



Research article

Medical student's attitude toward severe mental illness and its associated factors at the university of Gondar, Northwest Ethiopia

Mamaru Melkam^{a,*}, Girum Nakie^a, Girmaw Medfu Takelle^a,
Likinaw Abebaw Wassie^b, Shegaye Shumet^a

^a University of Gondar College of Medicine Health Science Department of Psychiatry, Ethiopia

^b University of Gondar College of Medicine Health Science Department of Medical Nursing, Ethiopia

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ABSTRACT

Introduction: Mental illness is mental and emotional disturbances that affect individual thinking, feeling, decision-making, mood, and daily functioning. A poor attitude toward severe mental illness means an individual has a distorted perception or attitude toward severely mentally ill patients. Despite the presence of a high burden of negative attitudes toward severe mental illness, there is a limited study conducted on Ethiopian University students. Therefore, this study aimed to reveal the prevalence of poor attitudes toward severe mental illness and its associated factors among University Gondar medical students in Northwest Ethiopia.

Method: An institutional-based cross-sectional study design was employed from Jun 25 to August 15, 2022. A structured self-administered questionnaire was used to screen the attitudes of students toward severe mental illness. Mental Illness Clinician's Attitude fourth version and Mental Health Knowledge Schedule score tools were used to screen the attitude of students. Bi-variable logistic regression analysis was employed and variables with a p-value of less than 0.25 were entered into the multivariable logistic regression for further analysis. Factors with a p-value less than 0.05 at a 95 % Confidence Interval (CI) in the multivariable logistic regression analysis were considered statistically significantly associated.

Results: From the total of 423 study participants with a 100 % response rate the overall prevalence of poor attitude towards severe mental illness among university students was 68.1 % with a 95 % CI (63.6–72.6). Age (18–24) [AOR = 2.47; 95 % CI: (1.37,4.45)], being male [AOR = 3.22; 95 % CI: (2.01–5.17)], from a rural area [AOR = 1.82; 95 % CI: (1.13–2.93)], and with no family history of mental illness [AOR = 2.07; 95 % CI: (1.12–3.82)] were statistically significantly associated factors with poor attitude towards severe mental illness.

Conclusions: and recommendations: Approximately three-fourths of university Gondar medical students (68.1 %) had poor attitudes towards severe mental illness. Age (18–24), being male, originating from a rural area, and with no family history of mental illness were significantly associated with a poor attitude toward severe mental illness. Awareness creation about mental

Abbreviations: AMI, Attitude toward Mental Illness; AOR, Adjusted Odd Ratio; BMIS, Beliefs towards Mental Illness Scale; CI, Confidence Interval; CMHS, Campus of Medicine and Health Science; COR, Crude Odd Ratio; MAKS, Mental Health Knowledge Schedule; MICA-2, Mental Illness Clinician's Attitude Version 2; MICA-4, Mental Illness Clinician Attitude Version 4; OMS-HC, Opening Minds Stigma Scale for Health Care Providers; OR, Odds Ratio; SMI, Severe Mental illness; SPSS, Statistical Package for Social Science; UWA, University of Western Australia; WHO, World Health Organization.

* Corresponding author. Department of Psychiatry, College of Medicine and Health Sciences, University of Gondar, Ethiopia.

E-mail addresses: mamarumelkam@gmail.com (M. Melkam), girumnakie@gmail.com (G. Nakie), girmawmedfu@gmail.com (G.M. Takelle), likinawabe@gmail.com (L.A. Wassie), shumetshegaye@yahoo.com (S. Shumet).

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illness can change the attitude of students which can be done by the mental health department to give as a common course can help the student to have a positive attitude.

1. Introduction

World Health Organization (WHO), states mental health is a state of well-being in which every individual realizes his or her potential, can cope with the normal stresses of life, can work productively and fruitfully, and can contribute to his or her community [1]. Mental illness is a significant disturbance of emotion, cognition, and term that covers a lot of illnesses that affect individuals' thinking and decision-making ability and also can affect feelings, mood, daily functioning as well as the ability to interact with others [2]. Severe Mental Illnesses (SMI) include moderate to severe depression, bipolar disorder, schizophrenia, and other psychotic disorders [3].

The biological theory states that mental illness is caused by brain structure and chemistry abnormality of the neurotransmitters which are clinical management targets and family inheritance [4]. The last theory is the psychogenic theory, which states that mental illness is caused by traumatic life events and cognitive and perceptual distortion [5].

The impact of poor attitudes toward mental illness may be one factor in their decisions not to enter mental health practice and not choose mental health work as their future career [6]. A systematic review indicated that unfavorable attitudes of medical students perceive towards mental illness have a negative impact on mental health workers as a career [7]. Because of this, there is a decrease in the number of mental health care professionals which leads to mental health care system crisis and a decrease in mental health care access for mentally ill patients [8].

Healthcare professionals have a central role in reducing or aggravating the effects of poor attitudes on the quality of life of mentally ill patients because they are gatekeepers to the healthcare system [9]. Surveys conducted in the United Kingdom and Germany indicate that healthcare professionals have poor attitudes toward psychiatric patients which can affect also the attitude of students and the caregiving process [10]. This assessment of the attitudes of future healthcare professionals toward mental illness is crucial [11]. Malaysian people believe that psychiatric illness has supernatural causes and they prefer to use traditional healers rather than modern treatment [12]. The poor attitude that discriminates against individuals with mental illness is embedded in societal norms [13]. Mentally ill individuals face different problems in employment, housing, medical care, and social relationship [14,15].

Poor attitudes of healthcare providers and society towards mentally ill patients can have a large effect on treatment response and quality of life of the patients [16,17]. Poor attitudes among healthcare workers towards patients with SMI have a great impact on patients' treatment-seeking behavior and recovery process, which includes offering discouraging advice, negative remarks, and rejecting behavior [18]. Some factors significantly affect the attitude of students toward severe mental illness including being male, having less psychiatric nursing training, having minor exposure, having experience in mental health, and having poor knowledge about mental illness [19–21].

Globally, individuals with mental illnesses are among the most vulnerable and discriminated populations [22]. In a study conducted in the United Kingdom, Singapore, and Riyadh 70 %, from 45.1 % to 67.7 %, and 48 % have a poor attitude toward severe mental illness respectively [23–25]. In Europe and France, there were 65 % and 41.7 % respectively had a poor attitude toward severe mental illnesses [26,27]. From the systematic review in India, 36 % had a poor attitude towards severe mental illness [28]. In Southern Ghana, Nigeria, and Tanzania there were 22.9 %, 10.0 %, and 58.9 % poor attitudes toward mental illness respectively [29–31]. In Ethiopia, the prevalence of poor attitudes toward people with mental illness was reported within the range of 32.1 %–83.5 % [32,33]. Even if, the attitude of university students toward severe mental illness affects treatment-seeking behavior there are limited studies conducted particularly in Ethiopia, therefore, this study aims to reveal the prevalence and its associated factors of poor attitudes toward severe mental illness among medical students at the university of Gondar in Northwest, Ethiopia.

2. Methods

2.1. Study period and area

The institutional-based cross-sectional study design was employed from Jun 25 to August 15/2022 G.C. academic year. The study was conducted at the University of Gondar College of Medicine and Health Science. Gondar is 747 km from the capital city Addis Ababa and 170 km from the regional capital town of Amhara/Bahir Dar. University of Gondar College of Medicine and Health Science has a total of 2323 students in the 2022 academic year. University of Gondar College of Medicine and Health Science has 15 departments which are anesthesia, environmental health science, health informatics, public health officer, medicine, midwifery, nursing, optometry, pharmacy, physiotherapy, psychiatry, medical laboratory, dental medicine, and occupational therapy.

2.2. Source and study population

All undergraduate students in the University of Gondar College of Medicine and Health Science were the source and study of populations for this study.

2.3. Inclusion criteria

All undergraduate students in the University of Gondar College of Medicine and Health Science who existed during the data collection period were included in the study.

2.4. Exclusion criteria

All undergraduate students who were in the team training program, those who were seriously ill, and those who were not present on campus or those who were on break during the data collection period were excluded from the study.

2.5. Sample size determination and sampling procedures

The required sample size for this study was determined by using a single population proportion formula for the outcome variable and a two-proportion formula for those factors associated with poor attitude in the previous study. The sample calculation was done by considering the following assumptions; $Z =$ standard normal distribution ($Z_{\alpha/2} = 1.96$) with a confidence interval of 95 % and $\alpha = 0.05$, $P =$ proportion of poor attitudes toward severe mental illness which is 50 % (0.5) because there is no study done on the prevalence and associated factors of a poor attitude towards severe mental illness among health science and medical university students in Ethiopia. After the non-response rate of 10 % was added the final sample size of this study was 423.

2.6. Sampling technique and procedure

The sample was taken by using a stratified sampling method which means seven departments were selected first from those 15 departments by simple random sampling methods. Then, the total sample size for the study was allocated proportionally across the seven selected departments according to the number of students in each department. Finally, we used a simple random sampling method to select study participants from each selected department. We had the list of student identification (ID) of all students in the department and then among the selected departments we went to class and used a computer-generated technique based on their ID number. The selected students stayed in the class to respond to the questionnaire after the selection based on the computer-generated method in each seven selected departments.

2.7. Operational definition

2.7.1. Knowledge score

- **Poor knowledge:** students with a Mental Health Knowledge Schedule score (MAKS) score of less than the mean of the total score.
- **Good Knowledge:** students with MAKS scores greater than or equal to the mean of the total score [34].

2.7.2. Attitude score

- **Poor attitude:** According to the Mental Illness Clinician's Attitude Version four (MICA-4) score, those who scored greater than or equal to 56 were considered to have a more negative attitude towards severe mental illness.
- **Positive attitude:** from MICA-4 mean score < 56 [35].

2.7.3. Measurement instrument

Mental Illness Clinician's Attitude version four (MICA-4) score tool is the scale was reported with good internal consistency with a Cronbach's α of 0.68 with conducting pretest. This tool has been used in numerous studies in Ethiopia [32,33,36]. The sensitivity and specificity of the measurement tool were 76.3 % and 88.1 % respectively.

2.8. Variables of the study

2.8.1. Dependent variable

Poor attitude toward mental illness.

2.8.2. Independent variable

Socio-demographic variables:

Age, Sex, Marital status, Religion, Department, Place of residence, Year of study, and Psychiatric course taking.

2.8.3. Clinical factors

Personal history of mental illness.

Family history of mental illness.

Personal contact with a psychiatric patient.

2.9. Data collection tools and procedures

The self-administrative questionnaire was used for data collection. The English version of the questionnaire was used to collect data because all of the students could understand the English language equally to other different local languages. We used a socio-demographic questionnaire, MICA-4 which is 16 item-modified version of the MICA-2; that assesses attitudes towards severe mental illness of students or staff in any health discipline, and MAKS which is a 12-item scale, with the first 6 items assessing mental health-related knowledge. The socio-demographic questionnaire includes questions on age, sex, marital status, religion, department, year of study, personal history of mental illness, family history of mental illness, and personal contact with a psychiatric patient.

A standardized psychometric tool, MICA-4 is a 16-item psychometric tool, which has been developed by adapting the MICA-2, designed to assess the attitudes of university students and primary health care nurses. Attitude towards people with severe mental illness MICA-4 is a 6-point Likert scale (Strongly agree = 1, Agree = 2, Somewhat Agree = 3, somewhat disagree = 4, Disagree = 5, strongly disagree = 6). Its scores range between 16 and 96 and represent the sum of the individual item scores. It is a continuous scale, and it is recommended that the mean and standard deviation are to be used to set the cutoff point. According to the MICA score, those who have higher scores have a poor attitude towards severe mental illness and psychiatry. The cut-off point was set at 56 (16 questions with 6 Likert score answers, with the midpoint being 3.5, this is to mean that 16 questions \times 3.5 mid-point = 56). MAKS is the first psychometrically tested instrument used to assess the mental health-related knowledge of respondents. It is a 12-item scale, with the first 6 items assessing mental health-related knowledge scored on a 5-point Likert scale.

Strongly agreed = 5, agree = 4, neither = 3, disagree = 2, and strongly disagree = 1 in which items were scored on an ordinal scale of 1–5. A MAKS total score for each participant was calculated for items 1–6 by adding together the response values of each item. A higher total score indicates greater mental health knowledge; the highest possible score is 30.

2.10. Data quality control and assurance

The questionnaire was primarily prepared in English since the participants can understand it easily in this international language. The structured questionnaires were tested and appropriate measures were performed to check the completeness of the data. Principal investigators collected the data using a structured English version questionnaire. The completeness, accuracy, and clarity were controlled by principal investigators. Data was cleaned, checked, and cross-checked its completeness. To evaluate the consistency of the questionnaires, a pretest was conducted on 5 % of the sample size before the actual data collection to see the reliability and validity of the screening tool with a Cronbach Alpha of 0.68. This pretest study was conducted among social science students who studied at the University of Gondar in the different compass of the main study area, the study participants were selected by using simple random sampling and included those who fulfilled the inclusion criteria.

Table 1

Socio-demographic characteristics of the study participants among medical and health science students at the University of Gondar, Northwest Ethiopia.

Variables	Category	Frequency	Percent
Sex	male	244	57.7
	female	179	42.3
Age	18–24	340	80.4
	25–35	83	19.6
Religion	orthodox	286	67.6
	Protestant	81	19.1
	Muslim	51	12.1
	Catholic	4	0.9
	Others	1	0.2
Marital status	Never married	403	95.3
	Ever Married	20	4.7
Place of residence	Urban	263	62.2
	Rural	160	37.8
Department	Medicine	226	53.4
	nurse	79	18.7
	Health officer	28	6.6
	Health informatics	21	5.0
	Midwifery	28	6.6
	Physiotherapy	21	5.0
Academic year	Psychiatry	20	4.7
	Second	76	18.0
	Third	100	23.6
	Fourth	160	37.8
	Fifth	50	11.8
	Sixth	37	8.7
Have you taken a psychiatry course	No	240	56.7
	Yes	183	43.3

2.11. Data processing and analysis

The data were checked, coded, entered, and exported to Statistical Package for Social Science (SPSS, Version 27) for analysis. Bi-variable logistic regression analysis was employed to check the associations of each variable with the outcome variable. All variables with a p-value of less than 0.25 in the bi-variable logistic regression analysis were entered into multivariable logistic regression for further analysis. Then any variables with a p-value of less than 0.05 in the multi-variable logistic regression analysis were considered statistically significant. The strength of the association was illustrated by using the Odds Ratio (OR) with its 95 % confidence interval. The finding of this study was presented in the form of a table, figure, and chart using mean and percentage to explore the characteristics of study participants and to discuss the former studies. The Hosmer Lemeshow test was used to prove the fitness of the model (67.9 %).

3. Result

3.1. Socio-demographic characteristics of respondents

A total of 423 study participants were included in this study with a 100 % response rate. Of the study participants, 244 (57.7 %) were male. The mean age of the study participants was 23.57 ± 3.16 with a range of 18 and 35 years. The majority age category was in the range of 18 and 24. Among the total of study participants, 286 (67.6 %) were orthodox Christian religion followers and 403 (95.3 %) were not married. Of the study participants, 263 (62.2 %) came from urban areas. Among a total of students, 226 (53.4 %) were medical students, 79 (18.7 %) were nursing students, and 28 (6.6 %) were health officers and midwifery. The majority of the study participants 160 (37.8 %) were 4th-year students. Of the study participants, 183 (43.3 %) have taken a psychiatric course in a different department (Table 1).

3.2. Clinical factors of health science students at the university of Gondar

Related to the clinical factors of the study participants 256 (60.5 %) have met a psychiatric patient in their life. Among the study participants, 23 (5.4 %) have had a mental illness history in their lifetime. Of mentally ill participants 16 (69.6 %) were getting modern medical treatment and 7 (30.4 %) were getting traditional treatment. Of the study participants who have a history of mental illness 22 (95.7 %) of them have improved by treatment. Of the respondents, 39 (9.2 %) have a family history of mental illness. Twenty-two (56.4 %) of them have first-degree relatives in their relationship with the patient. From this, 35 (89.7 %) family members have a good attitude toward mental illness (Table 2).

3.3. Student's knowledge of severe mental illness

Of the total participants of the study, 272 (64.3 %) of the respondents have good knowledge about people with severe mental illness which was evidenced by their score greater than or equal to the mean score of 20. The Mental Health Knowledge Schedule score (MAKS) measurement tool was used to assess the knowledge of students related to severe mental illness (Fig. 1).

3.4. Prevalence of poor attitudes toward severe mental illness

The prevalence of poor attitude toward severe mental illness was 68.1 % with a 95 % CI of (63.6–72.6). The prevalence of poor attitude towards severe mental illness was 66.32 % and 33.68 % among males and females respectively. Mental Illness Clinician's Attitude Version four (MICA-4) was used to measure the attitude of students with severe mental illness by using its mean score.

Table 2

Clinical factors of medical and health science students at the University of Gondar Northwest Ethiopia.

Variable	Category	Frequency	Percent
Previous contact with mentally ill persons	Yes	256	60.5
	No	167	39.5
Having a previous mental illness history	No	400	94.6
	Yes	23	5.4
Types of treatment received during mental illness	Modern	16	69.6
	Traditional	7	30.4
Improvement by treatment successfully	Yes	22	95.7
	No	1	4.3
Family history of mental illness	No	365	86.3
	Yes	58	13.7
Family member affected by mental illness	First degree relatives	32	55.17
	Others	26	44.82
Presence of a good attitude among family members toward the patient	Yes	54	93.1
	No	4	6.89

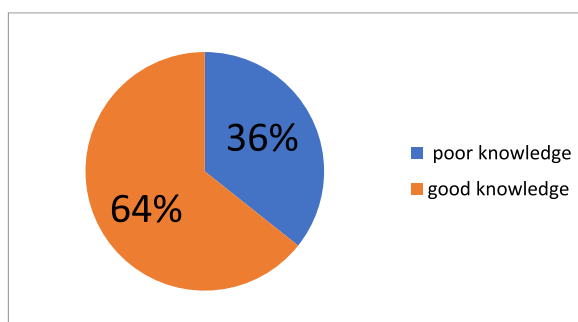


Fig. 1. Knowledge of medical and health science students about severe mental illness in the University students, in Northwest Ethiopia.

3.5. Factors associated with a poor attitude

Bi-variant and multi-variate analysis was done to test the association between different variables and poor attitude. Variables that were associated with the bi-variant analysis with a p-value of 0.25 were considered for further analysis in the multivariate analysis. In the Bi-variable logistic regression analysis; variables associated with poor attitudes among medical and health science students included; age, sex, place of residence, family history of mental illness, having met the mentally ill patient, and having taken the psychiatric course. In multi-variables logistic regression analysis: age, sex, place of residence, and family history of mental illness were statically significantly associated with a poor attitude towards severe mental illness.

The odds of developing a poor attitude among ages between 18 and 24 is 2.47 times more likely to have a poor attitude towards severe mental illness than 25–35 age groups [AOR = 2.47; 95 % CI: (1.37,4.45)]. The odds of developing a poor attitude towards severe mental illness among male students was 3.22 times higher as compared to female students [AOR = 3.22; 95 % CI: (2.01–5.17)]. The odds of developing poor attitudes among students who came from rural areas were 1.82 times higher to have a poor attitude towards severe mental illness as compared to students who came from urban areas [AOR = 1.82; 95 % CI: (1.13–2.93)]. The odds of the probability of having a poor attitude towards severe mental illness among students to have no family history of mental illness was 2.07 more likely as compared to those without a family history of mental illness [AOR = 2.07; 95 % CI: (1.12–3.82)] (Table 3).

4. Discussions

The finding of this study showed that the prevalence of poor attitudes towards severe mental illness among medical and health science students was 68.1 % with a 95 % CI (63.6–72.6). Poor attitude is measured by Mental Illness Clinician's Attitude version four which is a crucial tool that helps us to define what is in the student's mind about severe mental illness. Our finding is consistent with a study conducted at Sri Lanka University among medical students with a prevalence of 70 % [23].

This study is higher than the study conducted in Uganda 50.71 % [37], and Singapore 31.9 % [24]. This discrepancy could be the effect of the difference measurement tool used in the Singapore study was a 15-item Opening Minds Stigma Scale for Health Care Providers (OMS-HC) which is completely different from our study measurement tools [24]. The other probable difference in this result might be due to the effect of the perceptions of the community as a whole which can affect the attitude of the student. The presence of different cultural and religious thoughts about the cause and prognosis of severe mental illness might create this discrepancy in poorer attitudes. A poorer attitude was observed in this study than in other studies conducted in Riyadh with a score of 48 % [38]. This difference may have arisen from Riyadh, use of a different tool that differs from our tool which contains 22 questions to assess attitude,

Table 3

Bi-variable and multi-variable logistic regression towards severe mental illness among medical and health science students at the University of Gondar Northwest, Ethiopia.

Variable	Category	Attitude		COR	AOR	P-value
		Good	poor			
Age	18–24	101	239	1.642(1.000–2.695)	2.477(1.378–4.451)	0.002
	25–35	34	49	1	1	
Sex	Male	53	191	3.046(1.995–4.651)	3.224(2.008–5.176)	<0.001
	Female	82	97	1	1	
Residence	Urban	98	165	1	1	0.013
	Rural	37	123	1.974(1.266–3.079)	1.826(1.138–2.930)	
Psychiatric course taking	Yes	69	114	1	1	0.280
	No	66	174	1.596(1.057–2.409)	1.286(0.815–2.028)	
Meet mentally ill patients before	Yes	92	164	1	1	0.643
	No	43	124	1.618(1.052–2.489)	1.123(0.687–1.837)	
Family history of mental illness	Yes	30	28	1	1	0.019
	No	105	260	2.653(1.511–4.657)	2.073(1.126–3.819)	

a sample size difference which is 512 and they have a better social and economic status than our country.

A relatively lower level of poor attitude was observed in this study than study at the University of Uyo Teaching Hospital, in Nigeria 78 % [39]. This difference may have arisen from the sample size difference which is the sample size of the Nigerian study was too small (208). The reason for the discrepancy in the association could be probably due to the effect of high social interactions in Ethiopia and giving a high value to a human being that finally increases the attitude of students.

Related factors significantly associated include younger age students having poor attitudes toward severe mental illness as compared to relatively older students. This result is in concordance with the study conducted in other universities in Indonesia [21]. This is because older age is associated with the maturity of thought, behavior, and seeing things from a different view [19]. The reason for the association might be the effect of exposure to different life experiences related to mental health.

Being male was one of the other factors significantly associated with a poor attitude toward severe mental illness. This result is in line with other studies conducted in Malaysia [40], Indonesia [41], Turkey [20], India [42], and Sweden [43]. This association might be females talk about things that are faced with their friends mostly since they have more social interactions that lead to better awareness of mental illness [40]. The probable reason for this association could be the effect of positive thinking about the treatability of mental illness among women [41]. Another possible evidence is also confirmed that females have greater tolerance and empathic feelings for mentally ill individuals even though they are afraid of them [44].

Another factor associated significantly was having no family history of mental illness had a poor attitude towards severe mental illness. This result is consistent with other studies conducted in Poland [45], India [42], and Indonesia [41]. This could be due to the effect of having no family history of severe mental illness and limited access to information about severe mental illness [41]. The reason for the association could be because students with no family history of mental illness have less exposure and little knowledge about illness, treatment modalities, and also about the course and prognosis of mental illness [46].

The factor associated with a poor attitude toward severe mental illness among students who come from rural areas. This finding is in concordance with other studies conducted in Ghana Kumasi [47]. This association could be probably due to students who live in rural areas have no enough knowledge or awareness about mental illness. This is also because there is no psychiatric health care delivery service as well as educated personnel around in countryside Ethiopia. The reason for the association might be the effect of cultural differences and religious beliefs about the cause of severe mental illness [48]. The other evidence for this association might be because of the effect of the belief that the cause of mental health is a supernatural force and mostly they use traditional lifestyles with the traditional way of explanations in rural areas for mental health [47]. Providing awareness about mental illness might change the attitude of students since the associations from rural areas can be due to the lack of information.

4.1. Strengths and limitations of the study

The cross-sectional nature of the study design does not show any cause-and-effect relationship between the dependent and independent variables. Another weakness of this study was social disability bias for the knowledge about severe mental illness. The standard tool with high internal consistency was used to measure both the knowledge and attitudes of students related to mental illness as a strength of our study.

5. Conclusion

About half of the students have a poor attitude towards severe mental illness. Age, being male, originating from a rural area, and having no family history of mental illness was significantly associated with a poor attitude towards severe mental illness. We recommended that mental health professionals, instructors or educators, and other policymakers increase the awareness that can change the beliefs and attitudes of students in the university. Giving short- and long-term training about mental health could change the attitude of students in the university.

Ethical consideration

All methods were conducted according to the ethical standards of the declarations of Helsinki. Ethical clearance was obtained from the University of Gondar, Institutional Review Bored with reference number 398/2022. Participants were informed about the aim and advantages of the study. They have to be informed that study participants have full rights to discontinue the study. Written informed consent was taken from participants before data collection took place. Participants were also informed that if they required any help with any of the issues about the study, they could approach data collection facilitators. The data collectors assured them about the confidentiality of the data and that no personal identifiers were used in the questionnaire, the electronic data, and the result report.

CRedit authorship contribution statement

Mamaru Melkam: Writing – original draft, Methodology, Formal analysis, Conceptualization. **Girum Nakie:** Data curation. **Girmaw Medfu Takelle:** Supervision. **Likinaw Abebaw Wassie:** Validation. **Shegaye Shumet:** Writing – review & editing.

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Availability of data

All available data is included in the manuscript.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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References

- [1] S. Galderisi, et al., Toward a new definition of mental health, *World Psychiatr.* 14 (2) (2015) 231.
- [2] B. Rashid, V. Calloun, Towards a brain-based predictome of mental illness, *Hum. Brain Mapp.* 41 (12) (2020) 3468–3535.
- [3] W.H. Organization, Management of Physical Health Conditions in Adults with Severe Mental Disorders: WHO Guidelines, 2018.
- [4] S. Schwartz, C. Corcoran, Biological theories of psychiatric disorders: a sociological approach. *A Handbook for the Study of Mental Health*, 2010, pp. 64–88.
- [5] I.G. Farreras, History of mental illness. Noba Project Champaign, 2019.
- [6] S. Paul, Mental health: an endangered occupational therapy specialty?. *The American Occupational Therapy Association Inc*, 1996.
- [7] Z. Lyons, Attitudes of medical students toward psychiatry and psychiatry as a career: a systematic review, *Acad. Psychiatr.* 37 (3) (2013) 150–157.
- [8] T.F. Bishop, et al., Population of US practicing psychiatrists declined, 2003–13, which may help explain poor access to mental health care, *Health Aff.* 35 (7) (2016) 1271–1277.
- [9] M. Rockville, Mental Health: A Report of the Surgeon General, US Department of Health and Human Services, 1999.
- [10] B. Schulze, M.C. Angermeyer, Subjective experiences of stigma. A focus group study of schizophrenic patients, their relatives and mental health professionals, *Soc. Sci. Med.* 56 (2) (2003) 299–312.
- [11] M. Shammari, S. Waggas, A. Hasan, Assessment of nursing students' attitudes and stigma towards mental illness: a cross-sectional study, *J. Nurs. Educ. Pract.* 10 (9) (2020).
- [12] S. Razali, U. Khan, C. Hasanah, Belief in supernatural causes of mental illness among Malay patients: impact on treatment, *Acta Psychiatr. Scand.* 94 (4) (1996) 229–233.
- [13] B.A. Pescosolido, et al., "A disease like any other"? A decade of change in public reactions to schizophrenia, depression, and alcohol dependence, *Am. J. Psychiatr.* 167 (11) (2010) 1321–1330.
- [14] O.F. Wahl, Mental health consumers' experience of stigma, *Schizophr. Bull.* 25 (3) (1999) 467–478.
- [15] G. Thornicroft, et al., Global pattern of experienced and anticipated discrimination against people with schizophrenia: a cross-sectional survey, *Lancet* 373 (9661) (2009) 408–415.
- [16] R. Chaplin, Psychiatrists can cause stigma too, *Br. J. Psychiatr.* 177 (5) (2000), 467–467.
- [17] J.D. Livingston, J.E. Boyd, Correlates and consequences of internalized stigma for people living with mental illness: a systematic review and meta-analysis, *Soc. Sci. Med.* 71 (12) (2010) 2150–2161.
- [18] D. Ndeti, et al., Knowledge, attitude and practice (KAP) of mental illness among staff in general medical facilities in Kenya: practice and policy implications: original, *Afr. J. Psychiatr.* 14 (3) (2011) 225–235.
- [19] C.Y. Hsiao, H.L. Lu, Y.F. Tsai, Factors influencing mental health nurses' attitudes towards people with mental illness, *Int. J. Ment. Health Nurs.* 24 (3) (2015) 272–280.
- [20] B.H.F. Ögrencilerin, Determination of the mental disorder beliefs of students in a nursing faculty, *Journal of Psychiatric Nursing* 7 (3) (2016) 129–134.
- [21] S.P. Sari, E. Yulastuti, Investigation of attitudes toward mental illness among nursing students in Indonesia, *International journal of nursing sciences* 5 (4) (2018) 414–418.
- [22] W.F.F.M. Health, *The Great Push: Investing in Mental Health*, Author, Occoquan, VA, 2011.
- [23] S.M. Fernando, F.P. Deane, H.J. McLeod, Sri Lankan doctors' and medical undergraduates' attitudes towards mental illness, *Soc. Psychiatr. Psychiatr. Epidemiol.* 45 (7) (2010) 733–739.
- [24] S. Chang, et al., Stigma towards mental illness among medical and nursing students in Singapore: a cross-sectional study, *BMJ Open* 7 (12) (2017) e018099.
- [25] Turjoman, M.A., et al., Stigmatization Attitude toward Mental Illness Among Medical Students of King Saud Bin Abdulaziz University for Health Sciences, Jeddah, Saudi Arabia.
- [26] I. Durand-Zaleski, et al., A first national survey of knowledge, attitudes and behaviours towards schizophrenia, bipolar disorders and autism in France, *BMC Psychiatr.* 12 (1) (2012) 128.
- [27] W. Clark, et al., California's historic effort to reduce the stigma of mental illness: the Mental Health Services Act, *Am. J. Publ. Health* 103 (5) (2013) 786–794.
- [28] S.M. Gaiha, et al., Stigma associated with mental health problems among young people in India: a systematic review of magnitude, manifestations and recommendations, *BMC Psychiatr.* 20 (1) (2020) 1–24.
- [29] A. Barke, S. Nyarko, D. Klecha, The stigma of mental illness in Southern Ghana: attitudes of the urban population and patients' views, *Soc. Psychiatr. Psychiatr. Epidemiol.* 46 (11) (2011) 1191–1202.
- [30] M. Benedicto, et al., Community knowledge, attitudes and perception towards mental illness in Dodoma Municipality, Tanzania, *ARC J Public Heal Community Med* 1 (3) (2016) 10–18.
- [31] I. Mojiminiyi, Knowledge and attitude towards mental disorders among adults in an urban community in south-west Nigeria, *Malawi Med. J.* 32 (2) (2020) 87–94.
- [32] B.B. Bifftu, B.A. Dachew, Perceived stigma and associated factors among people with schizophrenia at Amanuel Mental Specialized Hospital, Addis Ababa, Ethiopia: a cross-sectional institution based study, *Psychiatry journal* 2014 (2014).
- [33] B. Asrat, A.E. Ayenalem, T. Yimer, Internalized stigma among patients with mental illness attending psychiatric follow-up at Dilla University Referral Hospital, Southern Ethiopia, *Psychiatry journal* 2018 (2018).
- [34] S. Evans-Lacko, et al., Development and psychometric properties of the mental health knowledge schedule, *Can. J. Psychiatr.* 55 (7) (2010) 440–448.
- [35] A.M. Eissa, et al., Investigating stigma attitudes towards people with mental illness among residents and house officers: an Egyptian study, *Middle East Current Psychiatry* 27 (1) (2020) 1–8.
- [36] Y. Sahile, et al., Primary health care nurses attitude towards people with severe mental disorders in Addis Ababa, Ethiopia: a cross sectional study, *Int. J. Ment. Health Syst.* 13 (2019) 1–8.
- [37] R.B. Kihumuro, et al., Knowledge, attitude and perceptions of medical students towards mental health in a university in Uganda, *BMC Med. Educ.* 22 (1) (2022) 1–9.

- [38] S.M. Mahboub, et al., Knowledge and Attitude towards Mental Illness Among Health and Non-health University Students in Riyadh, 2020.
- [39] D.I. Ukpong, F. Abasiubong, Stigmatising attitudes towards the mentally ill: a survey in a Nigerian university teaching hospital, *S. Afr. J. Psychiatr.* 16 (2) (2010) 56–60.
- [40] R.A. Al-Naggar, Attitudes towards persons with mental illness among university students, *ASEAN J. Psychiatry* 14 (1) (2013) 15–24.
- [41] I.M. Puspitasari, et al., Perceptions, knowledge, and attitude toward mental health disorders and their treatment among students in an Indonesian University, *Psychol. Res. Behav. Manag.* 13 (2020) 845.
- [42] V. Poreddi, R. Thimmaiah, S. BadaMath, Medical and nursing students' attitudes toward mental illness: an Indian perspective, *Invest. Educ. Enfermería* 35 (1) (2017) 86–94.
- [43] B. Ewalds-Kvist, T. Högberg, K. Lütznén, Impact of gender and age on attitudes towards mental illness in Sweden, *Nord. J. Psychiatr.* 67 (5) (2013) 360–368.
- [44] M. Pascucci, et al., Stigma and attitudes towards mental illness: gender differences in a sample of Italian medical students, *Eur. Psychiatr.* 41 (S1) (2017). S739-S739.
- [45] M. Babicki, et al., The assessment of attitudes of students at medical schools towards psychiatry and psychiatric patients—a cross-sectional online survey, *Int. J. Environ. Res. Publ. Health* 18 (9) (2021) 4425.
- [46] P.W. Corrigan, et al., Familiarity with and social distance from people who have serious mental illness, *Psychiatr. Serv.* 52 (7) (2001) 953–958.
- [47] Z. Lyons, et al., Stigma towards mental illness among medical students in Australia and Ghana, *Acad. Psychiatr.* 39 (3) (2015) 305–308.
- [48] K. Rost, G.R. Smith, J.L. Taylor, Rural-urban differences in stigma and the use of care for depressive disorders, *J. Rural Health* 9 (1) (1993) 57–62.