healthcare facilities and community organizations to give students practical experience in promoting health seeking behavior among a variety of populations (Alderwick et al., 2021). These partnerships can also support research projects intended to find effective strategies for promoting health seeking behavior. Regular evaluation of educational programs and institutional policies is crucial for identifying areas of improvement. Collecting

feedback from students, faculty members, and healthcare providers can inform curriculum revisions and policy updates (Ifarajimi, 2023).

Table showing the demographic outlook of the medical students in University of Saskatchewan

Class	Number	Frequency
Year	(n)	(%)
<i>1</i>	104	25.75
<i>2</i>	100	24.75
<i>3</i>	100	24.75
<i>4</i>	100	24.75
Total	404	100.00
Female	Number (n)	Frequency (%)
<i>Year 1</i>	53	62.4
<i>Year 2</i>	51	51.0
<i>Year 3</i>	60	60.0
<i>Year 4</i>	56	56.0
Indigenous	Number (n)	Frequency (%)
<i>Year 1</i>	11	10.57
<i>Year 2</i>	7	7.00
<i>Year 3</i>	9	9.00
<i>Year 4</i>	5	9.00

Class	Age Range (yrs)	Mean Age (yrs)
<i>Year 1</i>	21-36	24.0

<i>Year 2</i>	20-42	23.6
<i>Year 3</i>	19-34	23.5
<i>Year 4</i>	20-35	23.6

Class	Saskatchewan Residents (n)	Non-Saskatchewan Residents (n)
<i>Year 1</i>	87	13
<i>Year 2</i>	92	8
<i>Year 3</i>	91	9
<i>Year 4</i>	94	6

CHAPTER 3: METHODS

Following a brief overview of the setting of the study, this chapter provides greater detail regarding study population and the relevant demographic context. The procedure for data abstraction is then described, followed by a description of the study variables, the statistical analyses conducted, and the ethics procedures followed.

3.1. Setting of the study

In 1944, a survey of the health needs of the province (SINGERIST Report) recommended that the school be expanded to a “complete Grade A Medical School” and that a University Hospital of 500 beds be constructed for scientific teaching, clinical instruction, and research. A medical building was completed in 1950, a four-year degree-granting College was inaugurated in 1953, and University Hospital opened in 1955.

Students in pre-clerkship learn mostly through classroom-based modules, small group sessions, clinical integration (weekly skills practice and experiential patient encounters), and regular examinations (both written and clinical). In contrast, students in clerkship primarily work in clinical environments (e.g., clinics and hospitals). Duties at this stage tend to provide more independence but include challenging national board examinations, longer, mandatory work hours, and higher patient responsibilities.

3.1.1. Years one and two

The first two years of medical education are called pre-clerkship. Students learn basic sciences and how to apply that learning in clinical conditions. They learn how to take medical histories and perform physical exams, first on standardized patients and then on real patients. At the same time, they are introduced to the factors that can affect both people's health and how they function in society. Students have the opportunity to participate in research and earn Global Health Certification.

3.1.2. Years three and four

After pre-clerkship comes clerkship. During year three, which is the first year of clerkship, students put into practice what they have already learned. They participate in clinical rotations and provide patient care both in hospital and in outpatient clinics. Clinical experiences occur not only in Saskatoon, Regina and Prince Albert, but also in rural and remote communities throughout Saskatchewan. In year four, students have further opportunities to experience different fields of medicine by participating in electives in Saskatchewan and at other medical schools throughout Canada. This prepares them for choosing a residency program at the end of year four.

The College of Medicine of the University of Saskatchewan is the university's medical school. It is the only medical school in the Canadian province of Saskatchewan. It trains the physicians, scientists, researchers, and physical therapists the world needs.

A medical college was part of President Walter Murray's design for the new University of Saskatchewan, and was consistent with his view that the university should serve the needs of the province. In 1926 a School of Medical Sciences was established, which provided the first two years of medical training. Between 1928 and 1954, 605 students completed the course and then went elsewhere in Canada for the clinical years.

The College currently admits about 100 medical students per class, supervises the training of over 200 residents, and provides basic science training to 330 students in Arts/Science. The aim of the program is to produce a “basic” or undifferentiated doctor capable, with further training, of becoming a family practitioner, specialist, or research scientist. The undergraduate medical education program in the College of Medicine is a four-year program leading to the Medical Doctor (MD) degree. This does not include the 4-year baccalaureate degree required prior to admission to the program. Upon earning the MD degree, students are then eligible to apply for postgraduate training in the discipline of their choice.

The College of Medicine of the University of Saskatchewan's (USask) main campus is in the vibrant city of Saskatoon on Treaty 6 territory and the traditional homeland of the Métis. Its other campus is in Regina. USask is one of the top research-intensive, medical doctoral universities in

Canada, and is home to world-leading research in areas of global importance, such as water and food security and infectious diseases.

3.2. Study Population

The study population was 404 undergraduate medical students in the College of Medicine, University of Saskatchewan. Undergraduate medical training at U of S comprises a pre-clerkship component (Years 1 and 2) during which students learn core medical sciences with a small element of clinical experience and then the Clerkship component (Years 3–4) within which the focus is largely on clinical experience and teaching. The UGME administers the province’s medical education program, with main campuses at Saskatoon and Regina, although students are also involved in distributed learning at other smaller teaching sites throughout the province.

3.3. Study Design

It was a descriptive cross-sectional study of undergraduate medical students in the College of Medicine, University of Saskatchewan. A total of 404 students from year one to four in the undergraduate medical program in the College of Medicine, University of Saskatchewan, in a prairie province in Canada were invited by e-mail to complete an anonymous internet-based questionnaire via Survey Monkey. As well as collecting demographic information, students were also asked to complete the Mental Health Literacy Scale (MHLS), the Self-Stigma of Seeking Psychological Help Scale (SSOSH; Vogel, Wade, & Haake, 2006) and the General Help-Seeking Questionnaire (GHSQ) to assess internalized stigmatizing attitudes.

3.4. Inclusion and exclusion criteria

Data used for the study included:

- i. Completed questionnaires.

- ii. Those of the participants that are actively enrolled as a University of Saskatchewan medical students.

Data excluded from being used for this study include:

- i. Those who did not consent to answer the survey questions.

3.5. Sample size determination

There is no universally agreed-upon prevalence rate for health-seeking behaviour (HSB) among medical students due to the multifaceted nature of this concept and the variability in how it is measured across studies. HSB encompasses a range of behaviours related to seeking healthcare services, help-seeking attitudes, and adherence to medical advice. Therefore, the expected prevalence rate was set at 50% (Martínez-Mesa et al., 2014). The minimum sample size was calculated using the formula for a cross-sectional study, according to Charan & Biswas, 2013.

$$(n) = Z^2 p (1-p)/d^2$$

Where:

n is the sample size.

Z is the statistic corresponding to the level of confidence, i.e, 1.96% (95%) confidence interval (CI).

p is the expected prevalence which was set at 50%

d is the precision (corresponding to effect size) which was set at 0.05

$$n = (1.96)^2 \times .50 (1-0.50) / (d)^2 = 384.16$$

3.6. Ethical Consideration

Ethical approval was obtained from the U of S Behavioural Ethics Committee, University of Saskatchewan. Meetings were held with the College of Medicine, UGME (University Graduate Medical Education) to inform them about the study, its aims, and objectives. Permission was also obtained from the Student Medical Society before the commencement of the study. Likewise written consent was obtained from each participant after a detailed explanation about the aims and

objectives of the study by the researcher. Participants were also given the option of closing their browsers and not respond to the question further should they feel uncomfortable responding to any of the questions. Their participation or non-participation did not in any way interfere with their study grades.

The university's mental health helplines were also provided for those who may require counselling or any other psychological interventions.

3.7. Sampling Technique

It was online survey sent through Survey Monkey via mail to the entire medical students from year one to four who consented to participate in the study. Participation was voluntary and responses were anonymous, to maintain confidentiality and minimize response bias.

3.8. Study Instruments

The researchers used standardized questionnaires to collect objective measures of mental health literacy level, self-stigma of seeking psychological help and help-seeking behaviour among the respondents. These are:

3.8.1. Mental health literacy scale (MHLS)

The MHLS is a 35-item MHL questionnaire (O'Connor & Casey, 2015), which assesses the following six aspects of MHL: disorder recognition, knowledge of help-seeking information, knowledge of risk factors and causes, understanding of self-treatment, awareness of professional treatments available, and attitudes toward promoting positive mental health or help-seeking behaviour (e.g., "To what extent do you think it is likely that Personality Disorders are a category of mental illness"). The lowest score on the MHLS is 35 and the highest is 160 with higher scores indicating greater MHL. The MHLS has a good internal consistency and test-retest reliability ($r = .797$, $p < .001$; (O'Connor & Casey, 2015). Cronbach's alpha is 0.818 (O'Connor & Casey, 2015).

3.8.2. The self-stigma of seeking psychological help Scale (SSOSH)

The Self Stigma of Seeking Psychological Help Scale (SSOSH; Vogel et al., 2006) is an instrument used to assess internalized stigmatizing attitudes towards oneself. The 10-item scale asks participants to rate the degree to which they agree with statements on a 5-point Likert scale (1=strongly disagree, 5= strongly agree). A sample item is, “I would feel inadequate if I went to a therapist for psychological help.” The 10 items are reverse scored, generating scores that can range from 10 to 50. The higher the scores, the higher the level of self-stigmatizing beliefs about seeking help. The SSOSH is also able to distinguish between individuals who have sought help from those who have not (Vogel et al., 2006). Vogel, Wade, and Haake (2006) found the internal consistency of the scale to range from .86-to .91 with test-retest reliability demonstrating good consistency over 2 months (.72) among college students. Cheng, Kwan, & Sevig (2013) reported a Cronbach’s alpha of .86 in a study of minority college students (Ofuani, 2015).

3.8.3. The general help-seeking questionnaire (GHSQ)

The GHSQ has been used to assess participants’ intentions to seek help for mental health problems (Wilson et al., 2007). The participants are asked to score their level of intention to seek help from various individuals (e.g., friends, mental health care professionals, intimate partners) on a scale of 1 (extremely unlikely) to 7 (extremely likely). The higher the score, the higher the intention to seek help for mental health problems. Previous research has shown the GHSQ has satisfactory test-retest reliability ($r = .92$) and is a flexible measure of general help-seeking intentions that can be applied to a range of contexts (Wilson et al., 2007). Conversely, the GHSQ is significantly correlated to seeking access to counseling ($r_s = .17, p < .05$; Wilson et al., 2007).

3.9. Data Collection Procedure

The sociodemographic and clinical questionnaires, mental health literacy scale, self-stigma of seeking psychological help scale and general help seeking questionnaire were entered into a survey monkey. The consent statements were put at the beginning of the survey monkey and participants

would have to assent to the consent form before they could proceed to respond to the questionnaires. A link was generated and copied into the recruitment letter. The researchers sought the help of an administrative staff in the UGME to assist in sending the recruitment letter (alongside the survey link) to the e-mails of all the medical students. There were 5 follow up e-mails sent to the participants after the initial one due to poor response to the initial one sent.

Participants were made to be aware in the consent statements that their participation or non-participation would not impact their education or how they would be treated.

Respondents were also made to be aware that the questionnaires would take approximately 20 minutes or lesser to complete. They were informed of the inclusion criteria which included, participants being actively enrolled as a U of S. Only participants who meeting inclusion criteria and providing their consent were asked to complete the questionnaires.

The information on the inclusion and exclusion criteria was included in the recruitment letter. Data from participants who filled the questionnaires were received at the back end of the survey monkey and later transformed to Statistical Package for Social Sciences 23.0 (SPSS Inc, Chicago, Illinois). for analysis. We planned to collect data over a 2-month period, but due to poor response rate, it was extended to 3 months.

3.10. Data Analysis

The completed questionnaires in the survey monkey were serialized, and information yielded by each was then entered directly into SPSS. Descriptive variables were analysed into frequencies. During simple linear and multiple regression analysis, some variables who has low responses values were grouped together as ‘others’ e.g. gender was grouped into man, woman and the rest as ‘others’ (*i.e. Non-binary, Gender fluid, Trans man, Trans woman, Two-spirit, prefer not to disclose*). Under religion, *Greek or Russian orthodox, Sikh, Indu and Mormon were grouped together as “others”*.

The MHL, SSOSH and HSB questionnaires were transformed from their continuous to categorical scales by determining the cut off point for each of the instruments. The cut off points were gotten as follows:

1. The lowest score on the MHLS is 35 and the highest is 160 with higher scores indicating greater MHL. The participants' MHL scores were categorized into higher and lower mental health literacy by;
 - i. finding the RANGE of the MHL questionnaire scores, which is $160 - 35 = 125$ and,
 - ii. then taking the average of the RANGE (i.e. $125/2 = 62.5$).
 - iii. then determining the cut-off point score of the questionnaire by adding the minimum possible questionnaire score or subtracting the maximum possible questionnaire score (e.g. $35 + 62.5 = \text{Approx } 98$). Thus, any participant with a score above 98 was categorized as having higher MHL while those with 98 or below were considered as having lower MHL.
2. The lowest score on the SSOSHS is 35 and the highest is 160 with higher scores indicating greater SSOSH. The participants SSOSH scores were categorized into higher and lower self-stigma of seeking help by.
 - i. finding the RANGE of the SSOSH questionnaire scores, which is $50 - 10 = 40$ and,
 - ii. then taking the average of the RANGE (i.e. $40/2 = 20$).
 - iii. then determining the cut-off point score of the questionnaire by adding the minimum possible questionnaire score or subtracting the maximum possible questionnaire score (e.g. $10 + 20 = 30$). Thus, any participant with score above 30 was categorized as having higher SSOSH while those with 30 or below were considered as having lower SSOSH.
3. The lowest score on the GHSQ is 20 and the highest is 140 with higher scores indicating greater HSB. The participants HSB scores were categorized into higher and lower help seeking behaviour by;
 - i. finding the RANGE of the HSB questionnaire scores, which is $140 - 20 = 120$ and,
 - ii. then taking the average of the RANGE (i.e. $120/2 = 60$).
 - iii. then determining the cut-off point score of the questionnaire by adding the minimum possible questionnaire score or subtracting the maximum possible questionnaire score (e.g. $60 + 20 = 80$). Thus, any participant with score above 80 was categorized as

having higher HSB while those with 80 or below were considered as having lower HSB.

Comparison between categorized socio-demographic and clinical variables and categorized SSOSH and HSB were done by chi square test.

For discussion purpose, summary scores were also generated for the MHL, SSOSH and HSB scales and their mean scores calculated.

To determine all the variables that were independently associated with SSOSH and HSB, all the variables that were associated with them in the previous analysis were entered into a stepwise logistic regression analysis.

To fulfil the second objective of the study, multivariate regression analysis was also done to determine the association between SSOSH and HSB.

A confidence interval of 95% which allows for 5% sampling error, at significance level less than or equals to 0.05 was used.

CHAPTER 4: RESULTS

This chapter begins with details analysis of the socio-demographic and clinical characteristics of participants, followed by the presentation of results according to research question.

4.1. Socio-demographic and clinical characteristics of participants

A total of 102 participants responded to the survey questionnaires, thus giving a response rate of 25.2%. During data entry, 85 participants completed the entire questionnaires and were entered for analysis. Participants' demography revealed a balanced age distribution with 52.9% being 25 years or older, and 47.1% under 25. Women constituted a majority at 62.4%, compared to 34.1% men. Most participants (65.9%) reported being single. Around two-fifths (38.8%) of the respondents identified as belonging to a minority group. Over half (57.6%) of the participants identified as White, while 5.9% make up the indigenous population. In terms of religion, majority (31.8%) of the respondents said they are Atheist or agnostic. A large majority, 78.8%, were born in Canada. First-year medical students were the largest group at 41.2%, with the remainder spread across the other years, indicating a diverse representation across the stages of medical education.

Access to academic resources was reported as easy by 67.1% of participants, and commuting was easy for 68.2%, suggesting favourable conditions for academic engagement. Almost a quarter of the participants expressed desire to specialize in Family Medicine, while only 4.7% desired to specialize in Psychiatry. In a similar vein, about a quarter of the students (22.4%) remained undecided about their choice of specialization. In terms of living situation, data showed that 34.1% lived with parents or family, while 27.1% lived alone, reflecting a variety of living arrangements among the students.

The study participants exhibited a varied distribution in sleep patterns, with a majority (62.4%) reporting less than 7 hours of sleep per night, while 37.6% reported 7 or more hours. A notable 57.6% of respondents acknowledged a history of mental disorders (MD), with 42.4% having no such history. Among those with a positive history of MD, 63.3% had used medication for their

condition, while the remaining 36.7% had not. The severity of MD was described as disruptive by 55.1% of the respondents with a history of MDI, whereas 44.9% considered it not disruptive. Family history of mental disorder was reported by 56.5% of the participants, indicating a significant prevalence, while 43.5% had no family history of such conditions. Exposure to mental health courses or training was relatively low among the study group, with only 27.1% affirming exposure, compared to a substantial 72.9% who had not been exposed (Table 1).

Table 1: Socio-demographic and clinical profile of the respondents.

Variables	Frequency (n)		Percentage (%)
Age Group			
Less than 25 years	40		47.1
25 years and more	45		52.9
Gender			
Man	29		34.1
Woman	53		62.4
Non- binary	1		1.2
Gender fluid	1		1.2
<i>Trans man/ Trans woman, /Two-spirit, /prefer not to disclose.</i>	1		1.2
Relationship Status			
Married/Cohabiting relationship	29		34.1
Single	56		65.9
Identify as Minority			
Yes	33		38.8
No	52		61.2

Total	85		100.0
<i>Racial Identity</i>			
Black	4		4.7
Middle eastern	3		3.5
East Asian	4		4.7
Hispanic or Latin American	1		1.2
Indigenous	5		5.9
South Asian	17		20.0
South-East Asian	1		1.2
White	49		57.6
Others	1		1.2
<i>Religion</i>			
Christian	7		8.2
Catholics	13		15.3
Mormon	3		3.5
Greek or Russian orthodox	1		1.2
Muslim	11		12.9
Hindu	3		3.5
Sikh	1		1.2
Atheist or agnostic	27		31.8
Nothing in particular	19		22.4
<i>Born in Canada</i>			
Yes	67		78.8
No	18		21.2
<i>Years in Medical School</i>			

One	35		41.2
Two	21		24.7
Three	15		17.6
Four	14		16.5
<i>Campus</i>			
Saskatoon	53		62.4
Regina	32		37.6
<i>Ease of Accessing Academic Resources</i>			
Difficult	6		7.0
Neither difficult nor Easy	22		25.9
Easy	57		67.1
<i>Ease of Commuting to School</i>			
Difficult	12		14.2
Neither difficult nor Easy	15		17.6
Easy	58		68.2
<i>Specialization of Interest</i>			
Family Medicine	18		21.2
Internal Medicine	8		9.4
Psychiatry	4		4.7
Emergency Medicine	6		7.1
Obstetrics & Gynaecology	7		8.2
Surgical Specialities (<i>Surgery, Anaesthesia</i>)	13		15.3
Paediatrics	8		9.4
Undecided	21		24.7

<i>Living Situation</i>			
Living alone	23		27.1
Living with flatmates	16		18.8
Living with Spouse/Partner	17		20.0
Living with parents/family/Others	29		34.1
<i>Hours of Sleep</i>			
1-6	33		62.4
7+	52		37.6
<i>Previous History of Mental Disorder (MD)</i>			
Yes	49		57.6
No	36		42.4
<i>*Past use of Medication among those with positive history of MD</i>			
Yes	31		63.3
No	18		36.7
<i>*Severity of MD among those with positive history of MD</i>			
Disruptive	27		55.1
Not Disruptive	22		44.9
<i>Family History of Mental Disorder</i>			
Yes	48		56.5

No	37		43.5
<i>Previous Exposure to Mental Health Course/Training</i>			
Yes	23		27.1
No	62		72.9

4.2. Mean scores of Mental health literacy, self -stigma of seeking psychological help and general health seeking behavior of the participants

The table 2 below shows the average scores for participants' MHL, their self-stigma related to seeking psychological help, and health-seeking behaviour. The Mental Health Literacy Scale (MHLS-160) revealed an average score of 134.74 out of a possible 160 scores, for the 85 participants, indicating a relatively high level of awareness and understanding of mental health issues. In contrast, the Health Seeking Behaviour Scale (HSBS-140) showed a low mean score of 80.86 out of a possible 140, suggesting moderate level of health-seeking behaviours. The Self-Stigma of Seeking Psychological Help Scale (SSOSH-50) recorded a low average score of 22.48 out of 50, reflecting a mild level of self-stigma associated with seeking help for psychological issues among the participants.

Table 2: Mean and median scores of mental health literacy, self-stigma of seeking psychological help and general health seeking behaviour of the participants.

Survey Tool	Frequency	Mean Scores	Median scores
MHLS -160	85	134.74	136.0
SSOSH -50	85	22.48	22.0
HSBS -140	85	80.85	81.0

4.3. Prevalence of mental health literacy, self-stigma of seeking psychological help and health seeking behavior of the participants

Figure 1, 2 and 3 represents the proportion of participants who had low/high mental health literacy, their self-stigma towards seeking psychological help, and health-seeking behaviour respectively. Almost all the participants reported high mental health literacy (fig 1), with only 1.2% reporting low level of mental health literacy (Fig 1). Majority (88.2%) had low levels of self-stigma (Figure 2). There is an almost equal distribution among the participants in terms of health seeking behaviour, with 51.8% reporting high help seeking behaviour and 48.2% having low help seeking behaviour (Figure 3).

Figure 1: Prevalence of Mental health literacy level of the respondents.

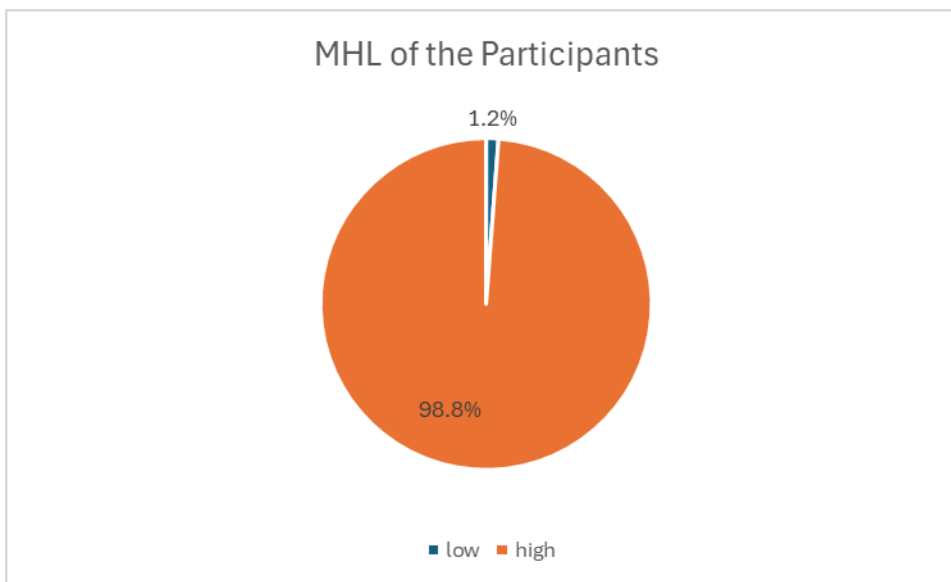


Figure 2: Prevalence of Self- stigma of seeking psychological help of the participants

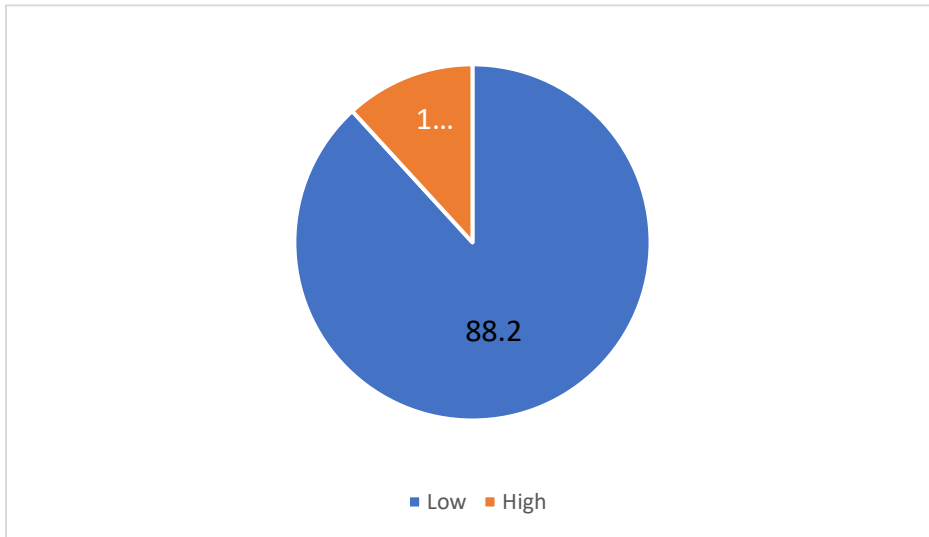
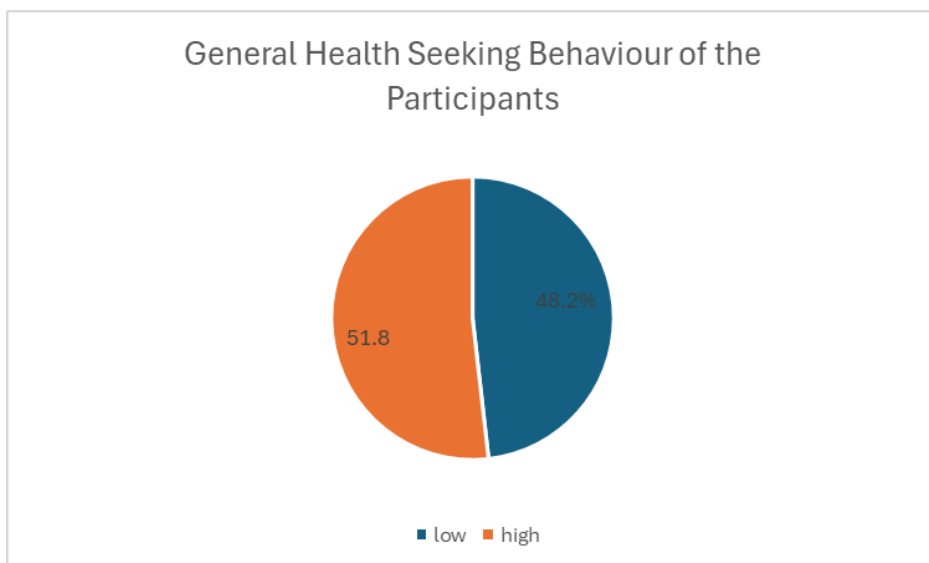


Figure 3: Prevalence of General health seeking behaviour of the participants.



4.4. Socio-demographic and clinical factors associated with mental health literacy (MHL) among the participants.

Given that all but one participant scored high in MHL, the association between this measure and socio-demographic and clinical characteristics was not conducted.

4.5. Socio-demographic and clinical factors associated with self-stigma of seeking psychological help (SSOSH)

Table 3 below examines the relationship between socio-demographic and clinical attributes and the self-stigma of seeking help (SSOSH) among medical students. A slight difference in self-stigma levels was observed between age groups. Those under 25 years showed a 15.0% rate of high self-stigma, compared to 8.9% among those 25 years and older, suggesting a trend towards lower self-stigma with age, however the difference was not statistically significant ($p = 0.383$). No other significant difference was observed in all the other sociodemographic variables and self-stigma.

The distribution of self-stigma levels between those with less than 7 hours of sleep and those with 7 hours or more is nearly identical, with 12.1% and 11.5% reporting high self-stigma, respectively. The statistical analysis indicates no significant difference ($p = 0.935$), suggesting that the amount of sleep does not influence self-stigma levels related to seeking help. A significant relationship is observed between a personal history of mental disorder (MD) and self-stigma of seeking help levels. Participants with a history of mental disorder exhibited a markedly lower rate of self-stigma (4.1%) compared to those without such a history (22.2%), with the difference being statistically significant ($p = 0.010$).

Participants who had previous exposure to mental health courses or training showed a slightly higher rate of high self-stigma (17.4%) compared to those without such exposure (9.7%), though this difference was not statistically significant ($p = 0.327$).

Table 3: Socio-demographic and clinical factors associated with self-stigma of seeking psychological help (SSOSH)

Variables	Self-stigma (SSOSH)		Total	Statistics
	Low n (%)	High n (%)		
Age Group				
Less than 25years	34 (85.0%)	6 (15.0%)	40	$X^2 = 0.762$
25years and more	41 (91.1%)	4 (8.9%)	45	$p = 0.383$
Gender				
Man	25 (86.2%)	4 (13.8%)	29	$X^2 = 1.737$
Woman	48 (90.6%)	5 (9.4%)	53	$p = 0.420$
Others (Non- binary, Gender fluid, Trans man, Trans woman, Two-spirit, prefer not to disclose)	2 (66.7%)	1 (33.3%)	3	
Relationship Status				
Married/Cohabiting relationship	28 (96.6%)	1 (3.4%)	29	$X^2 = 2.933$
Single	47 (83.9%)	9 (16.1%)	56	$p = 0.087$
Identify as Minority				
Yes	28 (84.8%)	5 (15.2%)	33	$X^2 = 0.596$
No	47 (90.4%)	5 (9.6%)	52	$P = 0.440$
Religion				
Christian	7	0	7	$X^2 = 9.361$
Catholics	11	2	13	$P = 0.096$

Muslims	7	4	11	
Nothing	18	1	19	
Atheist or agnostic	24	3	27	
Others (Mormon, Greek/roman orthodox, Hindu, Sikh)	8	0	8	
Total	75	10	85	
<i>Born in Canada</i>				
Yes	61 (91.0%)	6 (9.0%)	67	$X^2 = 2.406$
No	14 (77.8%)	4 (22.2%)	18	$p = 0.121$
<i>Years in Medical School</i>				
One	30 (85.7%)	5 (14.3%)	35	$X^2 = 2.245$
Two	18 (85.7%)	3 (14.3%)	21	$p = 0.523$
Three	13 (86.7%)	2 (13.3%)	15	
Four	14 (100.0%)	0 (0.0%)	14	
<i>Campus</i>				
Saskatoon	48 (90.6%)	5 (9.4%)	53	$X^2 = 0.737$
Regina	27 (84.4%)	5 (15.6%)	32	$p = 0.391$
<i>Ease of Accessing Academic Resources</i>				
Difficult	4 (66.7%)	2 (33.3%)	6	$X^2 = 2.925$
Neither difficult nor Easy	20(90.9%)	2 (9.1%)	22	$p = 0.232$
Easy	51 (89.5%)	f6 (10.5%)	57	

<i>Ease of Commuting to School</i>				
Difficult	9 (75.0%)	3 (25.0%)	12	$X^2 = 2.613$
Neither difficult nor Easy	13 (86.7%)	2 (13.3%)	15	$p = 0.271$
Easy	53 (91.4%)	5 (8.6%)	58	
<i>Specialization of Interest</i>				
Family med	17	1	18	
Int Med speciality	6	2	8	$X^2 = 6.731$
Psych	3	1	4	$p = 0.457$
Emergency med	6	0	6	
Obs & Gynae	7	0	7	
Surgical specialties	11	2	13	
Paediatrics	8	0	8	
Undecided	17	4	21	
Total	75	10	85	
<i>Hours of Sleep</i>				
1-6	29 (87.9%)	4 (12.1%)	33	$X^2 = 0.007$
7+	46 (88.5%)	6 (11.5%)	52	$p = 0.935$
<i>Previous History of Mental Disorder (MD)</i>				
Yes	47 (95.9%)	2 (4.1%)	49	$X^2 = 6.579$
No	28 (77.8%)	8 (22.2%)	36	*$p = 0.010$
<i>Family History</i>				

<i>of Mental Disorder (MD)</i>				
Yes	42 (87.5%)	6 (12.5)	48	$X^2 = 0.057$
No	33 (89.2%)	4 (10.8%)	37	$p = 0.811$
<i>Previous Exposure to Mental Health Course/Training</i>				
Yes	19 (82.6%)	4 (17.4%)	23	$X^2 = 0.962$
No	56 (90.3%)	6 (9.7%)	62	$p = 0.327$

X^2 = Pearson Chi Square; Significant p value in bold font.

4.6. Logistic regression analysis of factors associated with self-stigma of seeking help (SSOSH).

To determine the socio-demographic and clinical variables that were independently associated with SSOSH in the participants, only variable that was associated with SSOSH in previous analysis was entered into binary logistic regression analysis using SSOSH as the dependent variable (Table 4). Previous history of mental disorder (OR= 0.088, 95% CI=0.009-0.868 and P=0.037) was the only variable that was independently associated with SSOSH in the logistic regression model.

Table 4: Logistic regression analysis of socio-demographic and clinical factors associated with self-stigma of seeking help (SSOSH)

	(SSOSH)		Adjusted Odds Ratio AOR (95% CI)	P-Value
	Low	High		
<i>Previous History of Mental Disorder (MD)</i>				
Yes	47 (95.9%)	2 (4.1%)	Ref	

No	28 (77.8%)	8 (22.2%)	0.088 (0.009-0.868)	0.037**
----	------------	-----------	----------------------------	----------------

4.7. Socio-demographic and clinical factors associated with health-seeking behaviour (HSB)

There was a significant difference in health-seeking behavior based on age, with 64.4% of those aged 25 years and more exhibiting high HSB, compared to 37.5% of those under 25 ($p = 0.013$). This indicates a stronger inclination towards seeking health services among older students. Gender, relationship status, identification as minority, religious affiliation, being born in Canada, years in medical school, specialization of interest and living situation were not significantly associated with help seeking behavior.

In addition, our findings showed that students getting 7 hours of sleep, or more are slightly more inclined towards high HSB (57.7%) compared to those with less than 7 hours (42.4%), although the difference is not statistically significant ($p = 0.170$). The presence of a personal history of MD does not significantly affect HSB, with 51.0% of those with a history showing high HSB, compared to 52.8% without such history ($p = 0.873$). Like personal history, the family history of MD shows a non-significant impact on HSB. Those without a family history of MD were more likely to exhibit high HSB (59.5%) compared to those with a family history (45.8%), though the difference does not reach statistical significance ($p = 0.213$). (Table 5).

Table 5: Socio-demographic and clinical factors associated with help-seeking behaviour (HSB)

Variables	Health Seeking Behavior (HSB)		Total	Statistics
	Low	High		
<i>Age Group</i>				
Less than 25years	25 (62.5%)	15 (37.5%)	40	$X^2 = 6.157$
25 years and more	16 (35.6%)	29 (64.4%)	45	*p = 0.013

Gender				
Man	14 (48.3%)	15 (51.7%)	29	$X^2 = 3.405$
Woman	24 (45.3%)	29 (54.7%)	53	$p = 0.182$
Others (Non- binary, Gender fluid, Trans man, Trans woman, Two-spirit, prefer not to disclose)	3 (100.0%)	0 (0.0%)	3	
Relationship Status				
Married/Cohabiting relationship	10 (34.5%)	19 (65.5%)	29	$X^2 = 3.334$
Single	31 (55.4%)	25 (44.6%)	56	$p = 0.068$
Identify as Minority				
Yes	17 (51.5%)	16 (48.5%)	33	$X^2 = 0.232$
No	24 (46.2%)	28 (53.8%)	52	$p = 0.630$
Religion				
Christian	6	1	7	$X^2 = 7.111$
Catholics	7	6	13	$p = 0.212$
Muslims	7	4	11	
Nothing	7	12	19	
Atheist or agnostic	11	16	27	
Others (Mormon, Greek/roman orthodox, Hindu, Sikh)	3	5	8	
Total	41	44	85	

<i>Born in Canada</i>				
Yes	32 (47.8%)	35 (52.2%)	67	$X^2 = 0.028$
No	9 (50.0%)	9 (50.0%)	18	$p = 0.866$
<i>Years in Medical School</i>				
One	18 (51.4%)	17 (48.6%)	35	$X^2 = 2.612$
Two	11 (52.4%)	10 (47.6%)	21	$p = 0.455$
Three	8 (53.3%)	7 (46.7%)	15	
Four	4 (28.6%)	10 (71.4%)	14	
<i>Campus</i>				
Saskatoon	24 (45.3%)	29 (54.7%)	53	$X^2 = 0.491$
Regina	17 (53.1%)	15 (46.9%)	32	$p = 0.483$
<i>Ease of Accessing Academic Resources</i>				
Difficult	5 (83.3%)	1 (16.7%)	6	$X^2 = 3.425$
Neither difficult nor Easy	11 (50.0%)	11 (50.0%)	22	$p = 0.180$
Easy	25 (43.9%)	32 (56.1%)	57	
<i>Ease of Commuting to School</i>				
Difficult	7 (58.3%)	5 (41.7%)	12	$X^2 = 1.933$
Neither difficult nor Easy	9 (60.0%)	6 (40.0%)	15	$p = 0.380$
Easy	25 (43.1%)	33 (56.9%)	58	
<i>Specialization of Interest</i>				

Family med	7	11	18	
Int Med speciality	5	3	8	$X^2 = 7.127$
Psych	2	2	4	p = 0.416
Emergency med	2	4	6	
Obs & gynae	2	5	7	
Surgical specialties	8	5	13	
Paediatrics	2	6	8	
Undecided	13	8	21	
Total	41	44	85	
Hours of Sleep				
1-6	19 (57.6%)	14 (42.4%)	33	$X^2 = 1.885$
7+	22 (42.3%)	30 (57.7%)	52	p = 0.170
Previous History of Mental Disorder (MD)				
Yes	24 (49.0%)	25 (51.0%)	49	$X^2 = 0.026$
No	17 (47.2%)	19 (52.8%)	36	p = 0.873
Family History of Mental Disorder (MD)				
Yes	26 (54.2%)	22 (45.8%)	48	$X^2 = 1.554$
No	15 (40.5%)	22 (59.5%)	37	p = 0.213
Previous Exposure to Mental Health Course/Training				
Yes	12 (52.2%)	11 (47.8%)	23	$X^2 = 0.196$
No	29 (46.8%)	33 (53.2%)	62	p = 0.658

X^2 = Pearson Chi Square; Significant p value in bold font.

4.8. Logistic regression analysis of socio-demographic and clinical factors associated with help seeking behaviour (HSB)

To determine all the variables that were independently associated with HSB in the participants, only variable that was associated with HSB in previous analysis and in other studies was entered into binary logistic regression analysis using HSB as the dependent variables (Table 6).

Age group (OR=0.231, 95% CI=0.079-0.676 and P<0.008), was the only variable that was independently associated with HSB in the logistic regression model.

Table 6: Logistic regression analysis of socio-demographic and clinical factors associated with help seeking behavior (HSB).

			AOR (95% CI)	P-Value
	Low	High		
<i>Age Group</i>				
Less than 25 years	25 (62.5%)	15 (37.5%)	Ref	
25 years and above	16 (35.6%)	29 (64.4%)	0.231 (0.079-0.676)	0.008**

4.9. Multivariate analysis between self-stigma of seeking help (SSOSH) and help seeking behaviour (HSB) amongst the respondents

Individuals with low self-stigma towards seeking help are significantly more likely to engage in high HSB compared to those with high self-stigma (OR=12.484, 95% CI=1.503-103.690 and P<0.019 (Table 7).

Table 7: Multivariate analysis between SSOSH vs HSB amongst the respondents

	(HSB)		AOR (95% CI)	P-Value
	Low	High		
SSOSH				
Low	32 (42.7%)	43 (57.3%)	12.484 (1.503-103.690)	P = 0.019*
High	9 (90.0%)	1 (10.0%)	Ref*	

4.10. Summary of findings

- There is almost equal age distribution among the participants, more women responded to the survey, more are single and of white ethnic background. Higher proportion of the respondents indicated; previous history of mental disorder (MD), born in Canada, live with parents/family, indecisive about future specialty of interest, more than 7 hours of sleep daily, positive history of MD and positive family history of MD.
- Most of the respondents have **high mental health literacy (MHL)**, **low self-stigma of seeking help (SSOSH)** and **almost equal help seeking behaviour (HSB)**.
- Of all the assessed socio-demographic and clinical variables, **only negative history of mental disorder** is significantly associated with self-stigma of seeking help (SSOSH) as **those without history of mental disorder showed more self-stigma**.
- Regression analysis of socio-demographic and clinical factors against SSOSH showed that **negative history of mental disorder** was the only independent variable that was associated with SSOSH.
- Of all the assessed socio-demographic and clinical variables, **only age greater than 25 years** is significantly associated with help seeking behaviour (HSB) as **those older than 25 years showed more help seeking behaviour**.

- Regression analysis of socio-demographic and clinical factors against HSB revealed that **age group (i.e. greater than 25 year)** was the only independent variable that was significantly associated with HSB.
- Multivariate analysis of SSOSH against HSB revealed that **low self-stigma of seeking help correlates with higher help seeking behavior.**

CHAPTER 5: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

The main goal of this research was to investigate socio-demographic and clinical determinants of mental health literacy (MHL), self-stigma of seeking help (SSOSH) and general health-seeking behavior (HSB) as well as to identify association between MHL, SSOSH and HSB in first to fourth-year undergraduate medical students enrolled at the U of S. This chapter will discuss the implications of the study findings, their correlation to the existing knowledge on the topic area, and the potential influence on medical education and support provisions. We will also discuss the study limitations and propose directions for future research.

5.1. Mental health literacy (MHL)

The role of Mental Health Literacy (MHL) in fostering mental health awareness and enabling early detection and intervention for mental health issues is well established (Dias et al., 2018). Higher levels of literacy are associated with an increased likelihood of seeking help, as well as greater levels of acceptance and support for individuals with mental health (D'Amico et al., 2016). This study revealed a notably high level of self-reported mental health literacy among the medical students, with a mean score of 134.7412, and 98.8% of participants demonstrating high levels of mental health literacy. Although results are based on self-report, the high level of MHL observed in these medical students is very positive, as they are the future frontline healthcare providers. Their ability to recognize, understand, and address mental health issues is crucial for ensuring improved patient outcomes. MHL is influenced by an individual's existing belief systems and our findings reflect positively on the educational and societal frameworks that shape these students' attitudes towards mental health (Seedaket et al., 2020).

The results of this study indicate higher MHL scores compared to those reported in similar studies among medical students in the UK, Turkey, Egypt, and Thailand, where mean scores were substantially lower (Baklola et al., 2024; Hearn & Marwood, 2019; Sittironnarit et al., 2022). For

context, medical students in the UK recorded a mean MHL score of 127, Turkish medical students had a mean score of 106.34, Egyptian medical students scored 93.18, and Thai medical students achieved a mean score of 123.09 (Baklola et al., 2024; Duran Gül & Akpınar, 2023; Hearn & Marwood, 2019; Sittironnarit et al., 2022). Several factors could account for these differences. Wiens et al., 2020 suggest that there is an increasing rate of mental health issues among Canadian youths. This known trend may have prompted a more robust educational response across various schools, thereby enhancing literacy levels (Wiens et al., 2020) . In addition, Maser et al. has also reported that medical students across all 17 schools in Canada have high rates of psychiatric distress, suicidal ideations, mood and anxiety disorder and this may be a contributor to the higher mental health literacy among these medical students (Maser et al., 2019). The discrepancies in MHL scores might also reflect differences in the emphasis placed on mental health education within medical training across these countries. Most Canadian medical schools have incorporated more comprehensive mental health literacy components into their curriculum, contributing to higher literacy levels seen. Additionally, cultural perceptions and stigma associated with mental health can significantly influence MHL. Canada's relatively higher scores may indicate a more open societal attitude towards discussing and addressing mental health issues.

The high level of MHL observed among Canadian medical students is promising, indicating that future healthcare professionals are well-equipped to recognize, understand, and address mental health issues in their practice. This high level of MHL is particularly significant in the context of increasing mental health challenges among youth, suggesting that these future healthcare professionals are likely to make positive contributions to patient care and outcomes.

5.2. The self-stigma of seeking psychological help (SSOSH)

Self-stigma, also called Internalized stigma has been associated with poorer quality of life, negative help-seeking behaviour, increased severity of symptoms, reduced intentions to seek psychological help, unwillingness to seek treatment and poor adherence to treatment. Medical students have been reported to have high rates of psychological issues such as burnout, depression, and anxiety and these leave them open to experience stigmatization. In this study, the mean score

on the Self Stigma of Seeking Psychological Help Scale was 22.4824 and 88.2% reported low self-stigma of seeking psychological help. Our findings are much higher than that of El-Hachem et al. which found that the mean score on the SSOSH scale among undergraduate students in Lebanon was 18.5; meaning that they had lower levels of self-stigma (El-Hachem et al., 2023). This could reflect the unique socio-political landscape and history of conflict in the region which might contribute to greater social acceptance and understanding of psychological distress (Noubani et al., 2020). Conversely, our findings are much lower than reports from surveys of undergraduates in Ghana, Turkey, and Nigeria (Akgül Gök et al., 2020; Andoh–Arthur et al., 2015; Nathaniel & Odunmayowa, 2017). It is worthy of note that the fact that stigma still exists highlights the need for targeted efforts to further reduce barriers to seeking help among medical students. The medical education environment, characterized by high stress, competition, and burnout risks, might universally contribute to self-stigma around seeking psychological help. However, the degree to which this environment impacts self-stigma can vary based on the availability and visibility of supportive resources and the institutional culture around mental health. Thus, our findings underscore the importance of developing targeted anti-stigma programs within medical education institutions. Such programs should aim not only to raise awareness about mental health issues and the importance of seeking help but also to address specific misconceptions and barriers that medical students face. Incorporating mental health education into the curriculum, offering anonymous support services, and promoting a culture of openness could be effective strategies.

5.2.1. Factors associated with the self-stigma of seeking psychological help (SSOSH)

In our study, the association of a history of emotional illness with lower levels of self-stigma after controlling for other variables through regression analysis suggests that individuals with a personal history of emotional illness may have learnt to accept their situations rather than internalize them. Internalization can lead to an amplified sense of shame or embarrassment about seeking psychological help, fearing judgment or further stigmatization. The heightened self-stigma could act as a significant barrier to accessing mental health services, potentially leading to a worsening of their condition, or delaying treatment, which can have profound implications for their overall

well-being and academic performance. Given these implications, medical schools and mental health service providers must develop targeted programs aimed at students with a history of emotional illness. These programs should focus on reducing self-stigma through education and advocacy, emphasizing the normalcy and importance of seeking psychological help.

The absence of a significant association between educational level or familial history of emotional disorders and self-stigmatization in our study contrasts with results reported in previous studies by Gok et al. in Turkey and Rafal et al. in the United States (Akgül Gök et al., 2020; Rafal et al., 2018). Gok et al.'s findings that higher grade levels correlate with higher levels of self-stigma might reflect increased pressures or perceived expectations as students advance in their studies in the Turkish context. In addition, the absence of significant differences based on ethnicity in our study might indicate a more inclusive or diverse cultural environment within medical schools, where various ethnic backgrounds do not distinctly influence perceptions and attitudes towards mental health and seeking help. This is particularly interesting when juxtaposed with Rafal et al.'s findings in the U.S., where white college students reported lower levels of self-stigma compared to Asian students and those of other races, suggesting that cultural and societal factors in the U.S. might play a more pronounced role in shaping self-stigma related to mental health.

5.3. General Health-seeking behavior of the participants

Seeking help for mental health is important, but not everyone feels comfortable doing it. Often, people try to deal with their problems on their own or with help from friends and family. However, when facing serious mental health issues, this might not be enough, and getting professional help becomes crucial (Güney et al., 2024; Pan & Hao, 2023). Among medical students in U of S, our study shows a moderate level of willingness to seek psychological help, with an average score of 80.85. Interestingly, about half of the students are open to seeking help, while the other half are hesitant. This reluctance has been attributed to several factors. Many people worry about stigma, privacy concerns, the belief that their issues aren't serious enough, or doubt about the effectiveness

of treatment. These concerns prevent them from seeking the help that could benefit them (Baklola et al., 2024). Compared to another study by Ibrahim et al., which found a higher average score of 85.26, it appears that Canadian medical students have lower levels of seeking healthcare compared to secondary and university students in Malaysia (Ibrahim et al., 2019).

It's important for medical schools to address these issues considering that one of the three most significant mental health issues which is suicidal ideation begins from medical school as reported by a recent meta-analysis that the prevalence of suicidal ideation among medical students was 11.1%. In analyses subdivided by time, 7.4% of students reported suicidal ideation within the past 2 weeks, and 24.2% within the past year (Rotenstein et al., 2016). On the other hand, suicide has been found to be the only cause of mortality that is higher in physicians than nonphysicians. Compared with nonphysicians, male physicians are 40% more likely to die by suicide (rate ratio 1.41, 95% confidence interval [CI] 1.21–1.65), and the risk to female physicians is more than doubled (rate ratio 2.27, 95% CI 1.90–2.73), (Schernhammer & Colditz., 2004).

Thus, to catch them young, universities are expected to create a more supportive environment and make sure students know it is okay to seek help. By improving access to healthcare services and improving their perceptions of mental health services, we can help students take better care of themselves and prepare them to support their future patients' mental health needs.

5.3.1. Factors associated with the health-seeking behaviour of the participants.

Age was significantly associated with health-seeking behavior in our study, with individuals aged 25 and above demonstrating a notably higher propensity to seek medical assistance. This trend remained significant even after controlling for various factors through multivariate regression analysis, indicating that age plays a crucial role in the decision to pursue health services. Older individuals may have a more developed awareness of health issues, greater access to healthcare resources, and a higher level of health literacy, which collectively contribute to their increased health-seeking behavior. This insight emphasizes the need for health education and services that are specifically designed to engage younger people, aiming to bridge the gap in health-seeking behavior across different age groups.

In contrast to age, our analysis revealed that gender and academic level/year were not significantly associated with health-seeking behavior among the participants. This observation is consistent with the findings of Almanasef et al. in Egypt, who also reported no significant relationship between gender or academic level and health-seeking behavior (Almanasef, 2021). These findings show the need to do further research to understand drivers of health seeking behaviour to generate valuable insights that can help with formulating health promotion strategies.

Having no mental health issue has been reported to be associated with higher health seeking behaviour (Almanasef, 2021). However, our study's finding presents a contrasting perspective, revealing no significant association between the absence of mental health issues and health-seeking behavior. This suggests that there is a need to re-evaluate assumptions about the relationship between mental health status and the propensity to seek medical assistance. It suggests that the decision to seek help is influenced by a complex interplay of factors beyond just mental health status.

5.4. Conclusion and recommendations

In conclusion, this research emphasizes the crucial importance of improving mental health knowledge and reducing self-stigmatization among medical students, thorough curriculum revisions and supportive educational efforts. By incorporating focused training and evidence-driven anti-stigma programs into medical education, we have the potential to nurture a group of healthcare professionals who not only have a strong grasp of mental health issues but also possess the ability to seek help and provide support to others in need. Future research, expanding in scope and methodology, is essential to refine these interventions and assess their impact comprehensively.

Beyond curriculum changes, medical institutions should prioritize creating a supportive infrastructure that facilitates easy access to mental health services. This includes offering confidential counseling services, establishing peer support networks, and ensuring students are

aware of and feel comfortable utilizing these resources. It's also crucial to foster an academic environment that values mental well-being as much as academic and clinical excellence, potentially through policy changes that address workload management and provide mental health days. Institutions should actively work to deconstruct the barriers to seeking help, ensuring students can access the support they need without fear of judgment or repercussions on their academic and professional futures.

5.5. Strengths and limitations

5.5.1. Strength of the study

This research demonstrates multiple strengths that make a substantial contribution to the current body of knowledge on mental health literacy, self-stigma and help-seeking behavior within the medical students' population. A key strength lies in its emphasis on a demographic crucial to public health outcomes yet often overlooked in mental health studies: medical students. By centering on this cohort, the study illuminates the specific mental health hurdles and requirements of future healthcare providers, offering valuable insights into enhancing mental health support through tailored medical education. This emphasis is especially relevant considering the prevalent stress and burnout experienced during medical training, underscoring the significance of addressing mental health literacy and stigma within this group.

A notable aspect of this research is also its thorough approach to evaluating mental health literacy, self-stigma, and help-seeking tendencies. Through the utilization of established measurement tools and scales, the study delivers a comprehensive evaluation of participants' mental health comprehension, self-stigma attitudes toward mental disorders, and inclination to seek assistance. The grading of the questionnaires into high and low as against their original continuous format allows room for future researchers who are interested in categorizing their results to do so. This methodological rigor strengthens the credibility and validity of the results, contributing to a more

profound comprehension of the elements that influence mental health literacy, self-stigma, and help-seeking patterns among medical students.

Moreover, the examination of self-stigma as a hindrance to seeking psychological support represents a noteworthy advancement in the field. By recognizing and scrutinizing the determinants linked to self-stigma among medical students, the study accentuates the urgent necessity for targeted strategies to combat internalized stigma and foster a more encouraging, open culture concerning mental health in medical training. This emphasis on self-stigma not only addresses a gap in the existing literature but also sets the stage for crafting more efficient interventions to promote help-seeking behaviors, ultimately resulting in improved mental health outcomes for medical students and their future patients.

5.5.2. Study limitations

While this study provides important insights into mental health literacy and the willingness of U of S medical undergraduates to seek help, it has some limitations that should be noted. Firstly, the research focused on students from just one university, which might not reflect the situation across different universities with their own ways of teaching about mental health. A more robust multi-campus research along this line will help to overcome this limitation.

The study's cross-sectional design, which captures information at one point in time, means we can't be sure about the causal relationship between mental health literacy and seeking help. Also, because we asked participants to report on their own experiences and attitudes, there's a chance that the answers might not always be accurate. They might have given answers they thought were expected or might not have felt comfortable sharing everything truthfully. The relatively small number of people who answered the survey might also not fully represent the wider student body's views and experiences. Despite these challenges, the findings offer a valuable starting point for further exploration into how medical students understand and deal with mental health issues. Future studies should try to include a wider range of participants and possibly follow them over time to get a deeper understanding of barriers to help-seeking among this population group.

APPENDICES

APPENDIX 1: RECRUITMENT DOCUMENT

Hello,

My name is Oluseun Peter Ogunnubi. I am currently a student at the Department of Community Health and Epidemiology (CHEP), University of Saskatchewan.

I am currently seeking my master's degree in Community and Population Health Sciences. As part of my degree, I am conducting a research study, examining mental health literacy, self-stigma of seeking psychological help, and psychological help-seeking behavior among medical students attending USask here in Canada.

My potential participants are undergraduate medical students in years 1 to 4 here at UGME.

Please note that you are excluded from this study if you do not give your consent, if you do not reside in Canada at the time of seeing this message, and if you have had prior undergraduate medical education elsewhere before joining USask. Do not proceed to fill out the questionnaire if you fall into any of these criteria.

The estimated time of completion of my questionnaire could take anywhere from 15 to 20 minutes. While minimal discomfort is expected from filling out the online survey, there is no envisaged risk or harm. You are encouraged to fully participate in the study. However, regardless of whether you participate or not, there will not be any consequences, and it will not affect your study.

Please note that this project is approved by the University of Saskatchewan Behavioural Research Ethics Board.

Kindly review the informed consent before proceeding with the research study. You can access the survey by clicking on this link:

https://www.surveymonkey.ca/r/MentalHealth_USask

Should you need further clarification, please find my contact below.

Thank you for your time.

Oluseun Peter Ogunnubi

Opo928@usask.ca

APPENDIX 2: CONSENT LETTER

You are invited to participate in a research study entitled: Mental Health Literacy, Self-Stigma, and Health Seeking Behaviour among Undergraduate Medical Students at the University of Saskatchewan, Canada. Please read this form carefully and feel free to ask any questions you may have about the study.

Student Researcher: Oluseun Peter Ogunnubi; Master student, Department of Community Health and Epidemiology, University of Saskatchewan | opo928@usask.ca.

Principal Investigator: Dr. Kalyani Premkumar, Professor, Department of Community Health and Epidemiology, University of Saskatchewan. kalyani.premkumar@usask.ca

Co-Investigators:

Dr. Lilian Thorpe, Professor, Department of Community Health and Epidemiology, University of Saskatchewan. lilian.thorpe@usask.ca

Dr. Harini Aiyer, Department of Community Health and Epidemiology, University of Saskatchewan. harini.aiyer@usask.ca

Purpose and Objective of the Research:

The purpose of the current study is to determine the mental health literacy, self-stigma, and psychological health-seeking behaviour of medical students at the University of Saskatchewan. Recent studies have found that despite the high level of mental health literacy among medical students, there were still low levels of psychological health-seeking behaviour among them.

I would like to describe the level of mental health literacy and self-stigma among medical students and determine if there is an association between these variables and their psychological health-seeking behaviour. My findings will determine if there will be a need for a more multidimensional approach toward increasing health-seeking behaviour among the medical students at the University of Saskatchewan

Procedures:

You will be asked to fill out an online questionnaire, which will take approximately 20 minutes to complete. Please feel free to ask any questions regarding the procedures and objectives of the study, or your role in it by contacting opo928@usask.ca. The aggregate data may be used in conference presentations and future publications relating to teaching effectiveness and learning.

Potential Risks:

If you find the questions distressing, you are free to stop answering at any time and either take a break or discontinue your participation altogether by closing your browser. Should you experience any discomfort or distress because of the survey, you may wish to consult the following support services:

***Student Wellness Centre:** To speak with someone: Call to book a virtual or in-person appointment, and please let us know if you are living outside of Saskatchewan. We are not a walk-in clinic, but, If your concern is urgent, we may have a same-day appointment available. Phone: 1-306-966-5768 // Fax: 1-306-966-5786 //Mail: student.wellness@usask.ca Address: Third floor (Rm. 310) and fourth floor, Place Riel Student Centre Hours: 8:30 am- 4:30 pm Mondays – Wednesdays, Friday (closed between 12.00 pm and 01.00 pm) 9:30 am - 4:30 pm Thursday (closed between 12.00 pm and 01.00 pm)*

Potential Benefits:

There may be no personal benefits for your participation. Potential benefits of your participation from a scientific and community-based perspective include a better understanding of the relationship between mental health literacy, self-stigma and psychological health-seeking behaviour

Confidentiality:

The data from this survey will be submitted anonymously. The data from this research project will be published and presented at conferences, the data will be reported in aggregate form so that it will not be possible to identify individuals. Survey Monkey hosts this survey. Your data will be stored in facilities hosted in Canada. Please see the following for more information on the Survey Monkey Privacy Policy. Please do not put your name or any identifying information on your response sheets.

Storage of Data

The student researcher- Oluseun Peter Ogunnubi will be responsible for data collection and analysis. He, as well as the principal investigator, will have access to the raw data. No identifying information will be collected from the participants. The data will be stored by the principal investigator on their password-protected University of Saskatchewan computer and their OneDrive account. The minimum required storage period is five years post-publication. Once the data is no longer required and following the required storage period, the data will be destroyed beyond recovery.

Right to Withdraw:

We do not expect any potential risks from this study. Nevertheless, you are free to skip any questions that you do not wish to answer or exit the browser at any time. Your participation is completely voluntary, and you can withdraw from the study at any time for any reason. However, once you complete the questionnaire and submit it, you will no longer have the option to withdraw your data, as they will be pooled with other participants' responses. Please note that your participation or non-participation will not impact your education or how you will be treated.

Follow up:

To obtain results from the study, please contact Oluseun Ogunnubi at opo928@usask.ca

Questions or Concerns

If you have any questions regarding the study, please contact the researchers at the email addresses provided at the top. This research project has been approved on ethical grounds by the University of Saskatchewan Behavioural Research Ethics Board. Any questions regarding your rights as a participant may be addressed to that committee through the Research Ethics Office: ethics.office@usask.ca; 306-966-2975; out-of-town participants may call toll-free 1-888-966-2975

By completing and submitting this questionnaire, your free and informed consent is implied and indicates that you understand the above conditions of participation in this study.

APPENDIX 3: SOCIODEMOGRAPHIC & CLINICAL QUESTIONNAIRE (SDCQ)

1. What is your age?

Under 18

18-24

25-34

35 or older

2. Which gender do you identify with?

Man

Woman

Non-binary

Gender fluid

Trans man

Trans woman

Two-spirit

Prefer not to disclose.

Not listed

3. Which of the following best describes your current relationship status?

Married

Widowed

Divorced

Separated

Cohabiting with a significant other or in a domestic partnership

Single, never married.

Prefer not to answer.

4. Do you belong to a visible minority and/ or are you a racialized person?

Yes

No

5. People often identify themselves with a particular racial or ethnic group. Which of the following describes the group you identify with most?

Black (e.g., African, Caribbean, North American)

Central Asian

East Asian

Hispanic or Latin American

Indigenous (e.g., First Nation, Metis, Inuit)

Pacific Islander

South Asian

Southeast Asian

White

Unsure

6. What is your current religion (please choose the one that represents you best if you have more than one options)?

Christian: Protestant/Methodist/Lutheran/Baptist

Muslim

Others (Catholic, Mormon, Greek or Russian Orthodox, Jewish, Buddhist, Hindu, Sikh, Atheist or agnostic)

7. Were you born in Canada?

Yes

No

8. If an immigrant, how long have you been in Canada?

<1 year

1-5 years

6 - 10 years

10 - 20 years

> 20 years

9. Present year/ level in medical school

Year 1

Year 2

Year 3

Year 4

10. Are you presently living in Canada?

Yes

No

11. Which is your home campus of study?

Saskatoon

Regina

12. On the average, how many hours of sleep do you get a night?

4 or fewer hours

About 5-6 hours

About 7-8 hours

9 or more hours

13. Have you ever sought out professional care, or received a diagnosis or treatment for mental health-related issues?

Yes

No

14. In the last 12 months, did you get to use any anti-depressants, anxiolytics, mood stabilizers, stimulants, or antipsychotic medication?

Yes

No

15. During the past 4 weeks, how disruptive were your physical health or emotional problems to your normal social activities with family, friends, neighbors, or groups?

Extremely disruptive

Very disruptive

Somewhat disruptive

Not so disruptive

Not at all disruptive

16. Do you have any history of mental or emotional illness in the family?

Yes

No

17. How easy is it to get the academic materials (i.e., academic resources e.g., journals, online texts, internet etc.) you need to learn at this school?

Very difficult

Somewhat difficult

Neither easy nor difficult

Somewhat easy

Very easy

18. How easy is it for you to commute to school?

Very difficult

Somewhat difficult

Neither easy nor difficult

Somewhat easy

Very easy

19. What is your desired specialization area after completion of your degree?

Family medicine

Internal medicine specialty

Psychiatry

Emergency Medicine

Surgical speciality

Anesthesiology

Obstetrics and gynaecology

Pediatrics

Undecided

20. Do you live by yourself or with others?

I live alone

I live with friends/ classmates/ housemates

I live with spouse/partner

I live with parents/family

21. How would you best describe your living situation?

I rent

I own

I live with parents

22. In the past 1 to 4 years have you completed any mental health related course organized in the university or somewhere else?

Yes

No

23. If yes, please give us details of the mental health-related course you completed (e.g: course name, duration, credit/non-credit etc).

APPENDIX 4: MENTAL HEALTH LITERACY SCALE (MHLS)

The purpose of these questions is to gain an understanding of your knowledge of various aspects to do with mental health. When responding, we are interested in your degree of knowledge. Therefore, when choosing your response, consider that:

Very unlikely = I am certain that it is NOT likely

Unlikely = I think it is unlikely but am not certain

Likely = I think it is likely but am not certain

Very Likely = I am certain that it IS very likely 1

If someone became extremely nervous or anxious in one or more situations with other people (e.g., a party) or performance situations (e.g., presenting at a meeting) in which they were afraid of being evaluated by others and that they would act in a way that was humiliating or feel embarrassed, then to what extent do you think it is likely they have **Social Phobia**

Very unlikely Unlikely Likely Very Likely

2 If someone experienced excessive worry about a number of events or activities where this level of concern was not warranted, had difficulty controlling this worry and had physical symptoms such as having tense muscles and feeling fatigued then to what extent do you think it is likely they have **Generalised Anxiety Disorder**

Very unlikely Unlikely Likely Very Likely

3 If someone experienced a low mood for two or more weeks, had a loss of pleasure or interest in their normal activities and experienced changes in their appetite and sleep then to what extent do you think it is likely they have **Major Depressive Disorder**

Very unlikely Unlikely Likely Very Likely

4 To what extent do you think it is likely that **Personality Disorders** are a category of mental illness

Very unlikely Unlikely Likely Very Likely

5 To what extent do you think it is likely that **Dysthymia** is a disorder

Very unlikely Unlikely Likely Very Likely

6 To what extent do you think it is likely that the diagnosis of **Agoraphobia** includes anxiety about situations where escape may be difficult or embarrassing

Very unlikely Unlikely Likely Very Likely

7 To what extent do you think it is likely that the diagnosis of **Bipolar Disorder** includes experiencing periods of elevated (i.e., high) and periods of depressed (i.e., low) mood

Very unlikely Unlikely Likely Very Likely

8

To what extent do you think it is likely that the diagnosis of **Drug Dependence** includes physical and psychological tolerance of the drug (i.e., require more of the drug to get the same effect)

Very unlikely Unlikely Likely Very Likely

9

To what extent do you think it is likely that in general in Australia, **women are MORE likely to experience a mental illness of any kind compared to men**

Very unlikely Unlikely Likely Very Likely

10

To what extent do you think it is likely that in general, in Australia, **men are MORE likely to experience an anxiety disorder compared to women**

Very unlikely Unlikely Likely Very Likely

When choosing your response, consider that:

- Very Unhelpful = I am certain that it is NOT helpful
- Unhelpful = I think it is unhelpful but am not certain
- Helpful = I think it is helpful but am not certain
- Very Helpful = I am certain that it IS very helpful

11

To what extent do you think it would be helpful for someone to **improve their quality of sleep** if they were having difficulties managing their emotions (e.g., becoming very anxious or depressed)

Very unhelpful Unhelpful Helpful Very helpful

12

To what extent do you think it would be helpful for someone to **avoid all activities or situations that made them feel anxious** if they were having difficulties managing their emotions

Very unhelpful Unhelpful Helpful Very helpful

When choosing your response, consider that:

- Very unlikely = I am certain that it is NOT likely
- Unlikely = I think it is unlikely but am not certain
- Likely = I think it is likely but am not certain
- Very Likely = I am certain that it IS very likely

13

To what extent do you think it is likely that **Cognitive Behaviour Therapy (CBT)** is a therapy based on challenging negative thoughts and increasing helpful behaviours

Very unlikely Unlikely Likely Very Likely

14

Mental health professionals are bound by confidentiality; however there are certain conditions under which this does not apply.

To what extent do you think it is likely that the following is a condition that would allow a mental health professional to **break confidentiality**:

If you are at immediate risk of harm to yourself or others

Very unlikely Unlikely Likely Very Likely

15

Mental health professionals are bound by confidentiality; however there are certain conditions under which this does not apply.

To what extent do you think it is likely that the following is a condition that would allow a mental health professional to **break confidentiality**:

if your problem is not life-threatening and they want to assist others to better support you

Very unlikely Unlikely Likely Very Likely

Please indicate to what extent you agree with the following statements:

	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
16.1 am confident that I know where to seek information about mental illness					
17.1 am confident using the computer or telephone to seek information about mental illness					
18.1 am confident attending face to face appointments to seek information about mental illness (e.g., seeing the GP)					
19.1 am confident I have access to resources (e.g., GP, internet, friends) that I can use to seek information about mental illness					

Please indicate to what extent you agree with the following statements:

	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
20. People with a mental illness could snap out if it if they wanted					
21. A mental illness is a sign of personal weakness					
22. A mental illness is not a real medical illness					
23. People with a mental illness are dangerous					
24. It is best to avoid people with a mental illness so that you don't develop this problem					
25. If I had a mental illness I would not tell anyone					
26. Seeing a mental health professional means you are not strong enough to manage your own difficulties					
27. If I had a mental illness, I would not seek help from a mental health professional					
28. I believe treatment for a mental illness, provided by a mental health professional, would not be effective					

Please indicate to what extent you agree with the following statements:

	Definitely unwilling	Probably unwilling	Neither unwilling or willing	Probably willing	Definitely willing
29. How willing would you be to move next door to someone with a mental illness?					
30. How willing would you be to spend an evening socialising with someone with a mental illness?					
31. How willing would you be to make friends with someone with a mental illness?					

	Definitely unwilling	Probably unwilling	Neither unwilling or willing	Probably willing	Definitely willing
32. How willing would you be to have someone with a mental illness start working closely with you on a job?					
33. How willing would you be to have someone with a mental illness marry into your family?					
34. How willing would you be to vote for a politician if you knew they had suffered a mental illness?					
35. How willing would you be to employ someone if you knew they had a mental illness?					

APPENDIX 5: SELF-STIGMA OF SEEKING PSYCHOLOGICAL HELP SCALE

(SSOSH)

Please use the 5-point scale to rate the degree to which each item describes how you might react in the situation. Circle the number that corresponds to how you feel.

1=Strongly Disagree

2=Disagree

3=Agree and Disagree Equally

4=Agree

5= Strongly Agree

1. I would feel inadequate if I went to a therapist for psychological help. 1 2 3 4 5

2. My self-confidence would NOT be threatened if I sought professional help. 1 2 3 4 5

3. Seeking psychological help would make me feel less intelligent. 1 2 3 4 5

4. My self-esteem would increase if I talked to a therapist. 1 2 3 4 5

5. My view of myself would not change just because I made the choice to see a therapist. 1 2 3 4 5

6. It would make me feel inferior to ask a therapist for help. 1 2 3 4 5

7. I would feel okay about myself if I made the choice to seek professional help. 1 2 3 4 5

8. If I went to a therapist, I would be less satisfied with myself. 1 2 3 4 5

9. My self-confidence would remain the same if I sought professional help for a problem. 1 2 3 4 5

10. I would feel worse about myself if I could not solve my own problems. 1 2 3 4 5

APPENDIX 6: GENERAL HELP SEEKING QUESTIONNAIRE

Question 1 = Personal or emotional problems

Question 2 = Suicidal ideation

Note- In all questions, items a-j measure **help-seeking intentions**.

Help sources should be modified to match the target population. If you were having a personal or emotional problem, how likely is it that you would seek help from the following people?

Please indicate your response by putting a line through the number that best describes your intention to seek help from each help source that is listed.

1 = Extremely Unlikely 3 = Unlikely 5 = Likely 7 = Extremely Likely

a. Intimate partner (e.g., girlfriend, boyfriend, husband, wife, de' facto)	1	2	3	4	5	6	7
b. Friend (not related to you)	1	2	3	4	5	6	7
c. Parent	1	2	3	4	5	6	7
d. Other relative/family member	1	2	3	4	5	6	7
e. Mental health professional (e.g. psychologist, social worker, counsellor)	1	2	3	4	5	6	7
f. Phone helpline (e.g. Lifeline)	1	2	3	4	5	6	7
g. Doctor/GP	1	2	3	4	5	6	7
h. Minister or religious leader (e.g. Priest, Rabbi, Chaplain)	1	2	3	4	5	6	7
i. I would not seek help from anyone	1	2	3	4	5	6	7
j. I would seek help from another not listed above (please list in the space provided, (e.g., work colleague. If no, leave blank) _____	1	2	3	4	5	6	7

1. If you were experiencing suicidal thoughts, how likely is it that you would seek help from the following people?

Please indicate your response by putting a line through the number that best describes your intention to seek help from each help source that is listed.

1 = Extremely Unlikely 3 = Unlikely 5 = Likely 7 = Extremely Likely

a. Intimate partner (e.g., girlfriend, boyfriend, husband, wife, de' facto)	1	2	3	4	5	6	7
b. Friend (not related to you)	1	2	3	4	5	6	7
c. Parent	1	2	3	4	5	6	7
d. Other relative/family member	1	2	3	4	5	6	7
e. Mental health professional (e.g. psychologist, social worker, counsellor)	1	2	3	4	5	6	7
f. Phone helpline (e.g. Lifeline)	1	2	3	4	5	6	7
g. Doctor/GP	1	2	3	4	5	6	7
h. Minister or religious leader (e.g. Priest, Rabbi, Chaplain)	1	2	3	4	5	6	7
i. I would not seek help from anyone	1	2	3	4	5	6	7
j. I would seek help from another not listed above (please list in the space provided, e.g., work colleague. If no, leave blank) _____	1	2	3	4	5	6	7

APPENDIX 7: ETHICAL APPROVAL CERTIFICATE



Behavioural Research Ethics Board (Beh-REB) 10-Aug-2023

Certificate of Approval

Application ID: 3587

Principal Investigator: Kalyani Premkumar

Department: Department of Community Health and Epidemiology

Student(s): Oluseun Ogunnubi

Funder(s):

Sponsor: University of Saskatchewan

Title: Mental Health Literacy, Self-Stigma and Health Seeking Behaviour among Undergraduate Medical Students in University of Saskatchewan, Canada.

Approved On: 10-Aug-2023

Expiry Date: 10-Aug-2024

Approval Of: Behavioural Research Ethics Application

Proposal Body

Appendix 1- CONSENT FORM AND SDQ

Appendix 2- SELF STIGMA OF SEEKING PSYCH HELP

Appendix 3 - MHLS

Appendix 4 - GHSQ

Appendix 5 - KNOWLEDGE TRANSLATION

Appendix 6 - RECRUITMENT LETTER

Acknowledgment Of: TCPS2 CORE Certificate - Oluseun Ogunnubi

Review Type: Delegated Review

CERTIFICATION

The University of Saskatchewan Behavioural Research Ethics Board (Beh-REB) is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans TCPS 2 (2022). The University of Saskatchewan Beh-REB has reviewed the above-named project. The proposal was found to be acceptable on ethical grounds. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to this project, and for ensuring that the authorized project is carried out according to the conditions outlined in the current approved protocol. This Certificate of Approval is valid for the above time period provided there is no change in experimental protocol or consent process or documents.

ONGOING REVIEW REQUIREMENTS

Any significant changes to your proposed method, or your consent and recruitment procedures must be reported to the Chair through submission of an amendment for Beh-REB consideration in advance of implementation.

To remain in compliance, a status report (renewal of closure form) must be submitted to the Beh-REB Chair for consideration within one month prior to the current expiry date each year the project remains open, and upon project completion. Please refer to the Research Ethics Office website for further instructions and current forms.

*Digitally Approved by Diane Martz, Vice-Chair
Behavioural Research Ethics Board
University of Saskatchewan*

1 / 1

REFERENCES

1. Aasland OG, Hem E, Haldorsen T, Ekeberg Ø. *Mortality among Norwegian doctors 1960-2000. BMC Public Health. 2011; 11:173.*
2. Abdisa, E., Fekadu, G., Girma, S., Shibiru, T., Tilahun, T., Mohamed, H., Wakgari, A., Takele, A., Abebe, M., & Tsegaye, R. (2020). *Self-stigma and medication adherence among patients with mental illness treated at Jimma University Medical Center, Southwest Ethiopia. International Journal of Mental Health Systems, 14(1), 56. <https://doi.org/10.1186/s13033-020-00391-6>*
3. Abdulghani, H. M., AlKanhal, A. A., Mahmoud, E. S., Ponnampereuma, G. G., & Alfaris, E. A. (2011). Stress and its effects on medical students: a cross-sectional study at a college of medicine in Saudi Arabia. *Journal of health, population, and nutrition, 29(5), 516–522.*
4. Abonassir, A. A., Siddiqui, A. F., Abadi, S. A., Al-Garni, A. M., Alhumayed, R. S., Tirad, R. S., Almotairi, S. A., Mohammed Asiri, A. E., Ibraheem Asiri, F. Y., Alshahran, N. Z., & Abonassir, B. A. (2021). *Mental health literacy among secondary school female students in Abha, Saudi Arabia. Journal of Family Medicine and Primary Care, 10(2), 1015–1020. https://doi.org/10.4103/jfmpc.jfmpc_2083_20*
5. Abrams, M. P., Daly, K. D., & Suprun, A. (2020). Peer support expands wellness services and reduces mental health stigma. *Medical Education, 54(11), 1050–1051. <https://doi.org/10.1111/medu.14315>*
6. Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes, 50(2), 179-211.*
7. Akgül Gök, F., Yazgan, E. Ö., Altuntaş Yıldız, T., & Duyan, V. (2020). Sosyal Hizmet Bölümü Öğrencilerinin Psikolojik Yardım Aramada Kendini Damgalama Durumunun ve Benlik Saygısının Belirlenmesi. *OPUS Uluslararası Toplum Araştırmaları Dergisi, 1–1. <https://doi.org/10.26466/opus.661207>*
8. Alderwick, H., Hutchings, A., Briggs, A., & Mays, N. (2021). *The impacts of collaboration between local health care and non-health care organizations and factors shaping how they work: A systematic review of reviews. BMC Public Health, 21(1), 753. <https://doi.org/10.1186/s12889-021-10630-1>*
9. Almanasef, M. (2021). *Mental health literacy and help-seeking behaviours among undergraduate pharmacy students in abha, Saudi Arabia. Risk Management and Healthcare Policy, 14, 1281–1286. <https://doi.org/10.2147/RMHP.S289211>.*
10. Altweck, L., Marshall, T. C., Ferenczi, N., & Lefringhausen, K. (2015). *Mental health literacy: A cross-cultural approach to knowledge and beliefs about depression, schizophrenia and generalized*

anxiety disorder. *Frontiers in Psychology*, 6.

<https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2015.01272>

11. Alzahrani, A. M., Hakami, A., AlHadi, A., Al-maflehi, N., Aljawadi, M. H., Alotaibi, R. M., Alzahrani, M. M., Alammari, S. A., Batais, M. A., & Almigbal, T. H. (2023). *The effectiveness of mindfulness training in improving medical students' stress, depression, and anxiety*. *PLOS ONE*, 18(10), e0293539. <https://doi.org/10.1371/journal.pone.0293539>
12. Amarasuriya, S. D., Jorm, A. F., & Reavley, N. J. (2015). *Quantifying and predicting depression literacy of undergraduates: A cross sectional study in Sri Lanka*. *BMC Psychiatry*, 15, 269. <https://doi.org/10.1186/s12888-015-0658-8>
13. Amini, H., Nejatisafa, A.-A., Shoar, S., Kaviani, H., Samimi-Ardestani, M., Shabani, A., Esmacili, S., & Moghaddam, Y. (2013). *Iranian Medical Students' Perception of Psychiatry: Before and After a Psychiatry Clerkship*. *Iranian Journal of Psychiatry*, 8(1), 37–43.
14. Andoh–Arthur, J., Oppong Asante, K., & Osafo, J. (2015). *Determinants of Psychological Help-Seeking Intentions of University Students in Ghana*. *International Journal for the Advancement of Counselling*, 37(4), 330–345. <https://doi.org/10.1007/s10447-015-9247-2>
15. Archdall, C., Atapattu, T., & Anderson, E. (2013). *Qualitative study of medical students' experiences of a psychiatric attachment*. *The Psychiatrist*, 37, 21–24. <https://doi.org/10.1192/pb.bp.112.039065>
16. Asif Naveed, D.-M., Iqbal, J., Asghar, M. Z., Shaukat, R., & Kishwer, R. (2023). *How information literacy influences creative skills among medical students? The mediating role of lifelong learning*. *Medical Education Online*, 28. <https://doi.org/10.1080/10872981.2023.2176734>
17. Aungst, T. D. (2013). *Medical applications for pharmacists using mobile devices*. *The Annals of Pharmacotherapy*, 47(7–8), 1088–1095. <https://doi.org/10.1345/aph.1S035>
18. Ayinde, O. O., Akinnuoye, E. R., Molodynski, A., Battrick, O., & Gureje, O. (2022). *A descriptive study of mental health and burnout among Nigerian medical students*. *International Journal of Social Psychiatry*, 68(6), 1223–1231. <https://doi.org/10.1177/00207640211057706>
19. Bakibinga, P., Kisia, L., Atela, M., Kibe, P. M., Kabaria, C., Kisiangani, I., & Kyobutungi, C. (2022). *Demand and supply-side barriers and opportunities to enhance access to healthcare for urban poor populations in Kenya: A qualitative study*. *BMJ Open*, 12(5), e057484. <https://doi.org/10.1136/bmjopen-2021-057484>

20. Baklola, M., Terra, M., Taha, A., Elnemr, M., Yaseen, M., Maher, A., Buzaid, A. H., Alenazi, R., Osman Mohamed, S. A., Abdelhady, D., & El-Gilany, A. H. (2024). *Mental health literacy and help-seeking behaviour among Egyptian undergraduates: a cross-sectional national study*. *BMC Psychiatry*, 24(1). <https://doi.org/10.1186/s12888-024-05620-7>
21. Bakry, S., Alzahrani, A. A., Gahwajy, A. A., Alhazmi, A. H., Fatani, M. A., Alharbi, W. M., Radman, F. H., Ali, M. H., & Shatla, M. M. (2022). *The knowledge of Schizophrenia among health-related students in Umm Al-Qura University: A cross-sectional survey*. *Medical Science*, 26(129), 1–8. <https://doi.org/10.54905/disssi/v26i129/ms505e2523>
22. Bazaid, K., Simas, K., & Bezzahou, A. (2021). *Stigma in Psychiatry: Impact of a Virtual and Traditional Psychiatry Clerkship on Medical Student Attitudes*. *Academic Psychiatry*, 45(6), 738–741. <https://doi.org/10.1007/s40596-021-01541-9>.
23. Beltran-Aroca, C. M., Girela-Lopez, E., Collazo-Chao, E., Montero-Pérez-Barquero, M., & Muñoz-Villanueva, M. C. (2016). *Confidentiality breaches in clinical practice: What happens in hospitals?* *BMC Medical Ethics*, 17(1), 52. <https://doi.org/10.1186/s12910-016-0136-y>
24. Berliant, M., Rahman, N., Mattice, C., Bhatt, C., & Haykal, K.-A. (2022). *Barriers faced by medical students in seeking mental healthcare: A scoping review*. *MedEdPublish*, 12, 70. <https://doi.org/10.12688/mep.19115.1>
25. Bhaskar, S., Bradley, S., Chattu, V. K., Adisesh, A., Nurtazina, A., Kyrykbayeva, S., Sakhamuri, S., Yaya, S., Sunil, T., Thomas, P., Mucci, V., Moguilner, S., Israel-Korn, S., Alacapa, J., Mishra, A., Pandya, S., Schroeder, S., Atreja, A., Banach, M., & Ray, D. (2020). *Telemedicine Across the Globe-Position Paper From the COVID-19 Pandemic Health System Resilience PROGRAM (REPROGRAM) International Consortium (Part 1)*. *Frontiers in Public Health*, 8, 556720. <https://doi.org/10.3389/fpubh.2020.556720>
26. Byrom, N. (2018). *An evaluation of a peer support intervention for student mental health*. *Journal of Mental Health*, 27, 1–7. <https://doi.org/10.1080/09638237.2018.1437605>.
27. Center, C., Detre., Ford., Hansbrough, W., Hendin, H., Laszlo, J., Litts, DA., Mann, J., Mansky, PA., Michels, R., Miles, SH., Proujansky, R., Reynolds, CF., Silverman, MM. (2003). *Confronting depression and suicide in physicians - A consensus statement*. *JAMA*. 289(23): 3161-3166. DOI: 10.1001/jama.289.23.3161.
28. Century, I. of M. (US) C. on E. P. H. P. for the 21st, Gebbie, K., Rosenstock, L., & Hernandez, L. M. (2003). *Public Health Agencies: Their Roles in Educating Public Health Professionals*. In *Who Will*

Keep the Public Healthy? Educating Public Health Professionals for the 21st Century. National Academies Press (US). <https://www.ncbi.nlm.nih.gov/books/NBK221185/>

29. Chan, J., Mak, W., & Law, L. (2009). *Combining education and video-based contact to reduce stigma of mental illness: "The Same or Not the Same" anti-stigma program for secondary schools in Hong Kong*. *Social Science & Medicine* (1982), 68, 1521–1526. <https://doi.org/10.1016/j.socscimed.2009.02.016>
30. Chao, H.-J., Lien, Y.-J., Kao, Y.-C., Tasi, I.-C., Lin, H.-S., & Lien, Y.-Y. (2020). *Mental Health Literacy in Healthcare Students: An Expansion of the Mental Health Literacy Scale*. *International Journal of Environmental Research and Public Health*, 17(3). <https://doi.org/10.3390/ijerph17030948>.
31. Charan, J., & Biswas, T. (2013). How to calculate sample size for different study designs in medical research? *Indian Journal of Psychological Medicine*, 35(2), 121–126. <https://doi.org/10.4103/0253-7176.116232>.
32. Chauhan, A., Walton, M., Manias, E., Walpolo, R. L., Seale, H., Latanik, M., Leone, D., Mears, S., & Harrison, R. (2020). *The safety of health care for ethnic minority patients: A systematic review*. *International Journal for Equity in Health*, 19(1), 118. <https://doi.org/10.1186/s12939-020-01223-2>
33. Chen, Y. Y., & Ting, C. H. (2023). *Introduction of psychological skills laboratory in medical education*. *Journal of Postgraduate Medicine*, 69(4), 221. https://doi.org/10.4103/jpgm.jpgm_341_23
34. Cheng HL, Kwan KL, Sevig T. (2013). *Racial and ethnic minority college students' stigma associated with seeking psychological help: Examining psychocultural correlates*. *J Couns Psychol*. 60(1):98-111. doi: 10.1037/a0031169.
35. Cheng, H., Wang, C., McDermott, R., Kridel, M., & Rislin, J. (2018). *Self-stigma, mental health literacy, and attitudes toward seeking psychological help*. *Journal of Counseling & Development*, 96(1), 64–74. <https://doi.org/10.1002/jcad.12178>.
36. Chernikova, O., Heitzmann, N., Stadler, M., Holzberger, D., Seidel, T., & Fischer, F. (2020). *Simulation-Based Learning in Higher Education: A Meta-Analysis*. *Review of Educational Research*, 90(4), 499–541. <https://doi.org/10.3102/0034654320933544>
37. Chew-Graham CA, Rogers A, Yassin N. (2003). 'I wouldn't want it on my CV or their records': *medical students' experiences of help-seeking for mental health problems*. *Med Educ*. 37(10):873–80. <http://dx.doi.org/10.1046/j.1365-2923.2003.01627.x>.
38. Choi, J. J., Gribben, J., Lin, M., Abramson, E. L., & Aizer, J. (n.d.). *Using an experiential learning model to teach clinical reasoning theory and cognitive bias: An evaluation of a first-year medical student curriculum*. *Medical Education Online*, 28(1), 2153782. <https://doi.org/10.1080/10872981.2022.2153782>.

39. Chorazy, M. L., & Klinedinst, K. S. (2019). *Learn by Doing: A Model for Incorporating High-Impact Experiential Learning Into an Undergraduate Public Health Curriculum*. *Frontiers in Public Health*, 7. <https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2019.00031>
40. Chris Gilham, Erin L. Austen, Yifeng Wei, and Stanley Kut. (2018). *Improving Mental Health Literacy in Post-Secondary Students: Field Testing the Feasibility and Potential Outcomes of a Peer-Led Approach*. *Canadian Journal of Community Mental Health*, Vol. 37, no. 1.
41. Chris Wilkes, Thomas Lewis, Nancy Brager, Andrew Bulloch, Frank MacMaster, Mike Paget, Johanna Holm, Sarah Marie Farrell & Antonio Ventriglio. (2019). *Wellbeing and mental health amongst medical students in Canada*, *International Review of Psychiatry*, 31:7-8, 584-587, doi: 10.1080/09540261.2019.1675927.
42. Clement, S., Schauman, O., Graham, T., Maggioni, F., Evans-Lacko, S., Bezborodovs, N., Morgan, C., Rüsçh, N., Brown, J. S. L., & Thornicroft, G. (2015). *What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies*. *Psychological Medicine*, 45(1), 11–27. <https://doi.org/10.1017/S0033291714000129>
43. Cohen, K. A., Graham, A. K., & Lattie, E. G. (2022). *Aligning Students and Counseling Centers on Student Mental Health Needs & Treatment Resources*. *Journal of American College Health J of ACH*, 70(3), 724–732. <https://doi.org/10.1080/07448481.2020.1762611>
44. Corrigan P. (2018). *Beware the educational fix: Limitations of efforts to promote mental health literacy*. *Psychiatric Services*, 69(4), 469-471. <https://doi.org/10.1176/appi.ps.201700236>.
45. Corrigan, P. W., & Rao, D. (2012). *On the Self-Stigma of Mental Illness: Stages, Disclosure, and Strategies for Change*. *Canadian Journal of Psychiatry. Revue Canadienne de Psychiatrie*, 57(8), 464. <https://doi.org/10.1177/070674371205700804>
46. Creswell, J. D. (2017). *Mindfulness Interventions*. *Annual Review of Psychology*, 68, 491–516. <https://doi.org/10.1146/annurev-psych-042716-051139>
47. D’Amico, N., Mechling, B., Kemppainen, J., Ahern, N. R., & Lee, J. (2016). *American College Students’ Views of Depression and Utilization of On-Campus Counseling Services*. *Journal of the American Psychiatric Nurses Association*, 22(4), 302–311. <https://doi.org/10.1177/1078390316648777>
48. Dahshan, I., Saad, M. M., Shora, H. A., Abbas, H., Awad, M. M., Ibrahim, O. Y., & El-Wahed, M. A. (2022). *Knowledge, attitude and behaviour of undergraduate medical students towards mentally ill patients-Suez Canal University, Egypt*. *Journal of Neuroscience and Neurological Disorders*, 6(2), 034–039. <https://doi.org/10.29328/journal.jnnd.1001066>

49. de Moissac, D., & Bowen, S. (2017). *Impact of language barriers on access to healthcare for official language minority Francophones in Canada*. *Healthcare Management Forum*, 30, 084047041770637. <https://doi.org/10.1177/0840470417706378>.
50. Dias, P., Campos, L., Almeida, H., & Palha, F. (2018). *Mental health literacy in young adults: Adaptation and psychometric properties of the mental health literacy questionnaire*. *International Journal of Environmental Research and Public Health*, 15(7). <https://doi.org/10.3390/ijerph15071318>
51. Dodd, S., Widnall, E., Russell, A. E., Curtin, E. L., Simmonds, R., Limmer, M., & Kidger, J. (2022). *School-based peer education interventions to improve health: A global systematic review of effectiveness*. *BMC Public Health*, 22(1), 2247. <https://doi.org/10.1186/s12889-022-14688-3>
52. Duran Gül, K., & Akpınar, H. (2023). *The relationship between nursing students' mental health literacy levels and holistic nursing competencies*. *Journal of Health Sciences and Medicine*, 6(6), 1147–1153. <https://doi.org/10.32322/jhsm.1338674>.
53. Dyrbye LN, West CP, Satele D, Boone S, Tan L, Sloan J, et al., (2014). *Burnout among U.S. medical students, residents and early career physicians relative to the general U.S. population*. *Acad Med*. 89: 443-51.
54. El-Hachem, S. S., Lakkis, N. A., Osman, M. H., Issa, H. G., & Beshara, R. Y. (2023). *University students' intentions to seek psychological counseling, attitudes toward seeking psychological help, and stigma*. *Social Psychiatry and Psychiatric Epidemiology*, 58(11), 1661–1674. <https://doi.org/10.1007/s00127-023-02470-8>.
55. Elshama, S. (2020). *How to apply Simulation-Based Learning in Medical Education?* *Iberoamerican Journal of Medicine*, 2, 79–86. <https://doi.org/10.5281/zenodo.3685233>
56. Ettner, S. L., Frank, R. G., & Kessler, R. C. (1997). *The impact of psychiatric disorders on labor market outcomes*. *Industrial and Labor Relations Review*, 51(1), 64–81.
57. Eylem, O., de Wit, L., van Straten, A., Steubl, L., Melissourgaki, Z., Danişman, G. T., de Vries, R., Kerkhof, A. J. F. M., Bhui, K., & Cuijpers, P. (2020). *Stigma for common mental disorders in racial minorities and majorities a systematic review and meta-analysis*. *BMC Public Health*, 20(1), 879. <https://doi.org/10.1186/s12889-020-08964-3>
58. Fatmi, M., Hartling, L., Hillier, T., Campbell, S., & Oswald, A. E. (2013). *The effectiveness of team-based learning on learning outcomes in health professions education: BEME Guide No. 30*. *Medical Teacher*, 35(12), e1608-1624. <https://doi.org/10.3109/0142159X.2013.849802>

59. Fazel, M., Hoagwood, K., Stephan, S., & Ford, T. (2014). *Mental health interventions in schools 1*. *The Lancet. Psychiatry*, 1(5), 377–387. [https://doi.org/10.1016/S2215-0366\(14\)70312-8](https://doi.org/10.1016/S2215-0366(14)70312-8)
60. Fischbein R, Bonfine N. (2019). *Pharmacy and medical students' mental health symptoms, experiences, attitudes, and help-seeking behaviors*. *Am J Pharm Educ.* 83(10):7558. doi:10.5688/ajpe7558).
61. Florio, P., Freire, S., & Melchiorri, M. (2023). *Estimating geographic access to healthcare facilities in Sub-Saharan Africa by Degree of Urbanisation*. *Applied Geography*, 160, 103118. <https://doi.org/10.1016/j.apgeog.2023.103118>
62. Florom-Smith, A. L., & De Santis, J. P. (2012). *Exploring the Concept of HIV-Related Stigma*. *Nursing Forum*, 47(3), 153–165. <https://doi.org/10.1111/j.1744-6198.2011.00235.x>
63. Furnham, A., Cook, R., Martin, N., & Batey, M. (2011). *Mental health literacy among university students*. *Journal of Public Mental Health*, 10(4), 198–210. <https://doi.org/10.1108/17465721111188223>
64. Gorczynski P, Sims-Schouten W, Hill D, Wilson JC. (2017). *Examining mental health literacy, help seeking behaviours, and mental health outcomes in UK university students*. *J Ment Health Train Educ Pract.* 12(2):111–120. doi:10.1108/jmhtep-05-2016-0027.
65. Gorczynski, P., Sims-Schouten, W.& Wilson, C. (2020). *Evaluating mental health literacy and help-seeking behaviours in UK university students: A country wide study*. *Journal of Public Mental Health*, 19(4), 311–319.
66. Gorczynski, P., Sims-Schouten, W., Hill, D., & Wilson, C. (2017). *Examining mental health literacy, help seeking behaviours, and mental health outcomes in UK university students*. *The Journal of Mental Health Training, Education and Practice*, 12(2), 111–120. <https://doi.org/10.1108/jmhtep-05-2016-0027>.
67. Grant A, Rix A, Mattick K, Jones B, Winter P. (2020). *Identifying good practice among medical schools in the support of students with mental health concerns [Internet]*. [cited 19th May 2022].
68. Grant A, Rix A, Winter P, Mattick K, Jones D. (2014). *Support for Medical Students with Mental Health Problems: a Conceptual Model*. *Academic Psychiatry*. 39(1):16-2.
69. Gross, Z., & Rutland, S. D. (2017). *Experiential learning in informal educational settings*. *International Review of Education*, 63(1), 1–8. <https://doi.org/10.1007/s11159-017-9625-6>
70. Gulliver A, Griffiths KM, Christensen H, Brewer JL. (2012). *A systematic review of help-seeking interventions for depression, anxiety, and general psychological distress*. *BMC Psychiatry*. 12(1):1–12.)

71. Gulliver, A., Griffiths, K.M. & Christensen, H. (2010). *Perceived barriers and facilitators to mental health help-seeking in young people: a systematic review*. *BMC Psychiatry* **10**, 113. <https://doi.org/10.1186/1471-244X-10-113>.
72. Gunawardena, H., Voukelatos, A., Nair, S., Cross, S., & Hickie, I. B. (2023). *Efficacy and Effectiveness of Universal School-Based Wellbeing Interventions in Australia: A Systematic Review*. *International Journal of Environmental Research and Public Health*, *20*(15), 6508. <https://doi.org/10.3390/ijerph20156508>
73. Güney, E., Aydemir, A. F., Iyit, N., & Alkan, Ö. (2024). *Gender differences in psychological help-seeking attitudes: a case in Türkiye*. *Frontiers in Psychology*, *15*. <https://doi.org/10.3389/fpsyg.2024.128943>.
74. Haidar, A., Erickson, S. G., & Champagne-Langabeer, T. (2020). *Medical Students' Participation in Longitudinal Community Service During Preclerkship Years: A Qualitative Study on Experiences and Perceived Outcomes*. *Journal of Medical Education and Curricular Development*, *7*, 2382120520936610. <https://doi.org/10.1177/2382120520936610>
75. Haleem, A., Javaid, M., Singh, R. P., & Suman, R. (2021). *Telemedicine for healthcare: Capabilities, features, barriers, and applications*. *Sensors International*, *2*, 100117. <https://doi.org/10.1016/j.sintl.2021.100117>
76. Hallam, K. T., Peeters, A., Gupta, A., & Billsborough, S. (2023). *Moving minds: Mental health and wellbeing benefits of a 50-day workplace physical activity program*. *Current Psychology*, *42*(15), 13038–13049. <https://doi.org/10.1007/s12144-021-02525-6>
77. Hammoudi Halat, D., Soltani, A., Dalli, R., Alsarraj, L., & Malki, A. (2023). *Understanding and Fostering Mental Health and Well-Being among University Faculty: A Narrative Review*. *Journal of Clinical Medicine*, *12*(13), 4425. <https://doi.org/10.3390/jcm12134425>
78. Hangartner, R. B., Totura, C. M. W., Labouliere, C. D., Gryglewicz, K., & Karver, M. S. (2019). *Benchmarking the “Question, Persuade, Refer” program against evaluations of established suicide prevention gatekeeper trainings*. *Suicide Life Threat Behavior*, *49*, 353-370. doi:10.1111/sltb.12430
79. Hearn, J., & Marwood, M. (2019). *Evaluating mental health literacy in medical students in the United Kingdom*. *Journal of Mental Health Training*, *14*. <https://doi.org/10.1108/jmhtep-01-2019-0001>
80. Henderson, C., Evans-Lacko, S., & Thornicroft, G. (2013). *Mental Illness Stigma, Help Seeking, and Public Health Programs*. *American Journal of Public Health*, *103*(5), 777–780. <https://doi.org/10.2105/AJPH.2012.301056>

81. Hillis JM, Perry WRG, Carroll EY, et al. (2010). *Painting the picture: Australasian medical student views on wellbeing teaching and support services*. *Med J Aust*. 192(4):188–90. Medline: 20170454.
82. Holubova, M., Prasko, J., Ociskova, M., Marackova, M., Grambal, A., & Slepecky, M. (2016). *Self-stigma and quality of life in patients with depressive disorder: A cross-sectional study*. *Neuropsychiatric Disease and Treatment*, 12, 2677–2687. <https://doi.org/10.2147/NDT.S118593>
83. Hooper C, Meakin R, Jones M. (2005). *Where students go when they are ill: how medical students access health care*. *Med Educ*. 39(6):588–93. <http://dx.doi.org/10.1111/j.1365-2929.2005.02175.x>. Medline:15910435/
84. Hu, Z., Wen, Y., Wang, Y., Lin, Y., Shi, J., Yu, Z., Lin, Y., & Wang, Y. (2022). *Effectiveness of mindfulness-based interventions on empathy: A meta-analysis*. *Frontiers in Psychology*, 13, 992575. <https://doi.org/10.3389/fpsyg.2022.992575>
85. Huang, S.-W., Weng, S.-J., Chiou, S.-Y., Nguyen, T.-D., Chen, C.-H., Liu, S.-C., & Tsai, Y.-T. (2024). *A Study on Decision-Making for Improving Service Efficiency in Hospitals*. *Healthcare*, 12(3), 405. <https://doi.org/10.3390/healthcare12030405>
86. Ibrahim, N., Amit, N., Shahar, S., Wee, L. H., Ismail, R., Khairuddin, R., Siau, C. S., & Safien, A. M. (2019). *Do depression literacy, mental illness beliefs and stigma influence mental health help-seeking attitude? A cross-sectional study of secondary school and university students from B40 households in Malaysia*. *BMC Public Health*, 19. <https://doi.org/10.1186/s12889-019-6862-6>
87. Ifarajimi, m. a. (2023). *The role of curriculum evaluation and feedback in improving teaching and learning quality in nigeria*. *sapientia foundation journal of education, sciences and gender studies*, 5(2), article 2. <https://www.sfjesgs.com/index.php/sfjesgs/article/view/423>
88. Iott, B. E., Campos-Castillo, C., & Anthony, D. L. (2020). *Trust and Privacy: How Patient Trust in Providers is Related to Privacy Behaviors and Attitudes*. *AMIA Annual Symposium Proceedings, 2019*, 487–493.
89. Isaacs, A. N., & Mitchell, E. K. L. (2024). *Mental health integrated care models in primary care and factors that contribute to their effective implementation: A scoping review*. *International Journal of Mental Health Systems* 18, 5. <https://doi.org/10.1186/s13033-024-00625-x>
90. Jacob R, Li T, Martin Z, Burren A, Watson P, Kant R et al. (2020). *Taking care of our future doctors: a service evaluation of a medical student mental health service*. *BMC Medical Education*. 20(1).

91. Jacobs, B., Ir, P., Bigdeli, M., Annear, P. L., & Van Damme, W. (2012). *Addressing access barriers to health services: An analytical framework for selecting appropriate interventions in low-income Asian countries*. *Health Policy and Planning*, 27(4), 288–300. <https://doi.org/10.1093/heapol/czr038>
92. Janoušková, M., Weissová, A., Formánek, T., Pasz, J., & Bankovská Motlová, L. (2017). *Mental illness stigma among medical students and teachers*. *International Journal of Social Psychiatry*, 63(8), 744–751. <https://doi.org/10.1177/0020764017735347>.
93. Javed, A., Lee, C., Zakaria, H., Buenaventura, R. D., Cetkovich-Bakmas, M., Duailibi, K., Ng, B., Ramy, H., Saha, G., Arifeen, S., Elorza, P. M., Ratnasingham, P., & Azeem, M. W. (2021). *Reducing the stigma of mental health disorders with a focus on low- and middle-income countries*. *Asian Journal of Psychiatry*, 58, 102601. <https://doi.org/10.1016/j.ajp.2021.102601>
94. Jindal, M., Chaiyachati, K. H., Fung, V., Manson, S. M., & Mortensen, K. (2023). *Eliminating health care inequities through strengthening access to care*. *Health Services Research*, 58(Suppl 3), 300–310. <https://doi.org/10.1111/1475-6773.14202>
95. Jorm, A. F., Korten, A. E., Jacomb, P. A., Christensen, H., Rodgers, B., & Pollitt, P. (1997a). *“Mental health literacy”: A survey of the public’s ability to recognize mental disorders and their beliefs about the effectiveness of treatment*. *Medical Journal of Australia*, 166, 182.
96. Joseph, V., & Miller, J. (2018). *Medical Students’ Perceived Stigma in Seeking Care: A Cultural Perspective*. In *Healthcare Policy and Reform: Concepts, Methodologies, Tools, and Applications* (pp. 116–134). <https://doi.org/10.4018/978-1-5225-6915-2.ch006>
97. Kessler, R. C., Foster, C. L., Saunders, W. B., & Stang, P. E. (1995). *Social consequences of psychiatric disorders: Educational attainment*. *The American Journal of Psychiatry*, 152(7), 1026–1032.
98. Khurram, A., Abedi, D., & Abedi, M. (2020). *Stigma around mental health disclosure in medical students*. *Medical Education Online*, 25(1), 1774347. <https://doi.org/10.1080/10872981.2020.1774347>
99. Kihumuro, R. B., Kaggwa, M. M., Kintu, T. M., Nakandi, R. M., Muwanga, D. R., Muganzi, D. J., Atwau, P., Ayesiga, I., Najjuma, J. N., & Ashaba, S. (2022). *Knowledge, attitude and perceptions of medical students towards mental health in a university in Uganda*. *BMC Medical Education*, 22(1), 730. <https://doi.org/10.1186/s12909-022-03774-0>
100. Kim, J. E., Saw, A., & Zane, N. (2015). *The influence of psychological symptoms on mental health literacy of college students*. *The American Journal of Orthopsychiatry*, 85(6), 620–630. <https://doi.org/10.1037/ort0000074>

101. Kim, J., Blum, B., Kaushal, S., Khan, S., Hardigan, P., & Villalba, C. A. (n.d.). *Impact of Psychiatry Clerkship Rotation in Attitudes Towards Mental Illness and Psychiatry as a Career Among Medical Students*. *HCA Healthcare Journal of Medicine*, 4(6), 415–420. <https://doi.org/10.36518/2689-0216.1569>
102. Klement, A., Bretschneider, K., Lautenschläger, C., Stang, A., Herrmann, M., & Haerting, J. (2011). *Prevention and health promotion in undergraduate medical education: Preferences, attitudes and previous knowledge of medical students - a cross-sectional study*. *GMS Zeitschrift Für Medizinische Ausbildung*, 28(1), Doc17. <https://doi.org/10.3205/zma000729>
103. Knaak, S., Mantler, E., & Szeto, A. (2017). *Mental illness-related stigma in healthcare*. *Healthcare Management Forum*, 30(2), 111–116. <https://doi.org/10.1177/0840470416679413>
104. Krendl, A. C., & Pescosolido, B. A. (2020). *Countries and Cultural Differences in the Stigma of Mental Illness: The East–West Divide*. *Journal of Cross-Cultural Psychology*, 51(2), 149–167. <https://doi.org/10.1177/0022022119901297>
105. Kutcher S, Wei Y, Coniglio C. (2016). *Mental Health Literacy: Past, Present, and Future*. *Can J Psychiatry*. 61(3):154-8.
106. Kutcher, S., Wei, Y., Costa, S., Gusmao, R., Skokauskas, N., & Sourander, A. (2016). *Enhancing mental health literacy in young people*. *European Child Adolescent Psychiatry*, 25, 567–569.
107. Lannin, D. G., & Bible, J. (2022). *Self-Stigma of Seeking Help: A Meta-Analysis*. In D. L. Vogel & N. G. Wade (Eds.), *The Cambridge Handbook of Stigma and Mental Health* (pp. 111–142). Cambridge University Press. <https://www.cambridge.org/core/books/cambridge-handbook-of-stigma-and-mental-health/selfstigma-of-seeking-help/97212d07dc9c76b876fc8bdfbc93625>
108. Larsen, T. K., Melle, I., Auestad, B., Haahr, U., Joa, I., Johannessen, J. O., McGlashan, T. (2011). *Early detection of psychosis: Positive effects on 5-year outcome*. *Psychological Medicine*, 41, 1461–1469.
109. Latalova, K., Prasko, J., Kamaradova, D., Ociskova, M., Cinculova, A., Grambal, A., Kubinek, R., Mainerova, B., Smoldasova, J., Tichackova, A., & Sigmundova, Z. (2014). *Self-stigma and suicidality in patients with neurotic spectrum disorder—A cross sectional study*. *Neuro Endocrinology Letters*, 35(6), 474–480.
110. Lau KS, Siong KH, Tang HY, et al. (2007). *An innovative web-based peer support system for medical students in Hong Kong*. *Med Teach*. 29(9–10):984–6. <http://dx.doi.org/10.1080/01421590701551748>. *Medline*:18158678.

111. Lazari, E. C., Mylonas, C. C., Thomopoulou, G. E., Manou, E., Nastos, C., Kavantzias, N., Pikoulis, E., & Lazaris, A. C. (2023). *Experiential student study groups: Perspectives on medical education in the post-COVID-19 period*. *BMC Medical Education*, 23, 42. <https://doi.org/10.1186/s12909-023-04006-9>
112. Link B. (1987). *Understanding labeling effects in the area of mental disorders: An assessment of the effects of expectations of rejection*. *American Sociological Review*. 52: 96–112).
113. Lipson, S. K., Speer, N., Brunwasser, S., Hahn, E., & Eisenberg, D. (2014). *Gatekeeper training and access to mental health care at universities and colleges*. *Journal of Adolescent Health*, 55(5), 612-619. [doi:10.1016/j.jadohealth.2014.05.009](https://doi.org/10.1016/j.jadohealth.2014.05.009).
114. Liu, H., & Vachova, L. (2023). *A comparative study of mental health literacy in university students in Czechia and China*. *Journal of Pedagogical Research*, 7(5), 237–250. <https://doi.org/10.33902/JPR.202323786>
115. Loo, P.-W., Wong, S., & Furnham, A. (2012). *Mental health literacy: A cross-cultural study from Britain, Hong Kong and Malaysia*. *Asia-Pacific Psychiatry: Official Journal of the Pacific Rim College of Psychiatrists*, 4(2), 113–125. <https://doi.org/10.1111/j.1758-5872.2012.00198.x>
116. Louie A, Coverdale J, Roberts LW. (2007). *Balancing the personal and the professional: should and can we teach this?* *Acad Psychiatry*. 31(2):129–32. [http:// dx.doi.org/10.1176/appi.ap.31.2.129](http://dx.doi.org/10.1176/appi.ap.31.2.129). Medline:17344452
117. Lumaksono, N., Lestari, P., & Karimah, A. (2020). *Does mental health literacy influence help-seeking behavior in medical students?* *Biomolecular and Health Science Journal*, 3, 45. <https://doi.org/10.20473/bhsj.v3i1.19093>.
118. Lyons, Z. (2014). *Impact of the psychiatry clerkship on medical student attitudes towards psychiatry and to psychiatry as a career*. *Academic Psychiatry: The Journal of the American Association of Directors of Psychiatric Residency Training and the Association for Academic Psychiatry*, 38(1), 35–42. <https://doi.org/10.1007/s40596-013-0017-3>
119. Lyons, Z., & Janca, A. (2015). *Impact of a psychiatry clerkship on stigma, attitudes towards psychiatry, and psychiatry as a career choice*. *BMC Medical Education*, 15(1), 34. <https://doi.org/10.1186/s12909-015-0307-4>
120. Maresca, G., Corallo, F., Catanese, G., Formica, C., & Lo Buono, V. (2022). *Coping Strategies of Healthcare Professionals with Burnout Syndrome: A Systematic Review*. *Medicina*, 58(2), 327. <https://doi.org/10.3390/medicina58020327>

121. Martínez-Mesa J, González-Chica DA, Bastos JL, Bonamigo RR, Duquia RP. (2014). *Sample size: how many participants do I need in my research? An Bras Dermatol.* (4):609-15. doi: 10.1590/abd1806-4841.20143705. PMID: 25054748; PMCID: PMC4148275.
122. Marwood, M. R., & Hearn, J. H. (2019). *Evaluating mental health literacy in medical students in the United Kingdom. The Journal of Mental Health Training, Education and Practice, 14(5), 339–347.* <https://doi.org/10.1108/JMHTEP-01-2019-0001>
123. Maser Brandon; Danilewitz Marlon; Guérin Eva; Findlay Leanne; Frank Erica. (2019). *Medical Student Psychological Distress and Mental Illness Relative to the General Population: A Canadian Cross-Sectional Survey, Academic Medicine.* Volume 94 - Issue 11 - p 1781-1791 doi: 10.1097/ACM.0000000000002958.
124. McGorry, P. D., Purcell, R., Goldstone, S., & Amminger, P. (2011). *Age of onset and timing of treatment for mental and substance use disorders: Implications for preventive intervention strategies and models of care. Current Opinion in Psychiatry, 24, 301–306.*
125. Mickan, S., Tilson, J. K., Atherton, H., Roberts, N. W., & Heneghan, C. (2013). *Evidence of effectiveness of health care professionals using handheld computers: A scoping review of systematic reviews. Journal of Medical Internet Research, 15(10), e212.* <https://doi.org/10.2196/jmir.2530>
126. Miles, R., Rabin, L., Krishnan, A., Grandoit, E., & Kloskowski, K. (2020). *Mental health literacy in a diverse sample of undergraduate students: Demographic, psychological, and academic correlates. BMC Public Health, 20, 1699.* <https://doi.org/10.1186/s12889-020-09696-0>
127. Milin, R., Kutcher, S., Lewis, S., Walker, S., Wei, Y., Ferrill, N., & Armstrong, M. (2016). *Impact of a Mental Health Curriculum on Knowledge and Stigma Among High School Students: A Randomized Controlled Trial. Journal of the American Academy of Child & Adolescent Psychiatry, 55, 383–391.* <https://doi.org/10.1016/j.jaac.2016.02.018>
128. Mojtabai, R., Stuart, E. A., Hwang, I., Eaton, W. W., Sampson, N., & Kessler, R. C. (2015). *Long-term effects of mental disorders on educational attainment in the National Comorbidity Survey ten-year follow-up. Social Psychiatry and Psychiatric Epidemiology, 50, 1577–1591.*
129. Morgan, A. J., Wright, J., & Reavley, N. J. (2021). *Review of Australian initiatives to reduce stigma towards people with complex mental illness: What exists and what works? International Journal of Mental Health Systems, 15, 10.* <https://doi.org/10.1186/s13033-020-00423-1>
130. Mori, R., Uchino, T., Mizuno, M., Yamaguchi, T., Katagiri, N., & Nemoto, T. (2022). *Effectiveness of a Comprehensive Mental Health Literacy Educational Programme for Junior High School Students: A*

Randomised Controlled Trial Examining Changes in Their Knowledge, Attitudes, and Behaviour. Journal of Personalized Medicine, 12(8), 1281. <https://doi.org/10.3390/jpm12081281>

131. Moss, S. J., Wollny, K., Amarbayan, M., Lorenzetti, D. L., & Kassam, A. (2021). *Interventions to improve the well-being of medical learners in Canada: A scoping review. CMAJ Open, 9(3), E765–E776. <https://doi.org/10.9778/cmajo.20200236>*

132. Moutier C, Norcross W, Jong P, et al. (2012). *The suicide prevention and depression awareness program at the University of California, San Diego School of Medicine. Acad Med. 87(3):320–6. <http://dx.doi.org/10.1097/ACM.0b013e31824451ad>. Medline:22373625.*

133. Murphy, K. L., Klug, K. B., & Kasimatis, M. D. (2023). *Strengthening Mental Health Literacy in Interprofessional Health Science Students Utilizing Mental Health First Aid and Simulation. Education in the Health Professions, 6(1), 22. https://doi.org/10.4103/EHP.EHP_1_23*

134. Nair, L., & Adetayo, O. A. (2019). *Cultural Competence and Ethnic Diversity in Healthcare. Plastic and Reconstructive Surgery Global Open, 7(5), e2219. <https://doi.org/10.1097/GOX.0000000000002219>*

135. Nalipay, Ma. J. N., Chai, C.-S., Jong, M. S.-Y., King, R. B., & Mordeno, I. G. (2023). *Positive mental health literacy for teachers: Adaptation and construct validation. Current Psychology (New Brunswick, N.j.), 1–11. <https://doi.org/10.1007/s12144-023-04694-y>*

136. Nathaniel, O., & Odunmayowa, I. (2017). *Consequences of psychological and demographic features on attitudes toward seeking professional psychological help of undergraduates' students. in ajpssi african journal for the psychological study of social issues (Vol. 20, Issue 2).*

137. Neufeld, A., & Malin, G. (2021). *How medical students cope with stress: a cross-sectional look at strategies and their sociodemographic antecedents. BMC Medical Education, 21(1). <https://doi.org/10.1186/s12909-021-02734-4>*

138. Noubani, A., Diaconu, K., Ghandour, L., El Koussa, M., Loffreda, G., & Saleh, S. (2020). *A community-based system dynamics approach for understanding factors affecting mental Health and Health seeking behaviors in Beirut and Beqaa regions of Lebanon. Globalization and Health, 16(1). <https://doi.org/10.1186/s12992-020-00556-5>*

139. Nyblade, L., Stockton, M. A., Giger, K., Bond, V., Ekstrand, M. L., Lean, R. M., Mitchell, E. M. H., Nelson, L. R. E., Sapag, J. C., Siraprapasiri, T., Turan, J., & Wouters, E. (2019). *Stigma in health facilities: Why it matters and how we can change it. BMC Medicine, 17(1), Article 1. <https://doi.org/10.1186/s12916-019-1256-2>*

140. O'Connor, M., & Casey, L. (2015). *The Mental Health Literacy Scale (MHLS): A new scale-based measure of mental health literacy*. *Psychiatry Research*, 229(1–2), 511–516. <https://doi.org/10.1016/j.psychres.2015.05.064>.
141. Ofuani CK. (2015). *Mental Health Literacy, Attitude toward Help Seeking, and Help Seeking Behaviour among African American College Students attending a Historical Black College and University*. 40. Internet (https://getd.libs.uga.edu/pdfs/ofuani_chika_k_201508_phd.pdf). Accessed May 12th, 2022.
142. Okoli, C., Hajizadeh, M., Rahman, M. M., & Khanam, R. (2020). *Geographical and socioeconomic inequalities in the utilization of maternal healthcare services in Nigeria: 2003–2017*. *BMC Health Services Research*, 20(1), 849. <https://doi.org/10.1186/s12913-020-05700-w>
143. Orosa-Duarte, Á., Mediavilla, R., Muñoz-Sanjose, A., Palao, Á., Garde, J., López-Herrero, V., Bravo-Ortiz, M.-F., Bayón, C., & Rodríguez-Vega, B. (2021). *Mindfulness-based mobile app reduces anxiety and increases self-compassion in healthcare students: A randomised controlled trial*. *Medical Teacher*, 43(6), 686–693. <https://doi.org/10.1080/0142159X.2021.1887835>
144. Pagnin D, de Queiroz V. (2015). *Comparison of quality of life between medical students and the young general population*. *Educ Health (Abigdon)*. 28: 209-12.
145. Pan, Q., & Hao, Z. (2023). *Chinese college students' help-seeking behavior: An application of the modified theory of planned behavior*. *Psych Journal*, 12(1), 119–127. <https://doi.org/10.1002/pchj.605>
146. Park, K., MinHwa, L., & Seo, M. (2019). *The impact of self-stigma on self-esteem among persons with different mental disorders*. *International Journal of Social Psychiatry*, 65(7–8), 558–565. <https://doi.org/10.1177/0020764019867352>
147. Pederson, A. B., Burnett-Zeigler, I., Fokuo, J. K., Wisner, K. L., Zumpf, K., & Oshodi, Y. (2020). *Mental health stigma among university health care students in Nigeria: A cross-sectional observational study*. *The Pan African Medical Journal*, 37, 5. <https://doi.org/10.11604/pamj.2020.37.5.24898>.
148. Pederson AB, Konadu Fokuo J, Thornicroft G, et al. (2023.) *Perspectives of university health care students on mental health stigma in Nigeria: Qualitative analysis*. *Transcultural Psychiatry*. 60(2):272-285. [doi:10.1177/13634615211055007](https://doi.org/10.1177/13634615211055007).
149. Perkins, D. O., Gu, H., Boteva, K., & Lieberman, J. A. (2005). *Relationship between duration of untreated psychosis and outcome in first-episode schizophrenia: A critical review and meta-analysis*. *American Journal of Psychiatry*, 162, 1785–1804.

150. Picco, L., Seow, E., Chua, B. Y., Mahendran, R., Verma, S., Chong, S. A., & Subramaniam, M. (2017). *Recognition of mental disorders: Findings from a cross-sectional study among medical students in Singapore*. *BMJ Open*, 7(12), e019038. <https://doi.org/10.1136/bmjopen-2017-019038>
151. Qidwai, W., Khushk, I. A., Shamim, U., Altaf, S., Hadi, H., & Nanji, K. (2016). *Fast pace of life and its impact on health: results of a study from the largest city of Pakistan*. *Pakistan Journal of Public Health*, 6(4), Article 4. <https://doi.org/10.32413/pjph.v6i4.5>
152. Rafal, G., Gatto, A., & DeBate, R. (2018). *Mental health literacy, stigma, and help-seeking behaviors among male college students*. *Journal of American College Health*, 66(4), 284–291. <https://doi.org/10.1080/07448481.2018.1434780>
153. Rafal, G., Gatto, A., & DeBate, R. (2018). *Mental health literacy, stigma, and help-seeking behaviors among male college students*. *Journal of American College Health: J of ACH*, 66(4), 284–291. <https://doi.org/10.1080/07448481.2018.1434780>.
154. Reardon, C.L., Hainline, B., Aron, C.M., Baron, D., Baum, A.L., Bindra, A., Budgett, A., Campriani, N., CastaldelliMaia, J., Currie, A., Derevensky, J., Glick, I., Gorczynski, P., Goutteborge, V., Grandner, M., Han, D.H., McDuff, D., Mountjoy, M., Polat, A., Engebretsen, L. (2019). *Mental health in elite athletes: International Olympic Committee consensus statement*. *British Journal of Sports Medicine*, 53(11), 667–699.
155. Reavley, N. J., McCann, T. V., & Jorm, A. F. (2012). *Mental health literacy in higher education students*. *Early Intervention in Psychiatry*, 6(1), 45–52. <https://doi.org/10.1111/j.1751-7893.2011.00314.x>
156. Richard, J., Rebinsky, R., Suresh, R., Kubic, S., Carter, A., Cunningham, J. E. A., Ker, A., Williams, K., & Sorin, M. (2022). *Scoping review to evaluate the effects of peer support on the mental health of young adults*. *BMJ Open*, 12(8), e061336. <https://doi.org/10.1136/bmjopen-2022-061336>
157. Rickwood D, Braithwaite V. (1994). *Social-psychological factors affecting help-seeking for emotional problems*. *Social science & medicine* (1982). 39 (4): 563-572.
158. Rickwood D, Deane F, Wilson C, Ciarrochi J. (2005). *Young people's help-seeking for mental health problems*. *AeJAMH (Australian e-Journal for the Advancement of Mental Health)*. 4 (3).
159. Rickwood D, Deane F, Wilson C. (2007). *When and how do young people seek professional help for mental health problems?* *Med J Aust*. 187 (7 Suppl): S35-39,
160. Rickwood D, Thomas K. (2012). *Conceptual measurement framework for help-seeking for mental health problems*. *Psychol Res Behav Manag*. 5:173–183. doi: 10.2147/prbm.s38707.

161. Rickwood, D., Deane, F. P., Wilson, C. J., & Ciarrochi, J. (2005). *Young people's help-seeking for mental health problems. AeJAMH (Australian e-Journal for the Advancement of Mental Health), 4(3)* doi:10.5172/jamh.4.3.218.
162. Riffel, T., & Chen, S.-P. (2020). *Exploring the Knowledge, Attitudes, and Behavioural Responses of Healthcare Students towards Mental Illnesses—A Qualitative Study. International Journal of Environmental Research and Public Health, 17(1), 25.* <https://doi.org/10.3390/ijerph17010025>.
163. Roberts LW, Warner TD, Trumpower D. (2000). *Medical students' evolving perspectives on their personal health care: clinical and educational implications of a longitudinal study. Compr Psychiatry. 41(4):303–14.* <http://dx.doi.org/10.1053/comp.2000.0410303>. Medline:10929800.
164. Robledo-Gil, T., Guo, X. M., Horien, C., Herrin, M. A., Encandela, J., & Angoff, N. R. (2018). *Utilization and Effectiveness of a Peer Advocate Program for Medical Students. Academic Psychiatry: The Journal of the American Association of Directors of Psychiatric Residency Training and the Association for Academic Psychiatry, 42(1), 168–170.* <https://doi.org/10.1007/s40596-017-0790-5>
165. Roman, V. M. (2018). *Experiential Learning in Undergraduate Education—Doing and Reflecting. The American Journal of the Medical Sciences, 356(2), 188.* <https://doi.org/10.1016/j.amjms.2018.06.001>
166. Rosal MC, Ockene IS, Ockene JK, Barrett SV, Ma Y, Hebert JR. (1997). *A longitudinal study of students' depression at one medical college. Acad Med. 72: 542–6.*
167. Rotenstein LS, Ramos MA, Torre M, et al. (2016). *Prevalence of depression, depressive symptoms, and suicidal ideation among medical students: a systematic review and meta-analysis. JAMA ; 316:2214–36.*
168. Rukadikar, C., Mali, S., Bajpai, R., Rukadikar, A., & Singh, A. K. (2022). *A review on cultural competency in medical education. Journal of Family Medicine and Primary Care, 11(8), 4319–4329.* https://doi.org/10.4103/jfmprc.jfmprc_2503_21
169. Russell, R., Black, L., Pham, N., & Begley, A. (2020). *The effectiveness of emotional wellness programs on mental health outcomes for adults with multiple sclerosis: A systematic review and meta-analysis. Multiple Sclerosis and Related Disorders, 44, 102171.* <https://doi.org/10.1016/j.msard.2020.102171>
170. Ruzhenkova, V., Ruzhenkov, V., Khamaskaya (Lukyantseva), I., & Anisimova, N. A. (2018). *Academic stress and its effect on medical students' mental health status. Drug Invention Today, 10, 1171–1174.*

171. Sæther Marie Husøy, Sivertsen Børge, Bjerkeset Ottar (2021). *Mental Distress, Help Seeking, and Use of Health Services among University Students. The SHoT-Study 2018, Norway. Frontiers in Psychiatry*, 12.
172. Schernhammer ES, Colditz GA. (2004). *Suicide rates among physicians: a quantitative and gender assessment (meta-analysis). Am J Psychiatry*.161(12):2295–2302.
173. Schernhammer ES, Colditz GA. (2016). *Suicide rates among physicians: a quantitative and gender assessment (meta-analysis). Am J Psychiatry*; 161:2295–302.
174. Schomerus G, Matschinger H, Angermeyer MC. (2009). *Attitudes that determine willingness to seek psychiatric help for depression: A representative population survey applying the theory of planned behaviour. Psychol Med.* 39(11):1855–65 [cited 2020 Feb 19]. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/19379538>).
175. Scott, D., & Happell, B. (2011). *The high prevalence of poor physical health and unhealthy lifestyle behaviors in individuals with severe mental illness. Issues in Mental Health Nursing*, 32, 589–597.
176. Seedaket, S., Turnbull, N., Phajan, T., & Wanchai, A. (2020). *Improving mental health literacy in adolescents: systematic review of supporting intervention studies. In Tropical Medicine and International Health (Vol. 25, Issue 9, pp. 1055–1064). Blackwell Publishing Ltd.* <https://doi.org/10.1111/tmi.13449>
177. Semchuk, J. C., McCullough, S. L., Lever, N. A., Gotham, H. J., Gonzalez, J. E., & Hoover, S. A. (2022). *Educator-Informed Development of a Mental Health Literacy Course for School Staff: Classroom Well-Being Information and Strategies for Educators (Classroom WISE). International Journal of Environmental Research and Public Health*, 20(1), 35. <https://doi.org/10.3390/ijerph20010035>.
178. Shahaf-Oren, B., Madan, I., & Henderson, C. (2021). *“A lot of medical students, their biggest fear is failing at being seen to be a functional human”’: Disclosure and help-seeking decisions by medical students with health problems. BMC Medical Education*, 21(1), 599. <https://doi.org/10.1186/s12909-021-03032-9>
179. Shahwan, S., Lau, J.H., Goh, C.M.J. et al. (2020). *The potential impact of an anti-stigma intervention on mental health help-seeking attitudes among university students. BMC Psychiatry* 20, 562. <https://doi.org/10.1186/s12888-020-02960-y>.
180. Sittironnarit, G., Sripen, R., & Phattharayuttawat, S. (2022). *Psychometric Properties of the Thai Mental Health Literacy Scale in Sixth-Year Medical Students. Siriraj Medical Journal*, 74(2), 100–107. <https://doi.org/10.33192/Smj.2022.13>

181. Smith CL, Shochet IM. (2011). *The impact of mental health literacy on help-seeking intentions: results of a Pilot Study with First Year Psychology Students*. *Int J Ment Health Promot*. 13(2):14–20. doi:10.1080/14623730.2011.9715652.
182. Sodi, T., Quarshie, E. N.-B., Opong Asante, K., Radzilani-Makatu, M., Makgahlela, M., Nkoana, S., & Mutambara, J. (2022). *Mental health literacy of school-going adolescents in sub-Saharan Africa: A regional systematic review protocol*. *BMJ Open*, 12(9), e063687. <https://doi.org/10.1136/bmjopen-2022-063687>
183. Sori, L. M., Sema, F. D., & Tekle, M. T. (2022). *Internalized stigma and associated factors among people with mental illness at University of Gondar Comprehensive Specialized Hospital, Northwest, Ethiopia, 2021*. *International Journal of Mental Health Systems*, 16(1), 58. <https://doi.org/10.1186/s13033-022-00567-2>
184. Stuart, H. (2016). *Reducing the stigma of mental illness*. *Global Mental Health*, 3, e17. <https://doi.org/10.1017/gmh.2016.11>
185. Styles WM. (1993). Stress in undergraduate medical education: ‘the mask of relaxed brilliance’ *Br J Gen Pract*. 43:46–7.
186. Sun, J., Yin, X., Li, C., Liu, W., & Sun, H. (2022). *Stigma and Peer-Led Interventions: A Systematic Review and Meta-Analysis*. *Frontiers in Psychiatry*, 13. <https://doi.org/10.3389/fpsy.2022.915617>
187. Tegegne, M. D., Melaku, M. S., Shimie, A. W., Hunegnaw, D. D., Legese, M. G., Ejigu, T. A., Mengestie, N. D., Zemene, W., Zeleke, T., & Chanie, A. F. (2022). *Health professionals’ knowledge and attitude towards patient confidentiality and associated factors in a resource-limited setting: A cross-sectional study*. *BMC Medical Ethics*, 23(1), 26. <https://doi.org/10.1186/s12910-022-00765-0>
188. Thompson, G., Wrath, A., Trinder, K., & Adams, G. C. (2018). *The roles of attachment and resilience in perceived stress in medical students*. *Canadian Medical Education Journal*, 9(4), e69–e77. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6260503/>
189. Tjia J, Givens JL, Shea JA. (2005). *Factors associated with under treatment of medical student depression*. *J Am Coll Health*. 53(5):219–24. <http://dx.doi.org/10.3200/JACH.53.5.219-224>.
190. Toma, G., Rubie-Davies, C., & Le Fevre, D. (2023). *A workplace wellness program protects against COVID-19 effects on mental wellbeing*. *Journal of Workplace Behavioral Health*, 38(4), 372–387. <https://doi.org/10.1080/15555240.2023.2237674>

191. Topping, K. J. (2022). *Peer Education and Peer Counselling for Health and Well-Being: A Review of Reviews*. *International Journal of Environmental Research and Public Health*, *19*(10), Article 10. <https://doi.org/10.3390/ijerph19106064>
192. Umami, A., Zsiros, V., Maróti-Nagy, Á., Máté, Z., Sudalhar, S., Molnár, R., & Paulik, E. (2023). *Healthcare-seeking of medical students: The effect of socio-demographic factors, health behaviour and health status – a cross-sectional study in Hungary*. *BMC Public Health*, *23*(1), 2126. <https://doi.org/10.1186/s12889-023-17041-4>
193. *Usask Media Relation website*: <https://www.sasktoday.ca/highlights/suicide-prevention-focusses-on-post-secondary-students-5794494>. Accessed on 22nd June, 2024.
194. Ventola, C. L. (2014). Mobile Devices and Apps for Health Care Professionals: *Uses and Benefits*. *Pharmacy and Therapeutics*, *39*(5), 356–364.
195. Vogel, D. L., Wade, N. G., & Haake, S. (2006). *Measuring the self-stigma associated with seeking psychological help*. *Journal of Counseling Psychology*, *53*(3), 325-337. doi:10.1037/0022-0167.53.3.325.
196. Wan, D. W. J., Goh, L. S. H., Teo, M. Y. K., Loh, C. J. L., Yak, G. H. K., Lee, J. J. H., Ravindran, N., Abdul Rahman, N. D., Chiam, M., Ong, E. K., Somasundaram, N., Lim, Y. Y., Phua, G. L. G., & Krishna, L. K. R. (2024a). *Enhancing self-care education amongst medical students: A systematic scoping review*. *BMC Medical Education*, *24*(1), 37. <https://doi.org/10.1186/s12909-023-04965-z>
197. Wan, D. W. J., Goh, L. S. H., Teo, M. Y. K., Loh, C. J. L., Yak, G. H. K., Lee, J. J. H., Ravindran, N., Abdul Rahman, N. D., Chiam, M., Ong, E. K., Somasundaram, N., Lim, Y. Y., Phua, G. L. G., & Krishna, L. K. R. (2024b). *Enhancing self-care education amongst medical students: A systematic scoping review*. *BMC Medical Education*, *24*(1), 37. <https://doi.org/10.1186/s12909-023-04965-z>
198. Waqas, A., Malik, S., Fida, A., Abbas, N., Mian, N., Miryala, S., Amray, A. N., Shah, Z., & Naveed, S. (2020). *Interventions to Reduce Stigma Related to Mental Illnesses in Educational Institutes: A Systematic Review*. *The Psychiatric Quarterly*, *91*(3), 887. <https://doi.org/10.1007/s11126-020-09751-4>
199. Wiedermann, C. J., Barbieri, V., Plagg, B., Marino, P., Piccoliori, G., & Engl, A. (2023). *Fortifying the Foundations: A Comprehensive Approach to Enhancing Mental Health Support in Educational Policies Amidst Crises*. *Healthcare*, *11*(10), 1423. <https://doi.org/10.3390/healthcare11101423>
200. Wiens, K., Bhattarai, A., Pedram, P., Dores, A., Williams, J., Bulloch, A., & Patten, S. (2020). *A growing need for youth mental health services in Canada: Examining trends in youth mental health from 2011 to 2018*. *Epidemiology and Psychiatric Sciences*. <https://doi.org/10.1017/S2045796020000281>.

201. Wilkes C, Lewis T, Brager N, Bulloch A, MacMaster F, Paget M, Holm J, Farrell SM, Ventriglio A. (2019). *Wellbeing and mental health amongst medical students in Canada. Int Rev Psychiatry. 31(7-8):584-587. doi: 10.1080/09540261.2019.1675927.*
202. Wilson, C.J., Deane, F.P., Ciarrochi, J., & Rickwood, D. (2007). *Measuring help-seeking intentions: Properties of the general help seeking questionnaire, Canadian Journal of Counselling, 39(1), 15–28.*
203. Yaodum, T., Mahapoonyanont, N., Jaidumrong, N., Songsung, N., & Gudmundsson, M. (2023, November 4). *Experiential learning for higher education students: why, what, and how?*
204. Yardley, S., Teunissen, P. W., & Dornan, T. (2012). *Experiential learning: AMEE Guide No. 63. Medical Teacher, 34(2), e102-115. https://doi.org/10.3109/0142159X.2012.650741*
205. Zafošnik, U., Cerovečki, V., Stojnić, N., Belec, A. P., & Klemenc-Ketiš, Z. (2024). *Developing a competency framework for training with simulations in healthcare: A qualitative study. BMC Medical Education, 24(1), 180. https://doi.org/10.1186/s12909-024-05139-1.*
206. Zeng, Wen MBAa; Chen, Ruiqi MDb; Wang, Xingyue MPHa; Zhang, Qin MMSCa; Deng, Wei MDc. (2019). *Prevalence of mental health problems among medical students in China, Medicine. 98 - Issue 18 - p e15337 doi: 10.1097/MD.0000000000015337.*
207. Zivanovic R, McMillan J, Lovato C, Roston C. (2018). *Death by Suicide among Canadian Medical Students: A National Survey-Based Study. The Canadian Journal of Psychiatry. 63(3):178-181. doi:10.1177/0706743717746663*