Research report

EFFECT OF ONLINE CUSTOMIZED PSYCHIATRY TEACHING ON THE PERCEPTIONS ABOUT PSYCHIATRY AMONG UNDERGRADUATE MEDICAL STUDENTS: A RANDOMIZED CONTROLLED STUDY

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Abstract

Background: Student-centered innovative teaching methods are needed to increase interest in and improve perceptions about the field of Psychiatry. We aimed to assess the effect of online customized psychiatry learning on perceptions about Psychiatry among undergraduate medical students. **Materials and methods:** Between June to August 2021, we carried out a randomized controlled trial among second-year medical students of a teaching cum tertiary health care institution in South India. Participants (n = 36) were randomized into the intervention (n=18) or control group (n = 18). The intervention group received online customized psychiatry teaching in addition to the regular curriculum teaching while the control group received only regular curriculum teaching. The outcome measure studied was perceptions about Psychiatry, assessed using a structured questionnaire that was applied before and after the intervention. **Results:** Usable responses were obtained from 32 participants (Mean age = 22.3 Years, standard deviation = 0.8; 50% females). At the end of the study, there was no significant difference in the scores between the groups on either the Images of Psychiatry subscale (t = 1.36, p = 0.18) or the Efficacy of Psychiatry subscale (t = 1.56, p = 0.11). However, in a within-group analysis, scores on the Images of Psychiatry subscale improved significantly in the intervention group (t = -3.65, p = 0.002) but not in the control group (t = -1.18, p = 0.258). Likewise, scores on the Efficacy of Psychiatry subscale improved significantly in the intervention group (t = -3.06, p = 0.008) but not in the control group (t = -0.81, p = 0.432). **Conclusion:** Online customized psychiatry teaching did not improve perceptions about Psychiatry compared to regular curriculum teaching.

Keywords: Innovative teaching methods, customized psychiatry teaching, medical students

INTRODUCTION

Psychiatry as a medical specialty is not usually very attractive to medical students for so many reasons, including the chronic course of illness, the stigma associated with the illness,

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perceived lack of a clear pathophysiological basis for the illness and low prestige and financial rewards compared to other medical specialties. A negative attitude towards Psychiatry is present not only among the public but also among medical trainees. A study conducted among medical students in India found significant lacunae in knowledge about psychiatric disorders and treatment.[1] A systematic review of 32 studies shows that Psychiatry as a career choice is not very attractive to medical students.[2] Data from India also support these observations.[3] A multisite survey of medical faculty members (N=1057) from 15 academic teaching centers across the United Kingdom, Europe, and Asia showed that 90% of respondents considered that psychiatrists were not good role models for medical students.[4] The same authors also found that 84% of faculty members thought psychiatric patients were not suitable to be treated outside of specialized facilities, and 73% thought that psychiatric patients were emotionally draining.

Given these negative attitudes and perceptions, there is a need for innovative approaches that will enhance knowledge and improve perceptions towards Psychiatry among medical students. It may also encourage more of them to take up a career in mental health; this will also reduce the treatment gap in Psychiatry and improve community mental health.[5] Improved knowledge and attitudes will also help in reducing the stigma towards psychiatric illness. This will also facilitate early diagnosis and treatment of psychiatric disorders.

Many innovative teaching methods for improving knowledge and perceptions about Psychiatry are being tested worldwide. These include simulation-based teaching, roleplays, virtual reality-based learning, group discussions, active learning by case scenarios, movie clubs and bites-sized learning using multiple short teaching sessions instead of traditional 60-minute lectures.[6-10] The new competency-based medical curriculum in India has tried to improve the old curriculum by adding more interactive small group sessions, which may include role plays and increased teaching hours. However, it also has its drawbacks. There is no separate exit exam in Psychiatry; assessment is restricted to one or two questions included in the General Medicine theory paper. Consequently, students do not feel that the subject is important. Thus, there is a clear need for innovative teaching methods to enhance interest in the subject. Previous studies have shown that good clinical training can reduce the stigma associated with psychiatric illness, improve the student's attitude towards Psychiatry, and generate interest in the branch.[11-14] Against this background, we aimed to assess the effect of online customized psychiatry learning on perceptions about Psychiatry among undergraduate medical students. Online method was chosen considering the ongoing COVID-19 pandemic.

MATERIALS AND METHODS

Setting and design

This was a randomized controlled study conducted among second-year medical students of a public sector teaching-cum-tertiary care hospital in Kerala, South India, between June to August 2021. We chose this academic year for convenience as students undergo a two-week psychiatry rotation during this year and it would provide captive time for carrying out the intervention.

Participants

All undergraduate medical students currently undergoing their Psychiatry rotation were included; other than refusal to consent, there were no other exclusion criteria. The details about the medical course curriculum and selection criteria for medical students are given in Box no. 1.

Intervention

The intervention arm received a total of 3 hours and 30 minutes of online customized psychiatry

Box No. 1. Study setting and candidate selection process at the institute

General Context of the study *Setting:* Government Medical College in Kerala, India (Under Kerala State Scheduled Caste Development Department) *Location:* Palakkad, Kerala, India *Participants:* Undergraduate medical students pursuing Bachelor of Medicine and Bachelor of Surgery Course. Students are selected via a national competitive exam called National Eligibility Entrance Test. As with other government-funded medical colleges in India, this institution gives special quota-based reservation for the weaker sections of society. *Seat Matrix:* Total seats = 100, Scheduled caste – 70%, Scheduled tribe – 2%, General merit – 13%, All India Quota – 15% *Course curriculum:* As per guidelines of the Medical Council of India

teaching (CPT). This was in addition to the regular teaching comprising 30 hours of clinical posting, which includes ten didactic lectures and ten clinical case presentations and discussions. The teaching module was developed by experts in the field of Psychiatry by combining teaching methods that were found to be effective by previous investigators. Content validation was done by a subject expert with more than ten years of teaching experience in the field of Psychiatry. Online mode was chosen to make it feasible in the pandemic situation. The CPT classes were conducted after regular clinical posting hours using the zoom platform with nine students in each class; the complete module is described in Table 1. The module comprised three sessions; the first session started with students' interests and their choice of medical specialty as a career, followed by a discussion of a case scenario**.** The case scenario is given below and was adapted from the Diagnostic and Statistical Manual (DSM)-5 clinical cases.[15]

Mr. S, a 23-year-old male, had presented to the emergency room several times for acute symptoms of palpitations, shortness of breath, sweating, trembling, and the fear that he was about to die. Each of these events had a rapid onset. The symptoms peaked within minutes, leaving him scared, exhausted and fully convinced that he had just experienced a heart attack. Medical examination done right after these episodes yielded normal physical examination findings, vital signs, lab results, toxicology screens and electrocardiograms.

The patient reported five such attacks in the prior one month, with symptoms occurring at work, at home and while driving a car. He had developed a persistent fear of having other attacks, which led him to take off from work many times and avoid exercise, driving and coffee. His sleep quality declined. He did not accept reassurance offered to him by friends and physicians. He continued to suspect that something was wrong with his heart and that, without an accurate diagnosis, he was going to die.

The patient was living with his father and two younger siblings. He was working in a private company after his graduation. The patient had a history of anxiety during childhood. On examination, he appeared anxious and was cooperative. He was preoccupied with the idea of having heart disease. He denied psychotic symptoms, depressive symptoms, confusion, and suicidality.

With this description, participants were queried on the probable diagnosis.

In the second session, other topics related to the case scenario were discussed; this included the differential diagnoses and other common mental disorders; for instance, if the case scenario was panic disorder, other anxiety disorders, somatoform disorders, dissociative disorders, etc., were discussed. The students were asked to watch a relevant movie before the next session to enhance discussion (E.g., "A beautiful mind" for a class on schizophrenia)

The third session comprised movie discussions, movie quiz, discussion about Psychiatry-related career options, clarification of the doubts, discussion regarding common myths about psychiatric illness, and treatment modalities.

Table 1: Online customized psychiatry teaching module

Sessions	Customized student-centered Teaching	Time allocation
Before the session starts	Fill out the study questionnaire (Images of Psychiatry questionnaire)	10 minutes (Via google form)
Session 1	Start with students' interests and choice of subject	10 minutes
	Discuss a case scenario	10 minutes
	Students discuss within the group	15 minutes
	They give inputs regarding the possible differential diagnosis	5 minutes
	Discuss the case scenario – clinical features, management plan, diagnosis	20 minutes
Session 2	Discuss other Psychiatry topics related to the case scenario (Differential diagnoses and other common mental disorders) The facilitator can also ask the students to watch a relevant movie before the next session to enhance the discussion	50 minutes
Session 3	Discuss schizophrenia and other topics with the help of movies.	60 minutes
	To clarify doubts of students related to Psychiatry and career options Discuss common myths about psychiatric illness and treatment modalities	10 minutes
	Movie quiz	10 minutes
After the sessions	Fill out the study questionnaire (Images of Psychiatry questionnaire)	10 minutes (Via google forms)

The movie, shown in the earlier session, was discussed at length. The facilitator discussed delusions, hallucinations and other symptoms of schizophrenia with the help of movie scenes. The symptoms and the diagnosis of other movie characters with psychiatric disorders from the movies they watched were discussed. (E.g., regional language (Malayalam) movies like "Thanmathra" for Alzheimer's disease, "Hey, Jude" for autism spectrum disorders, "Kaliyattam" for delusional disorder, "Spirit" for alcohol dependence syndrome, "Malik" for personality disorders). In addition, discussions on personality traits of characters from newly released movies were also discussed if the students brought them up.

To clarify students' doubts and remove common myths regarding Psychiatry, students were asked what they know about ECT and other treatment modalities. The false depiction of psychiatric illness and treatment modalities in some movies and the common false beliefs in society were discussed. Following that, their doubts were clarified.

Participants were block-randomized to either the intervention or control arm using a computer-generated random number scheme. The block size was uniformly four. Allocation concealment was carried out using sequentially numbered, opaque, sealed envelopes which were maintained by an investigator not involved in other aspects of the study.

Sampling and sample size estimation

The minimum sample size calculated as per the results from a previous study (with a minimum expected difference between groups of 7.04 and a standard deviation of 2.62), with a 95% confidence level and 80% power, was 32.[16] (16 students in the intervention arm and 16 students in the control group arm). The sample size was 18 students in the intervention arm and 18 students in the control group arm. The sampling method was purposive sampling.

Assessments

The outcome measure was an adapted version of the Images of Psychiatry questionnaire. This is a 23-item scale with two unidimensional subscales: Images of Psychiatry (16 items) and Efficacy of Psychiatry (8 items).[17] Items assess the perceptions of Psychiatry as a discipline, perceptions of psychiatry treatments, perceptions of psychiatrists as role models, perceptions of Psychiatry as a career, perceptions of psychiatric patients, and perceptions of psychiatric training. The items that measure the perceptions of Psychiatry as a discipline include "Psychiatry is unscientific," "Psychiatry is not a genuine and valid branch of medicine," etc. The items which measure the perceptions of psychiatric treatments include "Psychiatric treatments are not evidence-based," "There is very little that psychiatrists can do for their patients," and "Psychiatric hospitals are little more than the prisons." The items that measure the perceptions of Psychiatry as a career include "Psychiatry has low prestige among other medical disciplines." The items which measure the efficacy of Psychiatry include "Students at this medical school think that their psychiatric training has been valuable, I would encourage a bright student to enter Psychiatry."

All items are scored on a 4-point Likert scale ranging from strongly agree to strongly disagree. Several items in the measure are reverse-coded to minimize response pattern bias. To avoid social desirability bias, items inquire into respondent views about what peers in their institution would endorse. Cronbach's alpha for the 16-item Images of Psychiatry subscale was 0.83. Cronbach's alpha for the 8-item Efficacy of Psychiatry subscale was 0.68. Because the original scale intended to measure medical educators' attitudes toward Psychiatry, we removed one item from the scale ("Working with Psychiatry patients is rewarding") as it was not appropriate for our target audience (medical students). For the study, mean scores on the two subscales were computed independently and compared between groups as they assess separate dimensions; whereas the Images of Psychiatry subscale assesses stereotypic images of Psychiatry, the Efficacy of Psychiatry subscale assesses the scope of Psychiatry and the efficacy of psychiatric treatment.

Relevant socio-demographic and clinical data (age, sex) and the study questionnaires were administered online through Google Forms developed for the study purpose. The same study questionnaires were administered again to both groups following study completion. After the intervention, anonymous feedback was taken from students in the intervention group.

Statistical analysis

Statistical analysis was performed using IBM SPSS version 20. Continuous data were expressed as mean with standard deviation, while discrete data were expressed as frequency with percentage. Comparison of variables between groups was made using independent samples t-test or Chi-square test, as appropriate. Paired t-test was used to compare the pre- and post-test scores in the study group and the control group.

Ethical aspects

The study protocol was approved by the Institute Ethics Committee. Participants recorded their virtual consent for the study on the opening page of the online data collection form.

RESULTS

Data from a total of 32 participants were analyzed. The participant flow throughout the study is given in Figure 1. Two students each from the control and intervention groups, were excluded due to incomplete responses on the questionnaire. Demographic and clinical details of the participants are given in Table 2. The sample comprised 16 male and 16 female students with comparable distribution between groups. The mean age of the students was 22.31

years and the standard deviation was 0.82 years. Other demographic parameters were also comparable between groups. None of the students in the intervention or control group had a documented history of psychiatric illness; One student from the intervention group and two from the control group reported a history of substance use.

Comparison of subscale scores between groups did not show significant differences at baseline or study endpoint (Table 3). This suggested that the intervention did not significantly improve perceptions about Psychiatry in the intervention group.

The mean scores on the Images of Psychiatry subscale showed an improvement in both the intervention and control groups; however, this difference was statistically significant only in the intervention group ($t = -3.65$, $p = 0.002$ for the intervention group vs. $t = -1.18$, $p = 0.258$ for the control group). Likewise, the mean scores on the Efficacy of Psychiatry subscale registered a significant improvement in the intervention but not in the control group ($t = -3.06$, $p = 0.008$ for the intervention group vs $t = -0.81$, $p = 0.432$ for the control group). The effect size for the intervention was 0.48 (95% CI – 0.22 to 1.19) for Image of Psychiatry subscale and 0.58 (95% CI – 0.12 to 1.29) for Efficacy of Psychiatry subscale. Eleven out of 16 students in the intervention group returned the feedback form. Six participants (54.5%) reported that they could understand more about the subject. Six participants (54.5%) reported that interactive sessions made the class more useful. In terms of factors that facilitated learning, five students (45.5%) reported that the movie discussions made the class more interesting. Regarding hindering factors, three students (27.3%) reported network issues; others reported no hindrances. One student (9%) responded that offline classes would be better than online classes.

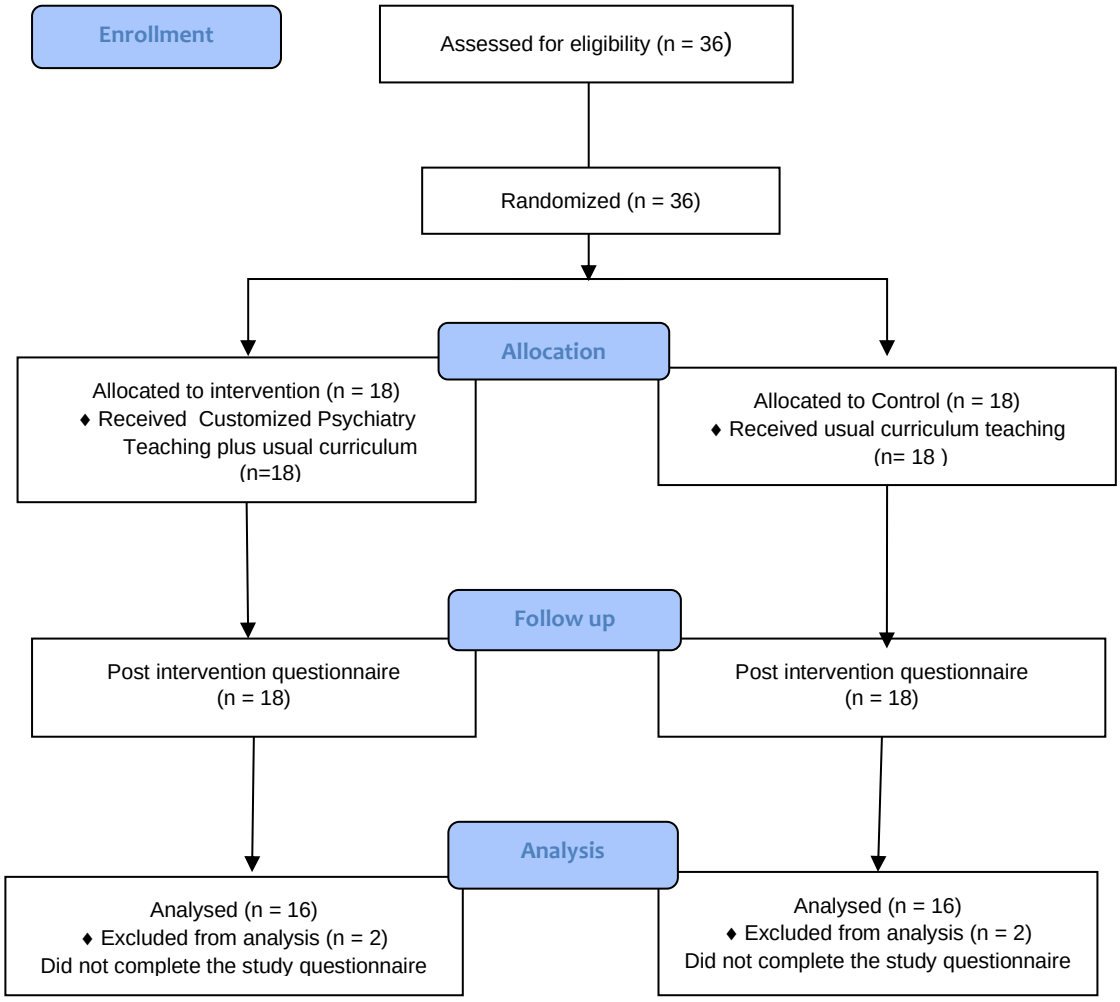
Table 2: Demographic and clinical factors of intervention and control groups

	Intervention group (n=16)	Control group (n=16)	P-value
Gender			
Male	7 (43.8%)	9 (56.3%)	0.72
Female	9 (56.3%)	7 (43.8%)	
Permanent residence			
Urban	7 (43.8%)	5 (31.3%)	0.72
Rural	9 (56.3%)	11 (68.8%)	
History of substance use			
Yes	1 (6.3%)	2 (12.5%)	1.00
Family history of psychiatric illness			
Yes	3 (18.8%)	4 (25.0%)	1.00

DISCUSSION

We set out to investigate the effect of an adjunctive customized psychiatry teaching module, compared to regular curricular teaching alone, on perceptions about Psychiatry as a branch of Medicine among second-year undergraduate medical students. We found that the adjunct intervention did not significantly improve perceptions about Psychiatry. Though participants in both groups improved compared to their baseline scores, the within-group improvement was significant only in the intervention group; this was true for both the Images of Psychiatry subscale and the Efficacy of Psychiatry subscale. The customized teaching module was a combined student-centered teaching module that included case scenario-based group discussions, movie-based discussions, and interaction with the students based on their interests and career options. It specifically focused on removing myths related to psychiatric illnesses and their treatment, advances in Psychiatry and various career options in mental health. Classes were conducted in small group discussion mode (groups of nine) and student-centered teaching methods were adopted to make classes more interactive. Previous studies have found that

Figure 1: Flow Diagram



small group discussions are effective in teaching evidence-based medicine and were also found to increase the confidence and satisfaction of the students.[18]

Case scenario-based group discussion was used in the first two sessions. Previous investigators have found that case-based active learning was effective in improving students' understanding of the topic and increasing their interest towards Psychiatry.[9] Case-based learning will help to stimulate thinking, enhance the understanding of the subject, and also improve performance.[19,20] A meta-analysis of 20 randomized controlled trials of combined problem-based and lecture-based learning showed significant improvement in clinical and

Table 3: Comparison of outcome variables between groups across the study

	Image of Psychiatry			Efficacy of Psychiatry		
	Intervention group (n=16)	Control group (n=16)	t value (p-value)	Intervention group (n=16)	Control group (n=16)	t value (p-value)
*Baseline	55.7 (4.7)	54.7 (8.7)	0.43 (0.67)	21.6 (5.7)	23.4 (4.0)	-1.04 (0.31)
*End of study	59.5 (2.5)	57.1 (6.5)	1.36 (0.18)	25.6 (2.7)	23.7 (4.0)	1.56 (0.11)

*Values expressed in Mean (SD)

theoretical knowledge, comprehensive ability, clinical skills assessment, and teaching satisfaction.[21] The third session in the present study module employed movie-based discussions. Movie clubs and movie-based discussions have previously been shown to enhance learners' interest in and understanding about mental health.[22] Certain movies were also found to reduce the stigma toward psychiatric patients.[23] Recently, psychiatry teaching faculty have suggested using an interactive quiz to improve the involvement of students.[24] In the present study, we used movie-based discussions and a movie-related quiz to improve learner involvement. An online teaching module was chosen, mainly for feasibility reasons, given the ongoing pandemic scenario. Online teaching has many advantages and disadvantages; it can be recorded and used later by the students and also by teachers for self-assessment and improvement; learners can attend the sessions from anywhere, even if they are in quarantine. Innovative teaching via an online platform was found to be as effective or comparable to offline classroom teaching by a few experts.[25,26] A meta-analysis from China that compared massive open online courses with traditional lecture-based teaching from China showed that students scored better in final exams in the online courses group.[27] Online teaching has many disadvantages too; its effectiveness is often considered inferior to face-to-face teaching by teachers and students.[28] Further, there are unique logistic challenges, such as good internet connectivity, when conducting an online class. A few of our participants reported this issue. It is also challenging to impart skill-based learning through a fully online course. From the feedback responses, most of the students reported that sessions were very interesting, useful, and that the movie-based discussions generated more interest in the topic being discussed and facilitated understanding. However, no significant difference was noted in the outcome measures between groups. The outcome of a teaching module depends on multiple factors including individual students' and facilitator's involvement, apart from intervention content and structure.[29] Our findings are probably indicative of the need to refine the present teaching module based on observed outcomes, feedback from students, and facilitators' experience. Future research should examine the efficacy of customized teaching methods delivered using hybrid mode, in comparison to regular teaching, among larger samples.

Our findings should be interpreted considering the study's limitations. This was a single-center study done at a public sector teaching cum tertiary health care institution and there is no guarantee that the results would generalize to other settings and contexts. The study was, possibly, underpowered to detect smaller differences between groups. Finally, we have not assessed the long-term effects of the intervention on perceptions of Psychiatry. Future studies should improve upon our work by using larger samples from diverse settings and longitudinal designs to assess the durability of intervention effects.

Conclusion

A short, customized, student-centered, entirely online psychiatry teaching module did not improve perceptions about Psychiatry compared to regular curricular teaching. However, the intervention may hold some promise given that the intervention group, but not the control group, demonstrated significant within-group improvement. Future iterations of this work must examine the efficacy of teaching modules that integrate face-to-face teaching with online teaching, have greater teaching hours, and among larger samples. This may help students to improve their understanding, develop better perceptions about, and ultimately, motivate more of them to up a career in mental health.

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