

A Study on Cross Sectional Online Assessment of Attitude of Medical Students Towards Mental Illnesses

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Abstract

Background: Attitudes and belief toward mental illnesses are important factors that affect perception of mental health. Knowing the attitude of medical students towards psychiatry and mental illnesses is of utmost importance as they are future care provider. Current study is conducted to assess the attitude of medical students towards mentally ill patients and mental illnesses, to identify correlation of attitude score with personal and family history of mental illness and, to compare the score among students of the three year-wise groups.

Method: The study population included 219 students of first, second and third professional MBBS. We designed an online data collection tool and executed it using the Google Forms. The Google Form link to the questionnaire was sent to the enrolled participants via the identified WhatsApp groups or individual number. Beliefs toward Mental Illness (BMI) scale was used to assess attitude towards mental illnesses which is a 21-item self-report measure of negative stereotypical views of mental illness. The results of the study were examined and analyzed by using Statistical Package for Social Sciences (SPSS 25.0).

Results: Out of total 21 items of the BMI scale, students showed positive attitude on majority of items. The mean score for BMI scale and per item mean score for the scale were towards positive attitude. Majority of students agree that a mentally ill person is more likely to harm others than a normal person and that mental disorders would require a much longer period of time to be cured than would other general diseases. Higher per item mean score for dangerousness and, incurability subscale showed their negative attitude. An increasing trend of positive attitude has been seen with an increase of education level and exposure towards the subject.

Conclusions: Medical students show variable scores on belief towards mental illness scale, its subscales and, individual items. Admitting this prevailing stigma needs to be acknowledged and openly discussed with medical students in order to overcome these views. Providing adequate education on mental illnesses and attached negative attitudes or myths can change these negative beliefs.

Keywords: Medical students, psychiatry, mental illnesses, stigma, dangerousness.

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1. Introduction:

Attitudes and belief toward mental illnesses are important factors that affect perception of mental health. The prejudiced and negative attitudes or stigma towards people with mental illness are widespread. In our society, health professionals have similar views about those with mental health problems and mentally ill patients. Literature suggests that people diagnosed with mental illness are considered by the majority of the society as people who are dangerous, loathed, stranger and somebody whose actions cannot be predicted.[1] Globally, psychiatry as a subject, psychiatrists as professionals, and patients with psychiatric disorders are subjected to cultural stereotypes and negative attitude by the general population. What is of alarming concern is that these prejudices exist within the medical community as well.[2-6] Stigma toward mental illness is an influential factor leading to negative views among medical students toward psychiatry. Lack of knowledge and awareness about mental illnesses among the students is associated with the negative attitudes towards mental illness in the community. For medical students during their training, educational intervention targeted towards these negative attitudes may be more effective than doctors who have already completed their training because research has shown as they carry on through their career, their attitude harden and become more resistant to change.[7] The concept of iatrogenic stigma is used to describe the stigma caused or perpetuated by mental health professionals.[8] This stigma and negative attitudes can affect the quality of life for people with mental illness. There may be various reasons for this negative attitude such as lack of accurate information about mental illness and lack of contact with individuals with mental illness.[9]

While some studies have suggested that aspiring young doctors have a favorable

opinion about psychiatry as a branch[10], other studies have suggested that medical students' attitude toward psychiatry is unfavorable.[11-17]

A doctor's attitude towards persons with psychiatric illness and psychiatry should involve an impression of an empathetic listener and should have non-judgmental approach. Knowing the attitude of medical students towards psychiatry and mental illnesses is of utmost importance as they are future care provider. To improve psychiatric training in this population beliefs and attitude toward psychiatric illnesses and need to be assessed and understood.

The reasons for studying the attitude specifically among medical students are that firstly as a doctor they can play an important role in decreasing negative attitude and, secondly the results from the study will help to focus strategies to change attitudes of this group. The comparison among various groups in present study will help in understanding the impact of successive undergraduate training years. The findings may help in understanding the various points of strength and lacunae in the current undergraduate curriculum regarding mental health.

Objectives:

The objectives of the current online study were-

1. To assess the attitude of medical students towards mentally ill patients and mental illnesses
2. Correlation of attitude score with personal and family history of mental illness, and
3. Comparison among students of the three year-wise groups.

2. Methodology

Study population and study area: The study population includes all the students who have

enrolled in MBBS course (first year, second year and final year) at Ananta Institute of Medical Science and Research Centre, Rajsamand, Rajasthan. Those students who will give their consent to participate in the study will be included and rests will be excluded at their will.

Study Duration: one year, June 2020 to May 2021.

Sampling techniques and sample size

Samples were obtained using stratified random sampling method. The 3 batches of medical students viz first year professional, second year professional and third year professional which were considered as strata collectively develop a sampling frame of 450 students. The minimum sample size on assumption of 95% level of significance, 5% error and 85% expected proportion was 196. After 12% adjustment of non- responders' students the final sample size was 219.

Undergraduates in the 1st year had not received formal exposure to psychiatry yet, students of 2nd year also have not attended clinical posting or lecture in psychiatry while students of Final year students had completed clinical posting and theory lectures in psychiatry. The institute is having well-functioning psychiatry department with adequate teaching staff and a good in-flow of patients in the psychiatry OPD as well as inpatient department.

Study procedure and statistical Analysis:

After unlock 1.0 was announced by the Government of India from 8th of June 2020, the cases of COVID-19 were increasing all over India including Rajasthan. Hence there was risk of disease transmission by taking interview in person therefore we decided to use WhatsApp Messenger for enrolling potential participants and Google forms for filling up their response. The study was approved by institute ethics committee.

Tools: We designed an online data collection tool and executed it using the Google Forms (via docs.google.com/forms). The Google Form link to the questionnaire was sent to the enrolled participants via the identified WhatsApp groups or individual number.

Socio-demographic variables included age, gender, marital status, background, past personal history of mental illness, known history of mental illness in the family were described using descriptive statistics.

Beliefs toward Mental Illness (BMI) scale was used to assess attitude towards mental illnesses. The BMI scale is a 21-item self-report measure of negative stereotypical views of mental illness. (18) There is a total Score and the score of three sub-scales based on factor analysis: dangerousness, poor social and interpersonal skills, and incurability. There are five items in subscale dangerousness, ten items in poor interpersonal and social skills scale and six items in incurability subscale. Items are rated on a six-point Likert scale ranging from 'completely disagree' (0) to 'completely agree' (5), with higher scores reflecting more negative beliefs. In the primary validity study, Cronbach's alpha was high among American (0.89) and Asian students (0.91). The measure holds promising evidence of validity.

The results of the study were examined and analyzed by using Statistical Package for Social Sciences (SPSS 25.0). The categorical variables were described by numbers and percentages while continuous variables were described by average and standard deviation. Normality of attitude was checked using Kolmogorov-Smirnov test. After testing normality condition, the association and relationship between the variables were tested Pearson correlation by Student's t test and one way analysis of variance (ANOVA). The level of significance was considered at $P < 0.05$.

3. Results

A total 219 number of students were participated in the online study. The sample comprised of 41.55% of male students and 58.44% of female students. Majority of the

students were unmarried (97.26%), belonging to urban background (79.45%), having negative past personal history of psychiatric illness (86.75%) and negative family history for psychiatric illnesses (75.79%).

Table 1: Socio-demographic characteristics of respondents

Variables	Participants N (%)
Sex	
Male	91 (41.55%)
Female	128 (58.44%)
Marital Status	
Married	6 (2.73%)
Unmarried	213 (97.26%)
Place of residence	
Urban	174 (79.45%)
Rural	45 (20.54%)
MBBS Batch	
First year professional	49 (22.37%)
Second year professional	138 (63.01%)
Third year professional	32 (14.61%)
Had mental illness in past:	
Yes	29 (13.24%)
No	190 (86.75%)
Is someone in your family/ friends/ relative is having mental illness:	
Yes	53 (24.21%)
No	166 (75.79%)
If yes, then	
Friends	7(13.2%)
Family	26(49.05 %)
Relative	20(37.73%)

Table 1 shows socio-demographic characteristics of respondents.

Attitudes of students towards mental illness

a) Attitude by Items of the subscales

Table 2: Dangerousness subscale of BMI scale (item wise responses, percentage of participants regarding statements on the beliefs about mental illness)

Statement	Response*					
	0	1	2	3	4	5
A mentally ill person is more likely to harm others than a normal person	28 (12.8%)	15 (6.8%)	36 (16.4%)	85 (38.8%)	26 (11.9%)	29 (13.2%)
	79 (36%)			140 (64%)		
Mental disorders would require a much longer period of time to be cured than would other general diseases	10 (4.6%)	8 (3.7%)	19 (8.7%)	55 (25.1%)	51 (23.3%)	76 (34.7%)
	37 (17%)			182 (83%)		
It may be a good idea to stay away from people who have psychological disorder because their behaviour is dangerous	73 (33.3%)	47 (21.5%)	41 (18.7%)	41 (18.7%)	7 (3.2%)	10 (4.6%)
	161 (74%)			58 (26%)		
Mentally ill people are more likely to be criminals	69 (31.5%)	47 (21.5%)	35 (16.0%)	45 (20.5%)	13 (5.9%)	10 (4.6%)
	151 (69%)			68 (31%)		
I am afraid of people who are suffering from psychological disorder because they may harm me	80 (36.5%)	47 (21.5%)	31 (14.2%)	50 (22.8%)	4 (1.8%)	7 (3.2%)
	158 (72%)			61 (28%)		

* Denotes 0 = Completely disagree, 1 = Largely disagree, 2 = somewhat disagree, 3 = somewhat agree, 4 = Largely agree, 5 = Completely agree

Table 2 shows item wise responses and percentage of participants regarding statements on the beliefs about mental illness on dangerousness subscale of the BMI scale

Table 3: Poor social and interpersonal skills subscale of BMI scale (item wise responses, percentage of participants regarding statements on the beliefs about mental illness)

Statement	Response					
	0	1	2	3	4	5
The term 'psychological disorder' makes me feel embarrassed	123 (56.2%)	30 (13.7%)	16 (7.3%)	24 (11.0%)	12 (5.5%)	14 (6.4%)
	169 (77%)			50 (23%)		
A person with psychological disorder should have a job with only minor responsibilities	43 (19.6%)	30 (13.7%)	49 (22.4%)	58 (26.5%)	27 (12.3%)	12 (5.5%)
	122 (56%)			97 (44%)		

I am afraid of what my boss, friends and others would think if I were diagnosed as having a psychological disorder	70 (32.0%)	24 (11.0%)	24 (11.0%)	57 (26.0%)	17 (7.8%)	27 (12.3%)
	118 (54%)			101 (46%)		
It might be difficult for mentally ill people to follow social rules such as being punctual or keeping promises	37 (16.9%)	29 (13.2%)	55 (25.1%)	38 (17.4%)	37 (16.9%)	23 (10.5%)
	121 (55%)			98 (45%)		
I would be embarrassed if people knew that I dated a person who once received psychological treatment	131 (59.8%)	29 (13.2%)	17 (7.8%)	26 (11.9%)	12 (5.5%)	4 (1.8%)
	177 (72%)			61 (28%)		
A person with psychological disorder is less likely to function well as a parent	43 (19.6%)	45 (20.5%)	35 (16.0%)	57 (26.0%)	22 (10.0%)	17 (7.8%)
	123 (56%)			96 (44%)		
I would be embarrassed if a person in my family became mentally ill	150 (68.5%)	26 (11.9%)	15 (6.8%)	13 (5.9%)	7 (3.2%)	8 (3.7%)
	191 (87%)			28 (13%)		
Mentally ill people are unlikely to be able to live by themselves because they are unable to assume responsibilities	45 (20.5%)	51 (23.3%)	50 (22.8%)	43 (19.6%)	12 (5.5%)	18 (8.2%)
	146 (67%)			73 (33%)		
Most people would not knowingly be friends with a mentally ill person	33 (15.1%)	22 (10.0%)	36 (16.4%)	62 (28.3%)	27 (12.3%)	39 (17.8%)
	91 (42%)			128 (58%)		
I would not trust the work of a mentally ill person assigned to my work team	61 (27.9%)	40 (18.3%)	44 (20.1%)	53 (24.2%)	10 (4.6%)	11 (5.0%)
	145 (66%)			74 (34%)		

0 = Completely disagree, 1 = Largely disagree, 2 = somewhat disagree, 3 = somewhat agree, 4 = Largely agree, 5 = Completely agree

Table 3 shows item wise responses and percentage of participants regarding statements on the beliefs about mental illness on poor social and interpersonal skills subscale of the BMI scale

Table 4: Incurability subscale of BMI scale (item wise responses, percentage of participants regarding statements on the beliefs about mental illness)

Statement	Response					
	0	1	2	3	4	5
Psychological disorder is recurrent	17 (7.8%)	17 (7.8%)	45 (20.5%)	77 (35.2%)	34 (15.5%)	29 (13.2%)
	79 (36%)			140 (64%)		
Individuals diagnosed as mentally ill suffer from its symptoms throughout their life	53 (24.2%)	46 (21.0%)	41 (18.7%)	53 (24.2%)	10 (4.6%)	16 (7.3%)
	140 (64%)			79 (36%)		
People who have once received psychological treatment, are likely to need further treatment in the future	19 (8.7%)	38 (17.4%)	29 (13.2%)	82 (37.4%)	29 (13.2%)	22 (10.0%)
	86 (39)			133 (61%)		
I believe that psychological disorder can never be completely cured	139 (63.5%)	19 (8.7%)	21 (9.6%)	17 (7.8%)	9 (4.1%)	14 (6.4%)
	179 (82%)			40 (18%)		
The behaviour of people who have psychological disorders is unpredictable	19 (8.7%)	24 (11.0%)	33 (15.1%)	65 (29.7%)	38 (17.4%)	40 (18.3%)
	76 (35%)			143 (65%)		
Psychological disorder is unlikely to be cured regardless of treatment	53 (24.2%)	31 (14.2%)	46 (21.0%)	46 (21.0%)	17 (7.8%)	26 (11.9%)
	130 (59%)			89 (41%)		

0 = Completely disagree, 1 = Largely disagree, 2 = somewhat disagree, 3 = somewhat agree, 4 = Largely agree, 5 = Completely agree

Table 4 shows item wise responses and percentage of participants regarding statements on the beliefs about mental illness on incurability subscale of the BMI scale

b) Attitudes by Subscale

There are five items in subscale dangerousness, ten items in poor interpersonal and social skills scale and six items in incurability subscale.

Table 5: Per item Mean and 95% CI for the three subscale and overall score of BMI scale

Subscale	M(SD)	95 %CI
Dangerousness	2.17(0.90)	2.77, 1.56
Poor interpersonal and social skills	1.77(0.92)	2.99, 0.54
Incurability	2.21(0.92)	2.94, 1.47
Full BMI scale	1.99(0.80)	4.22, -0.24

* M- Mean, SD- Standard deviation, CI- Confidence interval

Table 5 shows per item mean and 95% confidence interval for the three subscales and overall score of BMI scale.

c) Associates of attitudes

The differences in the attitude scores in different independent variables have two categories were determined by independent sample t tests. And, difference in attitude score in independent variables having more than two categories was determined by the one-way ANOVA.

As per Kolmogorov-Smirnov test statistic (D) results in 0.04762 which means that data is normally distributed. So independent sample t test has been applied to find out difference in attitude score by socio demographic characteristics.

Table 6: Difference in attitude score by socio-demographic characteristics

Characteristics	M(SD)	Diff.*(95% CI)	p-value
Sex			
Male	42.67(17.20)	1.24(-3.31,5.79)	0.59
Female	41.43(16.61)		
Marital status			
Married	60.17(9.06)	18.73(5.20,32.27)	0.007
Unmarried	41.43(16.72)		
Place of residence			
Urban	42.80(16.32)	4.18(-1.35, 9.71)	0.13
Rural	38.62(18.48)		
Had mental illness in past			
Yes	40.10(15.14)	2.12(-4.50, 8.74)	0.52
No	42.23(17.09)		
Is someone in your family/ friends/ relative is having mental illness:			
Yes	39.64(17.34)	3.03(-2.19, 8.27)	0.25
No	42.68(16.65)		

*Diff. =Difference in mean, (lower bound, upper bound)

Table 6 shows difference in attitude score by socio-demographic characteristics. Married students (N=6) had higher BMI score than unmarried students (N=213) and the difference was statistically significant. On further analysis it was found that of these six married students, five had positive response for history of mental illness in family, friend or any relative, also two had positive history of past mental illness. The difference among groups was not statistically significant for other characteristics.

Table 7: Difference in attitude towards mental illness by education level of students

Characteristics	M(SD)	F- value	p-value	p-value trend
Batch		9.11	<0.0001	<0.0001
I MBBS	48.11(14.34)			
II MBBS	43.63(14.71)			
III MBBS	41.08(15.21)			

*M= mean, SD= standard deviation, F=degree of freedom, p= p value

Table 6 shows that There is increase trend in positive attitude in medical students with increase in their education level ($p < 0.0001$).

There was significantly positive attitude towards mental illness among III MBBS students than II MBBS and, among II MBBS than I MBBS ($p < 0.0001$). An increasing trend of positive attitude has been seen with an increase of education level and exposure towards the subject.

4. Discussion

The current online study was planned to assess the attitude of medical students towards mentally ill patients and mental illnesses, to find correlations of attitude score with sociodemographic and clinical variables and, to compare the score among students of the three year-wise groups.

Out of total 21 items of the BMI scale, students showed positive attitude on majority of items (fifteen items) and negative attitude on few items (six items). The mean score for BMI scale was 41.99 and per item mean score for the scale was 1.99. This score is towards positive attitude. Jilowa et al also found in their study that Nearly 84% of second-year medical students and 52% of interns had positive attitude toward psychiatry. (19) In their study, Risal et al also found overall positive or neutral attitudes towards mental illness and psychiatry among the medical students and interns in their institute. (20)

In our study we found that majority of students agree that a mentally ill person is more likely to harm others than a normal person (64%) and that mental disorders would require a much longer period of time to be cured than would other general diseases (83%). Kodakandla et al conducted a study on Attitude of interns towards mental illness and psychiatry and found that majority of the interns believed that mentally ill person is more likely to harm others and that mental illness require a much longer time to be cured than other general

diseases. (21) In our study majority (58 percent) of students agree that most people would not knowingly be friends with a mentally ill person. Jyothi NU et al also found majority (96 percent) of participants agreed with the statement. (22)

In our study we found that majority of students agree that psychological disorder is recurrent (64%), that people who have once received psychological treatment are likely to need further treatment in the future (61%), and that the behaviour of people who have psychological disorders is unpredictable (65%). Kodakandla et al also found that majority of participants (76%) believed that psychological disorder is recurrent and that the behavior of patients with psychological disorder is unpredictable (79%); two third of them (68%) were of the opinion that people who have once received psychological treatment are likely to need further treatment in the future. (21) Jyothi NU et al also found similar findings in a study on college students. (22)

Students showed per item mean score 1.77 for poor interpersonal and social skill subscale which is towards positive attitude. Higher per item mean score 2.17 for dangerousness subscale and 2.21 for incurability showed their negative attitude. In a community Study on Attitudes to and Knowledge of Mental Illness in Tehran, Ghanian H et al found that around half participants agreed that people with a mental illness "are dangerous". (23) Contrary to our findings Kodakandla et al found that only one third (31%) interns believed that psychological illness is unlikely to be cured regardless of the treatment. (21)

Married students showed statistically significant higher BMI score compared to unmarried students. On further analysis it was found that of these six married students, five had positive response for history of mental illness in family, friend or any relative and, two had positive history of past mental illness. So,

these two factors might have caused higher stigma in this small sample. The attitude score was not associated statistically significantly with other sociodemographic and clinical variables.

There was significantly positive attitude towards mental illness among III MBBS students than II MBBS and, among II MBBS than I MBBS ($p < 0.0001$). An increasing trend of positive attitude has been seen with an increase of education level and exposure towards the subject. Similar to our study Aruna et al also highlighted exposure to psychiatry could improve the knowledge base of medical students. (24) Tharyan et al also found that psychiatric education positively influences the attitudes of medical students towards mental illness and some aspects of psychiatry. (25) However, providing clinical training in psychiatry during under graduation seems to improve the attitude toward people with mental illness. (16, 25-27) The favorable impact of psychiatry posting on the attitude of medical students towards mentally ill has been found in previous studies from western countries. (28) Work by Mas and Hatim (2002) from Malaysia found that final year MBBS students had more favorable attitude towards mentally ill as compared to the first-year students. (29)

The National medical commission (formerly Medical Council of India) has implemented Attitude, Ethics and Communication module (AETCOM) in all medical colleges in India in August 2019. (30) The cognitive components, behavioural attitudes and ethical dimensions of AETCOM module will change the approach of future doctors to psychiatry and person with psychiatric illness. Focusing more on clinical exposure and skills the new competency based medical education (CBME) programme has increased the duration of undergraduate clinical posting to total four weeks and total 40 hours for teaching from two weeks and 25 hours pre CBME respectively. This sequential

introduction of clinical posting during second professional MBBS followed by theory class and clinical posting during third MBBS part-I will be more helpful in understanding of the subject. In future, mandating psychiatry as an independent subject of examination in under graduation assessment may prove a milestone step in medical education. So, it may be expected that this increased exposure will help in removing the existing negative attitudes towards psychiatry and person with psychiatric illness.

Suggestions:

Admitting the prevailing stigma needs to be acknowledged and openly discussed with medical students in order to overcome these views. Prevailing stigma and the negative attitudes about mental illnesses affect both patient caring and psychiatry as a career choice. The development of educational strategies enabling initial interest shown during the early clinical exposure needs to be maintained. Providing public education on mental illnesses and attached negative attitudes or myths can change these negative beliefs in general public. To promote psychiatry as a career, interested students need to have increased access to an in-depth experience of psychiatry, including “enrichment activities” such as electives in psychiatry.

Conclusions:

Medical students show variable scores on belief towards mental illness scale, its subscales and, individual items. Admitting this prevailing stigma needs to be acknowledged and openly discussed with medical students in order to overcome these views. Providing adequate education on mental illnesses and attached negative attitudes or myths can change these negative beliefs.

Implications of the Study:

This study will help in understanding of belief of medical students towards mental illnesses. The comparison among various groups in

present study will help in understanding the impact of successive undergraduate training years.

Limitations:

This was a cross sectional study with small sample size.

Future Direction:

Future studies can be undertaken with large sample size to determine the changes in belief of medical students admitted year 2019 onwards.

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References:

1. Taskin EO (2007). Stigma, Attitudes toward Mental Illnesses and Stigma. Izmir: meta press.
2. Jiloha RC. Image of psychiatry among medical community. Indian J Psychiatry. 1989;31:285-7.
3. Malhi GS, Parker GB, Parker K, Carr VJ, Kirkby KC, Yellowlees P, et al. Attitudes toward psychiatry among students entering medical school. Acta Psychiatr Scand. 2003;107:424-9.
4. Minhas FA, Mubbasher MH. Attitude of medical students towards psychiatry in Pakistan. J Coll Physicians Surg Pak. 2003;10:69-72.
5. Murthy RS, Khandelwal S. Undergraduate training in psychiatry: World perspective Indian J Psychiatry. 2007; 49: 169-74.
6. Mukherjee R, Fialho A, Wijetunge K, Checinski K, Surgenor T. The stigmatization of psychiatric illness: The attitudes of medical students and doctors in a London teaching hospital. Psychiatr Bull. 2002;26:178-81
7. Smith JK, Weaver DB. Capturing medical students' idealism. Ann Fam Med. 2006;4 (Suppl 1):S32-7.
8. Sartorius N. BMJ. 2002 Jun 22; 324 (7352): 1470-1471. doi: 10.1136/bmj.324.7352.1470.
9. Singer P, Dornbush RL, Brownstein EJ, Freedman AM. Undergraduate psychiatric education and attitudes of medical students towards psychiatry. Compr Psychiatry 1986;27:14-20.
10. Thirunavukarasu M, Cherukuri SD, Pragatheeshwar KD, Thirunavukarasu P. Public perception of psychiatry in India: a changing landscape. Indian J Psychiatry 2012;54:6-7.
11. Kishore J, Gupta A, Jiloha RC, Bantman P. Myths, beliefs and perceptions about mental disorders and health-seeking behavior in Delhi, India. Indian J Psychiatry 2011;53:324-9
12. Rao TS, Rao KN, Rudrappa DA, Reddy DR. Medical students attitudes to psychiatry. Indian J Psychol Med 1989;12:29-35.
13. Rao TS, Rao KN, Rudrappa DA, Reddy DR. Medical students attitudes to psychiatry: Interest to specialize in psychiatry. Indian J Psychol Med 1989;12:23-8.
14. Prabhakaran RR, Murugappan M, Devar JV. Undergraduate psychiatric education and attitudes of medical students toward psychiatry. Indian J Psychol Med 1989;12:29-35.
15. Kumar A, Goyal U, Ganesh KS, Srivastava MK, Gautam BD, Kumar R. Attitude of postgraduate residents towards psychiatry. Indian J Psychiatry 2001;43:2.
16. Alexander PJ, Kumaraswamy N. Senior medical students' attitude towards psychiatry: relationship with career interest. Indian J Psychiatry 1993;35: 221-4.
17. Mukherjee R, Kishore J, Jiloha RC. Attitude towards psychiatry and psychiatric illness among medical professionals. Delhi Psychiatry Bull 2006;9:34-8.

18. Hirai M, Clum GA. Development, Reliability, and Validity of the Beliefs Toward Mental Illness Scale. *Journal of Psychopathology and Behavioral Assessment*, Vol. 22, No. 3, 2000
19. Jilowa CS, Meena PS, Jain M, Dhanda G, Sharma KK, Kumawat AK, Dosodiya Y, Moond S. Attitude of undergraduate medical students toward psychiatry: A cross-sectional comparative study. *Ind Psychiatry J* 2018;27:124-130.
20. Risal A, Sharma PP, Sanjel S. Attitude toward mental illness and psychiatry among the medical students and interns in a medical college. *JNMA J Nepal Med Assoc.* 2013 Apr-Jun;52(190):322-31. PMID: 24362654.
21. Kodakandla K, Nasirabadi M, Pasha MS. Attitude of interns towards mental illness and psychiatry: A study from two medical colleges in South India. *Asian Journal of Psychiatry* 22 (2016) 167–173
22. Jyothi NU, Bollu M, Ali SF, Chaitanya DS, Mounika S. A Questionnaire Survey on Student's Attitudes towards Individuals with Mental Illness. *J. Pharm. Sci. & Res.* Vol. 7(7), 2015, 393-396
23. Ghanean H, Nojomi M, and Jacobsson L. (2015) A Community Study on Attitudes to and Knowledge of Mental Illness in Tehran. *Open Journal of Psychiatry*, **5**, 26-30.
24. Aruna G, Mittal S, Yadiyal MB, Acharya C, Acharya S, Uppulari C. Perception, knowledge, and attitude toward mental disorders and psychiatry among medical undergraduates in Karnataka: A cross-sectional study. *Indian J Psychiatry* 2016;58:70-6.
25. Tharyan P, John T, Tharyan A, Braganza D. Attitudes of 'tomorrow's doctors' towards psychiatry and mental illness. *Natl Med J India* 2001;14:355-9.
26. Galka SW, Perkins DV, Butler N, Griffith DA, Schmetzer AD, Avirappattu G, et al. Medical students' attitudes toward mental disorders before and after a psychiatric rotation. *Acad Psychiatry* 2005;29:357-61.
27. Reddy JP, Tan SM, Azmi MT, Shaharom MH, Rosdinom R, Maniam T, et al. The effect of a clinical posting in psychiatry on the attitudes of medical students towards psychiatry and mental illness in a Malaysian medical school. *Ann Acad Med Singapore* 2005;34:505-10.
28. Roth D, Antony MM, Kerr KL, Downie F. Attitudes toward mental illness in medical students: Does personal and professional experience with mental illness make a difference? *Med Educ* 2000;34:234-6.
29. Mas A, Hatim A. Stigma in mental illness: Attitudes of medical students towards mental illness. *Med J Malaysia* 2002;57:433-44.
30. National medical commission, New Delhi. https://www.nmc.org.in/wp-content/uploads/2020/01/AETCOM_book.pdf [last accessed on 10.09.21]