

# Impact of Anti-stigma Educational Intervention about Mental Illness among Medical Students: A Quasi-experimental Study

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## ABSTRACT

**Introduction:** Stigma about mental illness continues to complicate the lives of those who are stigmatised, even as treatment improves their illness. Health professionals sometimes discriminate based on the general public's stigmatising views towards people with mental illness. There is a pressing need to improve understanding of the range of factors contributing to this.

**Aim:** To assess the impact of anti-stigma educational intervention about mental illness among medical students and to identify the impact of this on their attitudes, knowledge, behaviour, and empathy.

**Materials and Methods:** This quasi-experimental study was conducted at a tertiary teaching hospital, Visakhapatnam, Andhra Pradesh, India, from September 2015 to August 2016. A total of 170 medical students from the 4<sup>th</sup> semester were included and divided into test and control groups, with 85 students in each group. Stigma was measured by assessing attitude, knowledge, behaviour, and empathy. For the test group, it was assessed at baseline, immediate post-intervention, and one year later as Test 1, 2, and 3, and baseline for the control. Mental health-related knowledge was measured

with Mental Health Knowledge Schedule (MAKS) scale, attitude with Mental Illness Clinician's Attitudes (MICA) scale, Reported and Intended Behaviour Scale (RIBS) to measure behaviour, and empathy by Jefferson Scale of Empathy Student Version (JSE-SV) scale. T-test was used to statistically analyse the data.

**Results:** A total of 85 participants were included in each group. Gender-wise, the mean±SD of MAKS scores were statistically significant in test 3, and also within the test group. Gender-wise MICA scores were statistically not significant in the groups, within the test group, statistically, there was a significant difference between test 2 and 3. Within the test group, for RIBS scores, there were statistically significant differences between test 1, 2, and 2, 3, and gender-wise, there was no significance. For JSE-SV scores, there was a statistically significant difference between the gender in test 2 but no significant difference among the test groups.

**Conclusion:** This study's findings show that the mental health-related knowledge, attitude towards the illness, and intended behaviour of the students towards the mentally ill have significantly improved post-intervention and also had a long-term impact.

**Keywords:** Clinician's attitude, Empathy, Intended behaviour, Mental health

## INTRODUCTION

Mental illness is still perceived as an indulgence and a sign of weakness [1]. People with mental illness have lower rates of coronary revascularisation and hospital admission compared to those without mental health problems [2,3]. Discrimination against mentally ill people has been identified as an important cause of this [4].

Stigma, a common mental health disorder, affects the patient's interactions, social network, employment opportunities, and quality of life [5]. Stigmatisation occurs for individuals whose mental illness is in remission despite their normal behaviour [5]. There is a pressing need to improve understanding of the range of factors contributing to this. A potential mechanism underlying these disparities is discrimination against people with mental illness by health professionals who share the general public's stigmatising views towards such people [6].

It has been found that the adverse effects of stigma are greater among those in key power groups in society [7]. Medical professionals are identified as a vulnerable group for mental illness [6]. The attitudes of medical students toward mental patients have been documented, and compared to the general public, medical students have more prejudicial attitudes towards mental health [6,7].

Stigma about mental illness among medical students not only affects patient care but also their higher education and research [7]. There is not much research that has looked into the various aspects contributing to stigma in South Indian medical students. The uniqueness of the present study is its prospective intervention design and its inclusiveness in assessing knowledge, attitudes,

intended behaviour, and empathy as contributing factors towards stigma. With this background, the present study was conducted to assess the levels of stigma about mental illness among medical students and to identify the impact of educational intervention on their attitudes and behaviour.

## MATERIALS AND METHODS

This quasi experimental study was conducted at a tertiary teaching hospital in Visakhapatnam, Andhra Pradesh, India, between September 2015 and August 2016. The study protocol was approved by the Institutional Ethics Committee (IRC) (Reg. no. 67/IEC/AMC/2016), and informed written consent was collected from the participants.

**Inclusion criteria:** Included all 4<sup>th</sup>-semester medical students who submitted informed consent

**Exclusion criteria:** Excluded those who refused to submit consent.

**Sample size:** A total of 170 4<sup>th</sup>-semester students were divided into a test and control group using systematic random sampling based on their attendance register, with each group consisting of 85 students.

**Data collection:** Included socio-demographic variables such as gender, religion, and socio-economic status. Socio-economic status was categorised as low, middle, or upper economic status using the Kuppuswamy classification [8]. Stigma was measured by assessing components such as attitude, knowledge, behaviour, and empathy. For participants in the test group, stigma was assessed at baseline, immediate post-intervention, and one year later as test 1, 2, and 3, respectively. Only the baseline test was evaluated for the control group.

Intervention was done in the form of educational lecture with key facts and figures about stigma, interactive sessions and video based contact within the class premises. Intervention scheme for decreasing the stigma of mental illness included the components on: a) Education on mental health and mental illness; b) Education on causes, symptoms, treatment, and recovery of mental illness; c) Education on stigma of severe mental illness; d) Education on mental illness myths and facts; and e) Video presentation with people with mental illness. The education components: (a-d) aimed to provide accurate information against the myths of mental illness and the contact via video presentation; (e) aimed to familiarise students with mental illness. Video presentation included two videos of 15 minutes each first video presented the experience of a woman with depression, second video showing common symptoms of mental illness. The duration of the entire intervention session was around 90 minutes.

Mental health-related knowledge was measured with the MAKES [9]. This scale comprises of Part A which is comprised of six items covering stigma-related mental health knowledge areas (help-seeking, recognition, support, employment, treatment and recovery) and Part B consisted of six items that enquired about classification of various conditions as mental illnesses. Items 6, 8, and 12 were reverse coded to reflect the direction of the correct response. Items 7 to 12 are designed to establish levels of recognition and familiarity with various conditions and also to help contextualise the responses to other items. Each item was scored from 1 to 5. The minimum possible score was 12 and the maximum possible score was 60. The overall test reliability was 0.71 (Lin's concordance statistic) and the overall Internal Consistency (IC) among items was 0.65 (Cronbach's alpha); higher scores were considered to be higher mental illness related knowledge [9].

MICA [10] was used to measure the attitude of the participants, version 2 which was developed for medical students. It is a 16 item scale. Items 3, 9, 10, 11, 12, 16 are reverse coded. Each item is scored from 1 to 6. The minimum possible score is 16 and the maximum possible score is 96. It has good IC, 0.79 and test retest reliability was 0.80. Higher scores considered more negative attitudes [10].

RIBS [11] was used to measure the behaviour. Four intended behaviour items (1-4) assessed the level of intended future contact with people with mental health problems and were assessed as yes/no/don't know. Additional four reported behaviour items (5-8) assessed past or current contacts. Each item was scored from 1 to 5. Overall test retest reliability was 0.75 and overall IC was 0.85. Higher scores were considered to be positive intended behaviour [11].

Empathy was measured using JSE-SV scale [12]. Three underlying constructs, that is: a) Perspective taking; b) Compassionate care; and c) Standing in patient's shoes emerged from the factor analysis of the scale that was consistent with the conceptual framework of empathy, thus supporting the construct validity of the scale. It is a 20 item scale with nine reverse coded items. Each item is scored from 1 to 7. The minimum possible score is 20 and the maximum possible score is 140. The coefficient alpha was 0.77. Higher scores indicate greater empathy [12].

In this study, all the four variables affecting the stigma about the mental illness i.e., mental health related knowledge, clinician's attitude, intended behaviour and empathy were assessed once in the control group and in the cases at baseline before the intervention as test 1, immediately after the intervention as test 2 and one year after the intervention as test 3. All the four variables were compared genderwise at all the four points of assessment to see the long-term impact of the intervention. In the test group, all the four variables affecting the stigma were compared at all the three points of assessment. Crossover was done for control group also after collecting the data.

## STATISTICAL ANALYSIS

The data were analysed using Statistical Package for the Social Sciences (SPSS) version 22.0. The t-test was used to find the association and  $p < 0.05$  was considered statistically significant.

## RESULTS

Total 85 participants were included in each group. Age ranged between 19 to 23 years and the mean $\pm$ SD was 20.3 $\pm$ 2.82 years. There was no statistically significant difference found for socio-demographic variables such as gender, religion and socio-economic status among the study participants [Table/Fig-1].

Variables	Cases n (%)	Controls n (%)	p-value
<b>Gender</b>			
Male	40 (47)	39 (46)	0.887
Female	45 (53)	46 (54)	
<b>Religion</b>			
Hindu	71 (83.5)	68 (80)	0.835
Christian	9 (10.6)	11 (12.9)	
Muslim	4 (4.7)	6 (7.1)	
Others	1 (0)	0 (0)	
<b>Socio-economic status</b>			
Lower	19 (22.4)	17 (20)	0.767
Middle	58 (68.2)	62 (72.9)	
Upper	8 (9.4)	6 (7.1)	

**[Table/Fig-1]:** Socio-demographic variables among the study participants (N=170). p-value was calculated using Chi-square test

All the four variables affecting the stigma were compared between the test and the control group. There was statistically significant difference found in the mean $\pm$ SD scores of MAKES, MICA and RIBS but there was no significant difference in the JSE-SV scores between the two groups [Table/Fig-2].

Parameters	Intervention group (mean $\pm$ SD)	Control group (mean $\pm$ SD)	p-value
MAKS	45.08 $\pm$ 4.27	43.82 $\pm$ 2.59	0.021
MICA	44.81 $\pm$ 8.88	47.18 $\pm$ 6.32	0.047
RIBS	15.09 $\pm$ 3.54	12.95 $\pm$ 3.07	0.0001
JSE-SV	105.56 $\pm$ 18.51	100.81 $\pm$ 18.50	0.096

**[Table/Fig-2]:** Comparison of factors affecting the stigma among the study participants (N=170). p-value was calculated using the t-test

Genderwise, the mean $\pm$ SD of MAKES scores were statistically significant in test 3 [Table/Fig-3]. Genderwise, the mean $\pm$ SD of MICA scores were statistically not significant in the test and control groups [Table/Fig-4]. Genderwise, the mean $\pm$ SD of RIBS scores were statistically not significant [Table/Fig-5]. Genderwise, the mean $\pm$ SD of JSE SV scores were statistically significant in test 2 [Table/Fig-6].

Assessment	Mean $\pm$ SD		p-value
	Male	Female	
Test 1	21.13 $\pm$ 2.61	20.57 $\pm$ 2.55	0.68
Test 2	22.13 $\pm$ 3.19	22.72 $\pm$ 3.06	0.55
Test 3	22.42 $\pm$ 1.94	21.77 $\pm$ 2.78	0.04
Control	20.92 $\pm$ 2.18	20.49 $\pm$ 2.16	0.44

**[Table/Fig-3]:** Genderwise comparison of MAKES scores among the intervention group. p-value was calculated using the t-test

Within the test group, for MAKES scores, statistically there was significant difference between Tests-1, 2 and 1, 3. Within the test group, for MICA scores, statistically there was significant difference between Tests-2, 3; the difference was statistically not significant between Tests-1, 2 and 1, 3. For RIBS scores, statistically there

Assessment	Mean±SD		p-value
	Male	Female	
Test 1	49.11±7.12	45.28±6.29	0.36
Test 2	47.26±8.80	42.8±8.40	0.677
Test 3	48.94±7.30	46.74±7.44	0.837
Control	48.74±6.60	45.91±5.81	0.164

**[Table/Fig-4]:** Genderwise comparison of MICA scores among the intervention group. p-value is calculated using the t-test

Assessment	Mean±SD		p-value
	Male	Female	
Test 1	13.08±3.37	13.62±3.02	0.38
Test 2	14.13±3.18	15.87±3.6	0.32
Test 3	13±3.19	13.97±3.24	0.59
Control	13.13±2.90	12.81±3.2	0.76

**[Table/Fig-5]:** Genderwise comparison of RIBS scores among the intervention group. p-value is calculated using the t-test

Assessment	Mean±SD		p-value
	Male	Female	
Test 1	96.08±23.09	103.79±18.83	0.09
Test 2	100.92±22.65	109.32±13.43	0.003
Test 3	104.29±15.57	106.15±17.17	0.69
Control	96.92±21.60	103.96±15.00	0.47

**[Table/Fig-6]:** Genderwise comparison of JSE SV scores among the intervention group. p-value is calculated using the t-test

was significant difference between Tests-1, 2 and 2, 3; the difference was statistically not significant between Test-1 and 3. Within the test group, for JSE-SV scores, statistically there was no significant difference between tests [Table/Fig-7].

Assessment	p-value			
	MAKS	MICA	RIBS	JSE SV
Test 1, 2	0.001519917	0.076186103	0.001066102	0.091189167
Test 2, 3	0.082502125	0.000291217	0.000687548	0.989538874
Test 1, 3	0.000183571	0.320804594	0.530955226	0.101173252

**[Table/Fig-7]:** Statistical difference in the mean scores of different parameters among the intervention group. p-value is calculated using the t-test

## DISCUSSION

As per the reports, there is high prevalence of mental disorders in general population at the rate of approximately 1 in 5 [13]. People with mental disorders are frequently associated with stigma [14]. However, in Indian subcontinent, there was a wide prevalence of mental illness but the magnitude of stigma is not clear [15].

Vijaya Lakshmi D and Reddy SB reported a study on attitudes of undergraduates towards mental illness, in nursing and business management students [16]; it was reported that nursing students exhibited significantly more positive attitude towards mental illness. In the current study done, on medical students, after the intervention, there was improvement in mean MAKS scores, statistically also there was significant difference. Medical background is probably the contributory factor for this as similar studies done by Challapallisri V and Dempster LV documented that the negative attitude of public with psychiatric disorder is popularly observed by the doctors [17].

Tariq MH et al., reported a research on doctor's attitudes to become mentally ill through postal survey, rather than professional disclosure, 73.4% chose family and friends to disclose their mental illness [18]. Similar to these findings, in this research also, majority (64%) of the study members expressed willingness to disclose their mental illness. In both gender, there was decline in the MICA score, immediately after creating the awareness and the mean scores were statistically not

significant. As the test 3 was one year later, there was raise in MICA scores the difference between test 2 and 3 were statically significant.

RIBS scale can be helpful to assess the presence of reported and also intended behaviour among the general public. In this research, an attempt was made to analyse behaviour in medical students. Genderwise, there was no significant difference in the test group. The intervention helped to improve the mean scores and the difference was significant between test 1 and 2 and 2 and 3. Giralt PR et al., conducted a research on nursing students to analyse stigma in relation to behaviour and attitudes [19]; it was also reported that intervention helped in the significant improvement of RIBS scores, the mean age was <21 years. The mean age of study participants in this report are 20.3±2.82 years.

JSE is broadly used to measure empathy in relation to health professions education and also patient care [20]. Empathy is also an important parameter in patient doctor relation because this can help to develop trust on the healthcare professional. Biswas B et al., reported higher mean empathy scores among female medical students but there was no statistical significance [21]. Similarly, in this research also, there were higher mean scores among the girl students. Usually women can bring out patient emotional issue better. In a study done by Hamama-Raz Y et al., women were proved to be better skilled in developing patient interpersonal relationships compared to men [22].

The results of the current study show greater improvements at immediate follow-up for all stigma related outcomes like mental health-related knowledge, attitudes, intended behaviour and empathy among medical students receiving the intervention. This was in agreement with the results of study by Friedrich B et al., [23] The improvement in scores was also statistically significant at immediate follow-up for all components except empathy.

At one year follow-up the improvement was sustained for knowledge and behaviour. However, this advantage did not persist at one year follow-up for attitudes. Higher empathy scores are not always reflecting positive attitudes. In this study, students' knowledge related to mental illness stigma, assessed with the MAKS scale- was rather high in both groups even at baseline measurement and increased significantly during assessments. This finding of the current study indicating that even a short duration comprehensive education based intervention may have an impact on participants' knowledge was in accordance with the study by Evans-Lacko S et al., in which it was found that short-term campaigns or educational training do work to decrease mental illness related stigma [24].

In this study, higher knowledge scores at baseline had no effect on attitudes as they are more negative at baseline. Hence, an increase of accurate knowledge, however, does not seem to lead to stigma reduction, since stigmatised attitudes and behaviour often co-exist with accurate knowledge on mental illness. This was in accordance with the results of study by Madianos M et al., [25].

In this study, the mean scores of empathy were much higher at baseline than the general population studies [21]. But higher empathy scores are also associated with negative attitudinal scores contrary to what is expected. The explanation to that could be that there is a relationship between the stress the health professionals feel, when they serve people who are in suffering. Specifically, Cutler JL et al., suggested that stress, stigmatisation and stereotyping are along an empathic spectrum, and that empathy can entail stress for the healthcare staff, if they have not developed the capacity for empathy combined with appropriate skills preventing from over identification with the suffering of their patients [26].

In this study, it was found that improvement in one dimension of stigma has not caused improvement in other dimensions. Improvements in knowledge and behaviour at one year follow-up have not caused improvement in stigmatising attitudes at one year follow-up. This was in accordance with a study by Kassam A et al.,

which also gave similar results in a controlled trial of mental illness related stigma training for medical students [27]. Hence knowledge, attitudes and behaviour may be separately targeted in stigma reduction interventions.

Analysis of all major components of stigma using standardised questionnaires and video based contact of patient to get better understanding of mental illness are the strengths of this research.

### Limitation(s)

Small sample size and practical utility of this postintervention improvement towards patient care in clinical practice being not provided are the limitations of this research.

### CONCLUSION(S)

The findings of this study conclude that all factors affecting stigma about mental illness among medical students improved with the intervention and had a sustained long-term effect. This would have a positive impact on their overall attitude towards people suffering from mental illness. This study highlights the need to create awareness about mental health among all students involved in patient care and to introduce mental health education in the educational curriculum. The authors recommend analysing of post-intervention improvements in patient care with a larger sample size in future research.

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