

## **Evaluating the effectiveness of a mental health literacy module - a randomized controlled trial among school teachers**

### **Abstract**

The promotion of adolescent mental health can be greatly aided by the teachers. Early intervention is key in reducing morbidity related to mental health conditions among adolescents. Research across the globe has found that teachers have poor mental health literacy (MHL) and inadequate skills in supporting adolescents with mental illness. This study was undertaken to test the effectiveness of an MHL module among teachers at the community level. A parallel stratified cluster randomized controlled trial was conducted among high school teachers between November 2019 to September 2021. The present study found that the intervention module was found to be effective in enhancing the MHL of teachers across all the domains which may facilitate early intervention among adolescents at the school level.

**Keywords:** Mental health literacy, Adolescence, Adolescent behaviors, School Teachers, Early intervention

## Introduction

Poor help-seeking behavior has been linked to low levels of mental health literacy (MHL).<sup>1,2</sup> MHL, according to Jorm A., includes the ability to recognize mental disorders, knowledge and beliefs about causes and risk factors, knowledge and beliefs about self-help interventions, knowledge and beliefs about available professional help, attitudes toward recognition and seeking help and awareness about how to access mental health information.<sup>3</sup> Indian studies have revealed a wide range of mental problems among adolescents, highlighting the need for further education and the need to find solutions to the lack of awareness of mental disorders, especially in adolescents<sup>4-9</sup>.

The best places to start mental health interventions are in schools. The promotion of adolescent mental health in the classroom can be greatly aided by the teachers. If they are knowledgeable enough about mental illnesses, they may recognize adolescents with behavioral problems, promote early intervention, and offer support in the classroom.<sup>10,14</sup>

Research conducted across the globe, including India, have found that teachers have poor MHL, inadequate skills in supporting adolescents with mental illness and suggested the need for programs to raise awareness regarding adolescents with mental illness.<sup>15-18</sup> Teachers who are more informed regarding mental disorders have less stigma and are more confident in their abilities to recognize a student who is struggling with a mental illness<sup>34</sup>. Hence, ensuring that school teachers are adequately informed about mental health and mental disorders is critical for adolescent mental health.<sup>19</sup>

Across the globe, limited data exists on the evaluating the effectiveness of MHL among teachers. However, where such modules have been used, these have shown improvements in the teachers' capacity to recognise pupils with mental problems and have improved referrals.<sup>21-23</sup> Few studies have examined MHL in India, and among those that have assessed MHL, only a small number have examined the efficacy of an intervention among teachers.<sup>24</sup> However, literature review showed that there is no module to train high school teachers on MHL. This is of importance as several emotional and behavioral disorders make their appearance during adolescence.<sup>17</sup> Training teachers to liaison with healthcare providers can facilitate early intervention for adolescents who need help and to promote mental health and help-seeking behavior among them at the school level.

Hence, this study was undertaken to test the effectiveness of an MHL module among teachers at the community level.

### **Methodology:**

The study was a parallel stratified cluster randomized controlled trial with schools as clusters. Ethics approval was obtained from the XXXXX committee (IEC 447/2017). The trial has been registered with the Clinical Trials Registry of India (CTRI/2017/11/010633). Permission to conduct the study was obtained from the Deputy Director of Public Instruction and Block Education Officers of Udupi and Brahmavara. Additionally, prior to data collection, permission from school authorities was obtained and data collection was performed at a time convenient to the teachers. Participants included teachers teaching classes 8 to 10 were included in the study. Schools were stratified based on the type of school and then randomized. A total of 57 schools consented to participate in the intervention. Of these, 41 schools belonged to government/aided schools, while 16 belonged to private schools. The government and aided schools were clubbed together because aided schools are aided by the government. Simple randomization was used to allocate schools to intervention and control arm. A total of 29 schools were allocated to intervention and 28 schools were allocated to control arm. Blinding of teachers was not possible. Teachers were aware of their intervention status.

The training module was developed by the research team and validated by the experts from the field of mental health. The module included sessions on myths about mental disorders, normative development during adolescence, identification of normal and abnormal, sensitize teachers on various reasons for adolescent behaviors, maintaining confidentiality, SOPs to teachers in promoting adolescent mental health in the class and strategies to deal with classroom behaviour were also provided. The intervention was conducted in the schools. A total of eight training sessions were conducted with 11 topics each. Of the eight training sessions, two were conducted through the offline mode and remaining six were conducted through the virtual mode using the Microsoft/Zoom platforms due to the COVID-19 pandemic. A semi-structured questionnaire based on the “Australian National Mental Health Literacy and Stigma Youth Survey”<sup>25</sup> was developed along with content based on the intervention module. The questionnaire was also validated by professionals from the field of mental health. This was used to assess mental health

literacy at baseline and following the intervention. A total of 306 teachers participated in the intervention. The effects of the intervention were assessed using questionnaires at baseline and six months. For the control arm, no intervention was given during the trial and MHL was assessed at baseline and the six months.

[Figure 1 here]

#### **Data analysis:**

The data was cleaned, entered and analyzed using SPSS version 25.0 (IBM SPSS Bangalore, India). All statistical tests were two-sided at a 5% level of significance. Baseline characteristics of participants regarding MHL in both intervention and control arms were reported using descriptive statistics. Continuous variables were presented as mean and SD and categorical variables were presented as frequency and percentages.

To account for the cluster effect of school and the repeated measurements taken from the participant, the linear mixed model was fit to assess the effect of intervention in comparison to the control group. The 95% confidence interval (CI) and the associated p-value were calculated. Repeated measures ANOVA adjusted for cluster effect was used to assess the change in knowledge, management, attitudes and beliefs over time in the intervention arm.

**Results and discussion:** A total of 306 participants from government, aided and private schools participated in the intervention. Of them, 152 participants were allotted to the intervention arm and 154 into the control arm. Complete data was obtained from 245 teachers, i.e., 122 from the intervention arm and 123 from the control arm. The descriptive data regarding the socio-demographic characteristics of the participants are depicted in Table 1. Around 35% of the participants were in the age group of 36–45 years in both the intervention and control arms and more than 70% were females. More than half of the participants (68%) were postgraduates in the intervention arm, while 65% were postgraduates in the control arm. In the intervention arm, one-third of the participants (32%) had an experience of 5-9 years, while in the control arm, 35% had an experience of  $\geq 20$  years or more. In the intervention arm, nearly half of the participants worked in private schools (48.4%) followed by 38.5% from aided schools. In the control arm, more than one-third worked in government schools (38.2%), followed by 35% from private schools.

**[Table 1 here]**

Adjusted mean score differences between intervention and control arms are described in Table 2. Repeated measures ANOVA with linear mixed model adjusted for cluster effect was used. Factors including knowledge, management, attitude and beliefs significantly differed between the intervention and control arms after accounting for the cluster effect of school and the effect of time.

The adjusted mean difference implied an increase across the domains tested including the knowledge score which was 3.46 (95% CI: 2.31 to 4.61  $p < 0.001$ ) times, attitudes and beliefs score which was 0.94 (95% CI: 0.47 to 1.44  $p < 0.001$ ) times, and the management score which was 0.68 (95% CI: 0.23 to 1.13  $p < 0.003$ ) times in the intervention arm as compared to the control arm after accounting for the baseline scores. Yamaguchi S et al., in their systematic review of MHL programs for schoolteachers, reported improvement in knowledge post-training, and during follow-up. Studies on attitude towards mental health conditions have shown observable improvement in the attitude following training and the improvement was maintained in two follow-up studies.<sup>21</sup>

Offline studies in Australia conducted by Jorm AF et al., among school teachers had shown improvement in mental health knowledge (mean difference = 2.08,  $p < 0.001$ ) and the improvement was found to be retained during six months follow-up (mean difference = 1.79,  $p < 0.001$ ). The stigma related to mental health conditions also had reduced post-training. There was an improvement in the MHL which was retained for six months post-training.<sup>22</sup> A study in Japan conducted by Ueda et al. also demonstrated a larger improvement in mental health knowledge (mean difference = 5.65, 95% CI: 4.54–6.75) post intervention. However, the offline intervention had little effect in reducing the stigma associated with mental health conditions.<sup>267</sup> These studies were consistent with the present study.

**In the Indian context, there are few studies conducted among primary teachers. Daniel LT et al., developed a self- instructional module to identify early symptoms of mental disorders and evaluated its effectiveness among 35 primary teachers and found to be effective.<sup>24</sup> To the best of our knowledge, this is one of the few studies of its kind in our setting that provides**

**evidence on the effectiveness of a MHL module among high school teachers in improving their knowledge of mental health conditions in adolescents.** [Table 2 here]

Table 3 depicts the results of repeated measures ANOVA adjusted for cluster effect. This showed that for virtual intervention, the mean knowledge score was 8.48 (2.25) at baseline, 14.81 (4.05) at post-intervention, and 13.09 (4.59) at follow-up. For offline intervention, the mean knowledge score was 9.31 (3.49) at baseline, 17.56 (3.20) at post-intervention, and 10.81 (3.19) at follow-up. For virtual intervention, the mean attitudes and beliefs score was 3.74 (1.77) at baseline, 5.72 (1.27) at post-intervention, and 5.36 (1.61) at follow-up. Regarding the mean attitudes and beliefs score for the offline intervention, it was 3.64 (1.44) at baseline, 6.61 (0.69) at post-intervention, 4.50 (1.48) at follow-up. The mean management score for virtual intervention was 5.50 (1.43) at baseline, 6.92 (1.07) at post-intervention, 6.28 (1.51) at follow-up while for offline intervention, it was 5.19 (1.95) at baseline, 7.19 (1.01) at post-intervention, 5.94 (1.37) at follow-up. However, these changes were not statistically significant when assessed between virtual and offline modes of intervention.

Though there is no statistically significant difference between virtual and offline modes of intervention, the mean scores immediately post-intervention across all domains were higher in the offline mode of intervention as compared to virtual intervention. However, during follow-up, the mean scores across all the domains were higher in the virtual mode of intervention as compared to the offline mode of intervention. This may be that because the follow-up data was collected after 10 months post-intervention in offline mode.

[Table 3 here]

## CONCLUSION

Teachers are in a unique position of liaising between adolescents, parents, and health providers. Identifying abnormal behaviors, signs and symptoms of mental illness would help the adolescents in receiving early and appropriate intervention. Teachers are also in a position to influence adolescents, who are the future of our society with their knowledge, attitudes, and beliefs related to mental health. In our study, we find that the intervention module was found to be

effective in enhancing the MHL of the teachers across all the domains. To optimize benefits for adolescents, it may be necessary to offer MHL training to parents as well.

## **LIMITATIONS**

1. Due to the COVID-19 pandemic, the intervention component in its latter part had to be carried out using a virtual platform in accordance with COVID protocols
2. At follow-up, documenting identification of mental health problems and referral at the school level could not be performed as schools were not functioning due to the ongoing pandemic

Declaration of competing interest: The authors declare that they have no conflict of interest.

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## **TABLES:**

**Table 11: Baseline characteristics of the participants**

<b>Characteristics</b>	<b>Intervention (n=122) n (%)</b>	<b>Control (n=123) n (%)</b>
<b>Age in years</b>		
26-35	40(32.8)	40(32.5)
36-45	44(36.1)	43(35.0)
≥46	38(31.1)	40(32.5)
<b>Gender</b>		
Male	25(20.5)	33(26.8)

Female	97(79.5)	90(73.2)
<b>Income in Rupees</b>		
<15000	11(9.0)	22(17.9)
15001-30000	30(24.6)	18(14.6)
30001-45000	23(18.9)	29(23.6)
>45000	58(47.5)	54(43.9)
<b>Religion</b>		
Hindu	96(78.7)	96(78.0)
Christian	25(20.5)	22(17.9)
Muslim	1(0.8)	5(4.1)
<b>Level of education</b>		
Graduation	37(30.3)	35(28.5)
Post-graduation	83(68.0)	80(65.0)
Others	2(1.6)	8(6.5)
<b>Teaching experience in years</b>		
5-9	39(32.0)	32 (26.0)
10-14	29(23.8)	39 (31.7)
15-19	17(13.9)	9 (7.3)
≥20	37(30.3)	43(35.0)
<b>Status of work</b>		
Permanent	98(80.3)	101(82.1)
Temporary	24(19.7)	22(17.9)
<b>Type of school</b>		
Government	16(13.1)	47(38.2)
Private	59(48.4)	43(35.0)
Aided	47(38.5)	33(26.8)
<b>Medium of instruction</b>		
Kannada	62(50.8)	78(63.4)
English	60(49.2)	45(36.6)
<b>Type of syllabus</b>		

State	78(63.9)	115(93.5)
CBSE	44(36.1)	8(6.5)
<b>Duration of teaching per week in hours</b>		
6-15	20(16.4)	25(20.3)
16-25	70(57.4)	44(35.8)
≥ 26	32(26.2)	54(43.9)
<b>Average class strength</b>		
≤30	10(8.2)	45(36.6)
31-60	100(82.0)	74(60.2)
≥ 61	12(9.8)	4(3.3)
<b>Subject taught</b>		
Kannada	10(8.2)	14(11.4)
English	19(12.3)	20(16.3)
Hindi	24(5.8)	13(10.6)
Sanskrit	-	1(0.8)
Science	27(22.1)	15(12.2)
Mathematics	21(17.2)	19(15.4)
Social	27(22.1)	24(19.5)
Others	15(12.3)	17(13.8)

**Table 2: Adjusted mean score differences between intervention and control arms across the domains**

Domains		Baseline Mean (SD)	Follow up Mean (SD)	Adjusted mean difference (Intervention vs. Control) (95% CI)	p-value
Knowledge	Intervention	8.72 (2.69)	12.42 (4.34)	3.46 (2.31, 4.61)	<0.001*
	Control	8.49 (2.95)	8.49 (3.02)		
Attitude and beliefs	Intervention	3.71 (1.67)	5.11 (1.62)	0.94 (0.47, 1.44)	<0.001*
	Control	3.59 (1.56)	3.93 (1.71)		
Management	Intervention	5.41 (1.60)	6.18 (1.47)	0.68 (0.23, 1.13)	0.003*
	Control	5.21 (1.48)	5.33 (1.57)		

Note: Change from baseline using linear mixed-effects model was used,  
For mean difference “0” is the reference value, \*p<0.05

**Table 3: Mean score (SD) before and after intervention based on the mode of intervention across domains**

Mode of intervention	Knowledge				Attitudes and Beliefs				Management			
	Baseline Mean (SD)	Post-test Mean (SD)	Follow up Mean (SD)	p-value*	Baseline Mean (SD)	Post-test Mean (SD)	Follow up Mean (SD)	p-value*	Baseline Mean (SD)	Post-test Mean (SD)	Follow up Mean (SD)	p-value*
Virtual	8.48 (2.25)	14.81 (4.05)	13.09 (4.59)	0.314	3.74 (1.77)	5.72 (1.27)	5.36 (1.61)	0.684	5.50 (1.43)	6.92 (1.07)	6.28 (1.51)	0.769
Offline	9.31 (3.49)	17.56 (3.20)	10.81 (3.19)		3.64 (1.44)	6.61 (0.69)	4.50 (1.48)		5.19 (1.95)	7.19 (1.01)	5.94 (1.37)	

\* Repeated measures ANOVA adjusted for cluster effect and mode of intervention, p<0.05

**Figure 1: Consort flowchart for the entire study**

