

Attitude towards psychiatry and mental illness among medical students: A cohort study

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ABSTRACT

Background. Medical students' attitude towards psychiatry (ATP) and mental illness will impact their choice of psychiatry as a future specialization and the quality of mental healthcare that they deliver to their patients. There is a paucity of longitudinal research on students' ATP and mental illness at different periods during medical school. We aimed to assess the attitudes of a cohort of medical undergraduates towards psychiatry and mental illness, before and after a clinical psychiatry rotation.

Methods. Medical students, in their second clinical year, underwent the first assessment on the 1st day of the psychiatry rotation. Socio-demographic information was collected. ATP and mental illness were assessed using the ATP-30 and the attitudes towards mental illness (AMI) scale, respectively. Assessments were repeated on the last day of the rotation and again 1 year later.

Results. One hundred and three medical students completed the pre- and immediate post-rotation survey questionnaire. One student withdrew consent for the 1-year assessment. There was an increase in ATP-30 and AMI scores after the rotation, and this persisted at the 1-year assessment. However, only the increase in ATP-30 scores was statistically significant. There was a significant reduction in the number of students with an overall negative attitude towards psychiatry and mental illness at 1 year.

Conclusion. Students generally had positive attitudes towards psychiatry and mental illness before the rotation. This improved further by the end of the rotation and persisted at 1 year of follow-up.

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INTRODUCTION

The WHO estimates that 80% of people with mental disorders live in low- and middle-income countries and do not receive the required mental health services. The number of psychiatrists in India currently is around 9000, with about 700 psychiatrists graduating every year. This figure translates to 0.75 psychiatrists per 100 000 population, well below the desirable number of 3 psychiatrists per 100 000 population.^{1,2}

Unfavourable attitudes towards mental illness (AMI) prevail among medical students and medical practitioners, just as in the general population.^{3,4} Inaccurate information about mental illness, unfavourable portrayals of psychiatry and psychiatric treatment methods in the mass media and limited contact with mental health professionals are thought to contribute to negative attitudes. It has also been found that medical students perceive psychiatry as unscientific in nature, with low prestige, poor financial rewards and with low value professional skills.^{3,5,6}

The inability to attract medical graduates to specialize in psychiatry has always been a serious challenge to psychiatry training programmes.⁵⁻⁷ Changing this situation requires that students appreciate the necessity of psychiatric skills in routine clinical practice and be interested and inspired enough to take up the subject as a career. Attitudes towards psychiatry (ATP) and AMI have been established as key factors in determining the choice of psychiatry as a career, and willingness to deal with psychiatric disorders in general practice. ATP and AMI of medical students can pre-date their joining medical school; during the course, attitudes can be influenced positively or negatively by factors outside of their psychiatry training.⁸ ATP has been reported to improve following a rotation in psychiatry, though exposure to psychiatry did not seem to increase the likelihood of choosing psychiatry as a career.^{8,9}

Medical graduates who choose psychiatry as a career are said to fall into three groups. One group makes their career choice even before medical school, and specialize in psychiatry regardless of their experiences during the training period. The second group chooses psychiatry over other specialties, during their medical course. The last group gravitates towards psychiatry after qualifying and beginning clinical practice.¹⁰ Therefore, it is possible that an effective clinical exposure during the training period can positively influence students ATP as a career choice.

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We aimed to assess the attitudes of medical students towards psychiatry and mental illness before and after a clinical psychiatry rotation. The relationship of these attitudes with relevant socio-demographic characteristics was also studied.

METHODS

Study design and setting

This was an observational study on a cohort of medical undergraduates. Participants recruited for this study were second clinical year medical students who were posted in the Department of Psychiatry for their psychiatry rotation. A 122-bed hospital attached to the department provides short-term care for patients from the local area and also functions as a tertiary referral centre for patients with mental illness from different parts of India and neighbouring countries. The approach is multidisciplinary, using a range of pharmacological and psychological therapies.

Curriculum and setting of psychiatric education

The psychiatry curriculum in this institution had been modified a few years before this study, with the aim of equipping students with the knowledge and skill required to identify and manage common psychiatric presentations that they would encounter in general practice.¹¹ During the psychiatry posting, lectures and clinics of the first half of the day were conducted in the outpatient clinics of the Community Health and Family Medicine departments with a focus on familiarising the students with the psychosocial context of patients' medical problems and the recognition and management of common mental disorders. The afternoon sessions were held at the Department of Psychiatry, where other psychiatric presentations were taught. The students were familiarized with history-taking, physical examination and basic laboratory investigations to identify or exclude medical causes of the psychiatric presentation. They were taught the fundamentals of the mental state examination to evaluate cognitive abilities, mood and psychotic symptoms and were also taught communication and basic counselling skills. The total duration of the rotation was 3 weeks.

Subjects

All medical students who were posted in the department of psychiatry for their clinical rotation in 2019 and 2020 were eligible to participate in the survey.

Procedure

Students were invited to participate in the study on the 1st day of the psychiatry rotation before the first teaching session. Written informed consent was obtained after which the study questionnaires were administered. On the last day of the rotation, they were asked to complete the same questionnaires. The students were contacted 1 year after the rotation and again asked to complete the same questionnaires. Students entered their roll number on the questionnaires to enable linking of assessments.

Instruments used

1. The AMI scale has 20 items that examine attitudes towards the causes, treatment and consequences of mental illness and its impact on individuals and society. Item responses are rated on a 5-point Likert scale with a score of 3 on an item suggesting neutral attitude.

2. The ATP-30 scale is a 30-item, Likert-type scale that examines attitudes to psychiatric patients, psychiatric illness, psychiatrists, psychiatric career choice, psychiatric drugs, psychiatric treatment, psychiatric institutions and psychiatric teaching. For both scales, the total is calculated by adding individual item scores, higher scores indicating positive attitudes. These questionnaires have been widely used in attitudinal studies on medical students and have been shown to have adequate face and construct validity.¹²⁻¹⁴

3. Socio-demographic and clinical variables were collected using a specially designed proforma.

Ethical considerations

The study was approved by the Institutional Ethics Committee (IRB Min No. 11910 dated March 06, 2019 and IRB Min. No. 12966 dated May 24, 2020). The survey was conducted in the classroom ensuring privacy. The principal investigator and another psychiatrist were available during the data collection to clarify participant's doubts.

Statistical methods

Mean and standard deviation (SD) was calculated for continuous variables and frequency distributions for categorical data. T-test and Chi-square test were used to test associations for continuous and categorical variables and ATP and mental illness at 1 year. Total scores in ATP-30 and AMI at the three points of assessment were compared by Repeated Measures of Analysis of Variance (RMANOVA). The categorized ordinal scores of ATP and AMI among the 3-time points were compared using a population-averaged ordered logistic regression model. The interactions were tested for gender in the corresponding models. Negative attitudes in individual items on the ATP-30 and AMI at the three points of assessment were compared using Cochran's Q test. The data were analysed using SPSS for Windows (version 16.0.1) and STATA IC/16.0.

RESULTS

A total of 103 medical students were posted in the department of psychiatry during the years 2019 and 2020, all of whom provided consent and participated in the baseline and post-rotation assessments yielding a 100% response rate. One student withdrew consent for the 1 year follow-up yielding a response rate of 99.03% (Fig 1).

Socio-demographic variables

The socio-demographic details of the sample are summarized in Table I. Nine students had studied psychology before joining medical school. Fourteen students (13.6%) reported a family history of psychiatric illness, while 4 (3.9%) reported a personal history of mental health problems before the rotation. Eight students (7.8%) reported that someone in their immediate family was diagnosed to have a mental illness and 4 (3.9%) stated that they developed mental health issues in the year after the rotation.

Psychiatry as a future specialty

Twenty-two (21.4%) students stated that they had thought of psychiatry as a future specialization before joining medical school. More men (27.9%) than women (16.95%) reported an

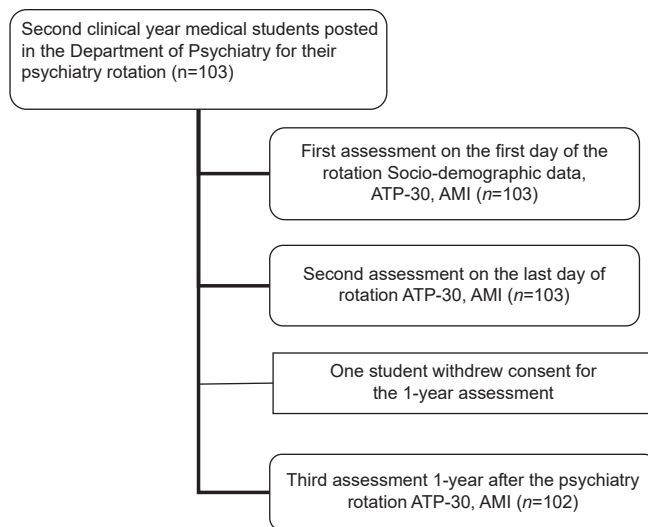


FIG 1. Flow chart of the study

TABLE I. Socio-demographic and clinical details

Variable	Frequency (%) [*]
Age (in years)	
Mean (SD)	20.9 (0.93)
Range	(19–24)
Duration of rotation (days)	
Mean (SD)	18.3 (1.13)
Range	(13–19)
Attendance during rotation as percentage	
Mean (SD)	81 (15.86)
Range	(30–100)
Female gender	59 (57.3)
Urban habitat	95 (92.2)
<i>Subjects before joining medicine</i> [†]	
Psychology	9 (8.7)
Sociology	17 (16.5)
Political Science	49 (47.6)
Economics	49 (47.6)
History of psychiatric illness present	4 (3.9)
Family history of psychiatric illness present	14 (13.6)
Psychiatry as a future career: Yes	22 (21.4)
Did you feel that you were given clinical responsibility?: Yes	57 (55.7)
Exposed to outpatient work during rotation: Yes	58 (56.3)
Exposed to inpatient work during rotation: Yes	97 (94.2)
New onset psychiatric illness in the family after psychiatry rotation	8 (7.8)
New onset psychiatric illness in self after psychiatry rotation	4 (3.9)
Consider psychiatry as a career option at 1-year follow-up	19 (18.4)
Read psychiatry theory after the rotation	70 (68)
Attended psychiatry clinics after the rotation	86 (83.5)
<i>During rotations in medical and surgical specialties</i>	
Saw patients with mental illness	76 (73.8)
Saw patients with substance use disorders	91 (88.3)
Saw patients with deliberate selfharm	59 (57.3)

^{*}except where stated + 29 students reported that they had studied more than one of these subjects before joining medical school SD standard deviation

interest to specialize in psychiatry; however, this difference was not statistically significant ($p=0.18$). Students who had studied

psychology before joining medical school ($p=0.02$) and those with a family history of mental illness ($p=0.04$) were more likely to opt for psychiatry as a future career speciality. However, at the 1-year follow-up, only 19 (18.4%) students stated that they were considering psychiatry for specialization after completing their course. Students with family history of mental illness before the rotation ($p=0.01$), having studied psychology ($p=0.01$) or political science ($p=0.04$) before medical school and new-onset mental health issues in self ($p=0.02$) were more likely to consider psychiatry for specialization at the 1-year follow-up assessment.

ATP

The mean (SD) ATP-30 score of the group before the rotation was 102.19 (11.35) suggesting an overall positive ATP. The scores were higher among women (103.8 [10.29]) than men (100.05 [12.43]); however, this was not statistically significant. The mean ATP-30 score after the rotation increased to 106 (14.62) and remained higher among women 106.78 (12.14) than men 104.95 (17.51). The mean ATP-30 scores at 1 year were 105.65 (13.16) and the mean scores were higher among women 106.71 (13.34) than men 104.19 (12.93), though this was not statistically significant. RMANOVA revealed that time was the only factor that influenced the ATP-30 scores ($p=0.003$). Gender and time*gender interactions did not influence the scores (Table II).

Positive ATP (ATP-30 ≥ 91) at 1 year follow-up was associated with positive attitude before the rotation ($p<0.001$) and positive attitude after the rotation ($p<0.001$). Gender, family history of mental illness, past history of mental illness and studying psychology, economics or sociology before medical school were not associated with positive or negative ATP (Table III).

There was a reduction in the number of students with negative ATP (pre-rotation 12, post-rotation 11, 1-year follow-up 8). A similar change was evident in students with positive attitudes and a consequent increase in students with neutral attitudes. Population averaged random effects model ordinal logistic regression used to test the effects of time, gender and time*gender interaction on ATP did not show any statistically significant interactions (Table IV).

AMI

The mean (SD) AMI scores before the rotation were 65.32 (5.92; range 52–80) suggesting an overall positive attitude and were higher among women 65.75 (5.9) than men 64.75 (5.95). The mean AMI score after the rotation slightly increased to 66.04 (7.13; range 46–85) and was also higher among women 66.63 (6.44) than men 65.25 (7.98). The mean AMI score at 1 year follow-up was 66.51 (8.23) and this also was higher among women 67.94 (6.97) than men 65.23 (9.65). RMANOVA revealed that time, gender and time*gender interaction did not influence the AMI scores (Table II).

Positive AMI (AMI ≥ 61) at 1-year follow-up was associated with positive ATP before the rotation ($p=0.02$), after the rotation ($p=0.03$) and positive AMI after rotation ($p=0.001$). Age, gender, family history of mental illness, past history of mental illness and having studied psychology, economics or sociology before medical school were not associated with positive or negative AMI at 1-year follow-up (Table III).

There was a reduction in the number of students with negative AMI (pre-rotation 16, post-rotation 14, 1-year follow-up 12).

TABLE II. ATP and AMI scores: Pre-rotation, immediate post-rotation and at 1-year post- rotation

Attitude	Before rotation	After rotation	1-year after rotation	Model 1†		Model 2‡	
	Mean (SD)	Mean (SD)	Mean (SD)	F-value	p value	F-value	p value
<i>ATP-30 score</i>							
Overall	102.19 (11.35)	106 (14.62)	105.65 (13.16)	6.01	0.003*	6.25	0.002*
<i>Gender</i>							
Male	100.05 (12.43)	104.95 (17.51)	104.19 (12.93)	NA	NA	1.42	0.236
Female	103.8 (10.29)	106.78 (12.14)	106.71 (13.34)				
Gender*Time	NA	NA	NA	NA	NA	0.33	0.718
<i>AMI score</i>							
Overall	65.32 (5.92)	66.08 (7.1)	66.51 (8.23)	1.27	0.282	1.09	0.339
<i>Gender</i>							
Male	64.75 (5.95)	65.25 (7.98)	65.23 (9.65)	NA	NA	1.91	0.17
Female	65.75 (5.9)	66.69 (6.37)	67.94 (6.97)				
Gender*Time	NA	NA	NA	NA	NA	0.20	0.82

ATP attitudes towards psychiatry AMI attitude towards mental illness SD standard deviation F-value from Repeated Measures of Analysis of Variance, *p<0.05
 †Model 1 Only time as a factor for the score change ‡Model 2 Time, gender, and interaction between time and gender were considered as factors influencing the scores

TABLE III. Factors associated with ATP-30 and AMI scores at 1 year

Socio-demographic variable	ATP-30 scores		p value	AMI scores		p value
	Positive (≥91)	Negative or neutral (≤90)		Positive (≥61)	Negative or neutral (≤60)	
Mean (SD) age (years)	20.94 (0.95)	20.8 (0.89)	0.55	20.96 (1.13)	20.76 (0.87)	0.35
<i>Gender</i>						
Male	32	11	0.19	29	14	0.11
Female	50	9		48	11	
<i>Family history of mental illness</i>						
Yes	12	2	0.73	9	5	0.33
No	69	18		67	20	
<i>History of mental illness in self</i>						
Yes	3	1	>1.0	2	2	0.26
No	78	3		74	23	
<i>Studied psychology before medical school</i>						
Yes	7	2	0.68	5	4	0.22
No	74	7		70	21	
<i>Studied sociology before medical school</i>						
Yes	14	3	>1.0	14	3	0.552
No	67	17		62	22	
<i>Studied political science before medical school</i>						
Yes	42	6	0.08*	37	11	0.68
No	39	14		39	14	
<i>Studied economics before medical school</i>						
Yes	41	7	0.2	37	11	0.68
No	40	13		39	14	
<i>ATP before the rotation</i>						
Positive	77	11	<0.001*	70	18	0.02*
Negative or neutral	5	9		7	7	
<i>AMI before rotation</i>						
Positive	68	13	0.08	64	17	0.10
Negative or neutral	14	7		13	8	
<i>Given clinical responsibility</i>						
Yes	45	12	0.68	39	18	0.06
No	37	8		38	7	
<i>Assessed outpatients</i>						
Yes	47	11	0.80	42	11	0.44
No	34	9		34	9	

(Contd...)

TABLE III. (Continued)

Socio-demographic variable	ATP-30 scores		p value	AMI scores		p value
	Positive (≥ 91)	Negative or neutral (≤ 90)		Positive (≥ 61)	Negative or neutral (≤ 60)	
<i>Assessed inpatients</i>						
Yes	76	20	0.60	72	24	>1.0
No	6	0		5	1	
<i>ATP after the rotation</i>						
Positive	78	12	<0.001*	71	19	0.029*
Negative or neutral	4	8		6	6	
<i>AMI after the rotation</i>						
Positive	67	14	0.25	67	14	0.001*
Negative or neutral	15	6		10	11	
<i>Onset of mental illness in the family after the rotation</i>						
Yes	8	0	0.35	6	2	>1.0
No	73	20		70	23	
<i>Onset of MI in self after the rotation</i>						
Yes	3	1	>1.0	2	2	0.26
No	78	19		74	23	
<i>Exposure to patients with DSH in the past year</i>						
Yes	45	14	0.24	42	17	0.26
No	36	6		34	8	
<i>Exposure to patients with SUD in the last year</i>						
Yes	73	18	>1.0	67	24	0.29
No	9	2		10	1	
ATP attitudes towards psychiatry	AMI attitude towards mental illness	MI mental illness	DSH deliberate self-harm	SUD substance use disorders	* p <0.05	

A similar change was evident in students with positive attitudes and a consequent increase in students with neutral attitudes. Population averaged random effects model ordinal logistic regression used to test the effects of time, gender and time*gender interaction on attitudes did not show any statistically significant interactions (Table IV).

Negative attitudes about psychiatry and mental illness

There was a reduction in number of participants with negative attitudes on individual items of the ATP-30 except for questions related to respect for psychiatry as a subject and perceived satisfaction levels of a career in psychiatry as compared to other specialties. However, at 1-year follow-up, more than a quarter of the participants had negative attitudes towards statements like ‘the majority of students report that their psychiatric undergraduate training has been valuable’, ‘psychiatric treatment causes patients to worry too much about their symptoms’, ‘if I were asked what I considered to be the three most exciting medical specialties, psychiatry would be excluded’ and ‘these days psychiatry is the most important part of the curriculum in medical schools’ (Table V).

Similarly, there was a reduction in number of respondents with negative attitudes on individual items on AMI except for questions related to giving a person with mental illness a job with responsibility, liver transplantation for people who sustain liver damage due to attempted suicide and compassionate care of people after a deliberate self-harm and genetic origins of mental illness. At 1-year of follow-up, more than 25% of respondents had negative attitudes to statements like ‘violence mostly results from mental illness’, ‘psychiatric drugs are mostly used to control disruptive behaviour’, ‘it is preferable that the mentally ill live independently rather than in hospital’, ‘alcohol abusers have no

self-control’, ‘mental illnesses are genetic in origin’, ‘people who had good parenting as children rarely suffer from mental illness’ and ‘patients with chronic schizophrenia are incapable of looking after themselves’ (Table V).

DISCUSSION

Given that more than a third of the patients seen by primary care or general physicians in hospitals have a primary or a co-existing psychiatric condition, and the dearth of trained mental health professionals, there is a workforce crisis in psychiatry around the world. In 2019, it was estimated that there was an estimated shortage of 27 000 psychiatrists in India.² Effective management of this shortage requires strategies to motivate medical undergraduates to train as psychiatrists, or train practitioners of other specialties to recognize and manage psychiatric conditions. We tried to improve our understanding of the attitudes of undergraduate medical students towards psychiatry and mental illness over time, and the impact of a clinical psychiatry rotation on these.

The percentage of participants who expressed an interest in psychiatry as a career in our study (21.4% before the rotation and 18.4% at 1-year follow-up) was significantly higher than past reports by Choudry and Farooq and Lyons of up to 10%.^{15,16} While some participants who had considered psychiatry as a career option before the rotation changed their opinion at 1-year of follow-up, others who had not initially considered psychiatry as a career option at the first assessment, mentioned that they would consider psychiatry at the 1-year assessment. These changes suggest that students in medical school are susceptible to a change in attitude, and a good experience during the psychiatry rotation must be ensured to encourage as many students as possible to appreciate the importance of psychiatry as a subject and consider taking it up as a career. Although not

TABLE IV. Attitudes towards psychiatry and mental illness

Attitude	Pre-rotation (%)	Immediate post-rotation (%)	One-year post-rotation (%)		
<i>ATP 30 score</i>					
Negative attitude (≤ 89)	12 (11.7)	11 (10.7)	8 (7.8)		
Neutral attitude (=90)	2 (1.9)	1 (1)	12 (11.8)		
Positive attitude (≥ 91)	89 (86.4)	91 (88.3)	82 (80.4)		
Model 1		Z-value	p value	Z-value	p value
Time	Ref	0.46	0.643	-0.61	0.539
Model 2					
Time	Ref	0.38	0.704	0.18	0.857
Time [#] Gender (Female)	Ref	0.9	0.369	0.93	0.352
<i>AMI score</i>					
Negative attitude (≤ 59)	16 (15.5)	14 (13.6)	12 (11.7)		
Neutral attitude (=60)	5 (4.9)	7 (6.8)	13 (12.8)		
Positive attitude (≥ 61)	82 (79.6)	82 (79.6)	77 (75.5)		
Model 1		Z-value	p value	Z-value	p value
Time	Ref	0.13	0.899	-0.26	0.791
Model 2					
Time	Ref	-0.05	0.957	-0.58	0.564
Time [#] Gender (Female)	Ref	-0.58	0.565	-0.41	0.681

ATP attitudes towards psychiatry AMI attitude towards mental illness Z-value from population averaged random effects model ordinal logistic regression

^aModel 1 only time as a factor for the attitude change

[#]Model 2 time, gender, and interaction between time and gender were considered as factors influencing attitudes

statistically significant, more males in this study expressed a wish to take up psychiatry as a future career in contrast to earlier reports.¹² Previous literature suggests that students who had studied humanities before medical school were more likely to take up psychiatry as a career. In our study, students who had studied psychology before medical school had higher scores in ATP-30. Lyons has suggested including psychology in the foundation course or during preclinical medical training to improve positive ATP;¹⁶ in addition, it helps doctors in any medical specialty better understand and interact with their patients.

ATP

The study participants as a whole had a positive ATP at all three assessment points, similar to previous study findings.¹⁶ While this study was similar to another from Ethiopia which reported more women to have a positive ATP, it differed in that personal and family history of mental illness were not found to be associated with a more positive attitude.⁵

A statistically significant improvement in ATP scores was found immediately after the rotation and at 1-year of follow-up as compared to baseline, though the scores did not differ significantly between these two assessments. Previous reports have variably reported the rotation to have a positive influence, or no measurable change.^{12,16} Contrary to previous reports of male students having greater improvement in positive attitudes, gender did not seem to influence change in ATP among participants of our study.¹⁷ The first exposure to psychiatry in medical school may contribute to a relatively enduring set of attitudes toward the subject.^{18,19} Direct involvement of the student in the care of patients, watching patients responding

favourably to the treatment and having a satisfactory interaction with staff and patients at a psychiatric centre have been found to create a positive impact. While no specific component of the rotation was found to be associated with improved attitudes, as in previous research,²⁰ it is possible that the setting and content of the psychiatry teaching used in our study helped to create better awareness among students that emotional and psychological problems are widely prevalent, even among patients attending general medical clinics, and not just among those seeking specific psychiatric help. This improved understanding may have played a role in the persistence of favourable attitudes 1 year after the rotation.

Factors such as encouragement by colleagues, enrichment activities such as clerkships and psychiatrists as role models have been shown to positively influence medical students' choice of psychiatry as a future career. On the other hand, barriers include the poor public image of psychiatry, a perceived lack of respect towards psychiatry by other specialists, low morale among psychiatrists and the physical risks associated with the specialty; efforts should be made to address these aspects during psychiatry rotation.^{15,21}

AMI

People with mental illnesses can be perceived by medical students as dangerous, unpredictable and untreatable, resulting in an unwillingness to engage with such persons.²¹ This unfavourable attitude spills over to psychiatry as a career choice. However, medical students are also considered to be ideal for anti-stigma interventions as their attitudes are easier to modify.^{22,23}

Our study participants as a whole had positive AMI before their exposure to psychiatry, after the clinical rotation and at 1-year follow-up, in contrast to reports from Pakistan and South Africa.^{24,25} More women than men reported a positive AMI before the rotation, as described earlier.^{25,26} Unlike previous reports from Australia, North America and Europe, the increase in AMI scores after the rotation in our study were not statistically significant which may be attributed to the short duration of the rotation.^{14,27-29} Previous literature has suggested that psychiatric training undertaken in a general hospital setting improves ATP more than a specialty hospital, while AMI is better when the training is set in a specialty hospital.²³ The students who participated in this survey had psychiatric training in both a general hospital and specialty hospital setting; however, a statistically significant change was found only in ATP. In contrast to other reports from India, Malaysia and Nigeria, there was no greater improvement of AMI among female medical students after the rotation in this study.^{12,30,31} Change in AMI is considered to be due to a complex interaction between acquisition of knowledge, awareness of the therapeutic potential of psychiatric interventions and direct patient contact. It is suggested that change is most likely to happen if the pre-rotation responses are neutral, since least rigid and stereotypic attitudes show most change.^{12,14}

While attitudes may be more difficult to change if much value is placed on rewards such as money and prestige from a career in psychiatry, negative opinions about psychiatry and mental illness that stem from erroneous or insufficient knowledge can be corrected through medical education.³² Several measures have been suggested to improve attitudes among medical students towards mental illness and psychiatry. These include introducing psychology or behavioural science modules in the pre-clinical

TABLE V. Assessment of negative attitudes: Pre-rotation, immediate post-rotation and at 1-year post-rotation

Item	Pre-rotation n (%)	Post-rotation n (%)	One-year after rotation n (%)	Cochran's Q	p value
<i>Attitude towards psychiatry</i>					
Psychiatry is unappealing because it makes so little use of medical training.	22 (21.4)	23 (22.3)	10 (9.7)	3.5	0.174
Psychiatric hospitals are little more than prisons	15 (14.6)	5 (4.9)	5 (4.9)	7.143	0.028*†
I would like to be a psychiatrist.	51 (49.5)	49 (47.6)	44 (42.7)	0.333	0.846
On the whole, people taking up psychiatric training are running away from participation in real medicine.	13 (12.6)	12 (11.7)	6 (5.8)	7.6	0.022*†
The majority of students report that their psychiatric undergraduate training has been valuable.	32 (31.1)	24 (23.3)	27 (26.2)	8.167	0.017*‡
Psychiatry is a respected branch of medicine.	15 (14.6)	17 (16.5)	18 (17.5)	8.167	0.017*†
Psychiatrists tend to be at least as stable as the average doctor.	8 (7.8)	14 (13.6)	10 (9.7)	4.167	0.125
Psychiatric treatment causes patients to worry too much about their symptoms.	43 (41.7)	46 (44.7)	28 (27.2)	1.882	0.39
Psychiatrists get less satisfaction from their work than other specialists.	15 (14.6)	16 (15.5)	18 (17.5)	3.429	0.18
If I were asked what I considered to be the three most exciting medical specialties psychiatry would be excluded.	55 (53.4)	48 (46.6)	50 (48.5)	0.08	0.961
At times it is hard to think of psychiatrists as equal to other doctors.	24 (23.3)	24 (23.3)	11 (10.7)	14.625	0.001*§
These days psychiatry is the most important part of the curriculum in medical schools.	46 (44.7)	36 (35)	34 (33)	0	>0.99
Psychiatry is so unscientific that even psychiatrists can't agree as to what its basic applied sciences are.	24 (23.3)	18 (17.5)	17 (16.5)	4.333	0.115
The practice of psychiatry allows the development of really rewarding relationships with people.	0	1 (1)	2 (1.9)	4	0.135
Psychiatric patients are often more interesting to work with than other patients	23 (22.3)	12 (11.7)	23 (22.3)	8.222	0.016*¶
<i>Attitudes towards mental illness</i>					
The mentally ill should be discouraged from marrying	26 (25.2)	19 (18.4)	15 (14.6)	4.667	0.097
Violence mostly results from mental illness:	43 (41.7)	25 (24.3)	29 (28.2)	4.9	0.086
Those with a psychiatric history should never be given a job with responsibility	8 (7.8)	17 (16.5)	9 (8.7)	0.5	0.779
Those who attempt suicide leaving them with serious liver damage should not be given transplants	11 (10.7)	17 (16.5)	13 (12.6)	2.909	0.234
Psychiatric drugs are mostly used to control disruptive behaviour	55 (53.4)	50 (48.5)	38 (36.9)	3.733	0.155
ECT should be banned	14 (13.6)	4 (3.9)	8 (7.8)	3.5	0.174
People who take an overdose are in need of compassionate treatment	5 (4.9)	6 (5.8)	7 (6.8)	3.6	0.165
Depression occurs in people with a weak personality	21 (20.4)	25 (24.3)	14 (13.6)	5.158	0.076
Alcohol abusers have no self-control	44 (42.7)	42 (40.8)	36 (35)	1.087	0.584
Mental illnesses are genetic in origin	18 (17.5)	38 (36.9)	33 (32)	10.8	0.005*†
People who had good parenting as children rarely suffer from mental illness	44 (42.7)	43 (41.7)	32 (31.1)	4.727	0.094
Care in the community for the mentally ill puts society at risk	7 (6.8)	8 (7.8)	7 (6.8)	4	0.135
It is preferable that the mentally ill live independently rather than in hospital	38 (36.9)	42 (40.8)	33 (32)	0.667	0.717
Not enough is being done for the care of the mentally ill	11 (10.7)	9 (8.7)	9 (8.7)	4.8	0.091
Patients with chronic schizophrenia are incapable of looking after themselves	45 (43.7)	51 (49.5)	28 (27.2)	12.667	0.002*†

*p value <0.05 †Post hoc McNemar test with Bonferroni correction did not reveal significant p value ‡Post hoc McNemar test with Bonferroni correction revealed significant differences between pre- and post-rotation (p=0.007) and post-rotation and 1-year assessments (p=0.012) §Post hoc McNemar test with Bonferroni correction revealed significant differences between pre-rotation and 1-year assessments (p=0.002) ¶Post hoc McNemar test with Bonferroni correction revealed significant differences between pre- and post-rotation assessments (p=0.012) ECT electroconvulsive therapy

years, increasing the duration of psychiatry rotation to 6–8 weeks and increasing clinical contact during this period, integrating psychiatric teaching with medical and surgical teaching, teaching basic counselling skills and assessing knowledge and competence of psychiatry in university examinations.^{12,21}

Strengths and limitations

Our study included a follow-up assessment 1 year after the rotation, in addition to immediately after rotation. The population studied was heterogeneous consisting of students from diverse socio-economic and cultural backgrounds. There was no selection bias as all students in the rotation were included. The questionnaires used for the survey have good psychometric properties and have been used extensively in the region. The limitations include

the lack of a control group which eliminated the opportunity to account for the effects of maturation on attitudes; attitudes are context dependent and some of the group's responses should be seen in this light. A structured training and assessment method would have made the study methodologically stronger. As the data were obtained from only one medical school, the results cannot be generalized.

Conclusion

Overall, medical students have positive ATP and mental illness even before exposure to psychiatric training. Clinical rotation in psychiatry improved on these attitudes further and this effect persisted even after 1 year. Despite this, recruitment rates to psychiatry training programmes remain low, leading to

workforce shortages and inadequacy of mental health services in the community. Future research should focus on the benefits of modifying the curriculum to incorporate activities such as psychiatry electives and altering medical school admissions criteria to include more students from humanities and non-science backgrounds.

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