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Effects of mental health literacy promoting program on mental health literacy and psychological distress in Thai secondary school students: A quasi-experimental study

Benjamaporn Rungsang[a,*], Sutinun Juntorn[b,†]

[a] *Department of General Education, Faculty of Liberal Arts, Mahidol University, Nakhon Pathom 73170, Thailand*
[b] *Division of Occupational Therapy, Faculty of Physical Therapy, Mahidol University, Nakhon Pathom 73170, Thailand*

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Abstract

Mental disorders are acknowledged as a public health concern that develops throughout adolescence. Implementing a mental health literacy program is essential for preventing these disorders. This quasi-experimental investigation evaluates the impacts of a mental health literacy promoting program (MHLPP) on mental health literacy and psychological distress in Thai secondary school students. A multi-stage, random sampling method was employed to select 66 students as participants at secondary schools in Nakhon Pathom province, Thailand, during the second semester of the 2023 academic year. These students were divided into an intervention group (n=33) and a control group (n=33) based on their classrooms. Data were gathered using a modified Mental Health Literacy Questionnaire and the Thai version of the General Health Questionnaire (GHQ), with Cronbach's alpha reliabilities of .75 and .94, respectively. The mean scores of mental health literacy and psychological distress between the two groups were compared using independent t-test and Mixed-model ANOVA. Results demonstrated that the intervention group had significantly higher mean mental health literacy scores and significantly lower mean psychological distress scores at both post-intervention and two-week follow-up stages compared to the control group. Moreover, the mental health literacy scores were significantly improved immediately after and two weeks after the program, compared with the baseline (pre-test). Psychological distress scores were also significantly elevated post-intervention and two weeks follow-up compared with the baseline. These findings indicate that the MHLPP has the potential to enhance mental health literacy and alleviate psychological distress among secondary school students.

* Corresponding author.
E-mail address: Nokkben.nok@gmail.com (Rungsang, B.).
† Co-first authors.

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Introduction

Mental disorders are recognized as a significant public health issue, with most mental disorders developing during adolescence (Yamaguchi et al., 2020; Krokos et al., 2024). The World Health Organization [WHO] (2018) has reported that around 10–20% of adolescents globally have encountered mental health challenges. Furthermore, a substantial number of young people have experienced psychological distress, with over 13% of individuals aged 10–19 living with a diagnosed mental condition. Anxiety as well as depression account for around 40 percent of these identified mental disorders (United Nations Children's Fund [UNICEF], 2021). Similarly, in Thailand, one in seven adolescents aged 10 to 19 had previously experienced a mental disorder, while 27.7 percent of pupils aged 11 to 16 expressed having depressive symptoms (UNICEF, 2022). Unfortunately, numerous teenagers are reluctant to look for assistance for their mental health issues (Bennett et al., 2023; Seedaket et al., 2020). A report by the United Nations Children's Fund (UNICEF, 2021) highlights a significant need for action, suggesting that sharing experiences with others and seeking support are the most effective ways to manage mental health issues. Failure to address mental health issues promptly can worsen negative outcomes, as these problems can hinder one's ability to perform tasks, cope with challenges, and form healthy relationships (Bichoualne et al., 2023). Research indicates that one of the primary obstacles to seeking help is a lack of mental health literacy (MHL) (Krokos et al., 2024; Mori et al., 2022; Seedaket et al., 2020).

According to Jorm (2000), MHL is comprehension of and views on mental illnesses and therapies that support the diagnosis, treatment, and avoidance of these conditions. MHL includes several components, such as the ability to identify mental illnesses, comprehend accessible treatments and alternatives for seeking help, comprehend successful self-help techniques, be knowledgeable about mental health first aid, and be conscious of the prevention of mental diseases. Therefore, MHL is essential for adolescents to acquire a comprehension of mental disorders and to improve attitudes toward health professionals, which may encourage suitable help-seeking behaviors to prevent mental health issues.

MHL programs are among the educational approaches that have been developed to support accurate knowledge about mental disorders, choices for searching for assistance and therapies that are available, comprehension of successful self-help techniques for mild mental health issues like psychological distress, and the skills needed to offer first aid to those who are experiencing mental health issues (Jorm et al., 1997; Jorm, 2012). Furthermore, according to the success of creating sufficient MHL in school-based MHL programs (Yamaguchi et al., 2020; Krokos et al., 2024; Bennett et al., 2023; Mori et al., 2022), MHL initiatives have been undertaken globally to support MHL for teenagers, mostly in educational contexts. Several programs have been conducted by non-school personnel, including mental health nurses (Bennett et al., 2023; Indech et al., 2023), while others are teacher-led in the classroom (Yamaguchi et al., 2020; Bennett et al., 2023). Furthermore, different metrics are used to evaluate school-based MHL outcomes (Seedaket et al., 2020). All of the MHL components are measured in the majority of school-based programs. Mental health outcomes, including psychological distress, depression, anxiety, and stress, are not well monitored by most programs (Perry et al., 2014; Ravindran et al., 2018; Liddle et al., 2019).

Therefore, it is necessary to assess the efficacy of initiatives designed to address this demographic's mental health needs. A few studies (Chidmongkol et al., 2019; Namdej et al., 2018) have been carried out in Thailand to assess the levels of MHL among adolescents; however, few have looked into the efficacy of MHL programs among secondary school students (Indech et al., 2023). To evaluate how a mental health literacy program affects mental health outcomes, an integrative approach is required. This study, therefore, develops a concise MHLPP consisting of four 60-minute sessions for secondary school students. The potential of the program for the students' MHL and psychological distress is determined.

Conceptual Framework

The conceptual framework for this work was derived from the mental health literacy concept (Jorm et al., 1997; Jorm, 2000) and literature relating to program development. Jorm et al. (1997) and Jorm (2012) defined mental health literacy as an individual's comprehension of and views on mental disorders that facilitate their recognition, management, and prevention. Moreover, participatory learning (Kolb, 1984) integrated into the program's group activities is used to help participants identify, manage, and prevent mental health problems effectively. Such a program consists of four group sessions: 1) increasing awareness of adolescent mental health by providing knowledge and understanding of mental health and disorders, 2) understanding the causes

and etiology of mental health illnesses and identifying psychological distress, 3) enhancing self-management skills for psychological distress through knowledge and practice, and 4) improving the ability to seek help from professionals and mental health services. Group procedures and experiential learning, key aspects of Kolb's (1984) participatory learning process, were incorporated into each activity to provide a framework for group engagement. Students participated in interactive lectures, watched video clips, demonstrated and returned demonstrations, and explored case studies. These prior experiences were used as examples for reflection and discussion, which were then condensed to develop specific assistant-searching behavior plans for mental health problems, thereby promoting behavior change.

Study Objective

The objective of the research is to establish and evaluate an MHLPP to improve MHL and reduce psychological distress among Thai secondary school students. Furthermore, the study hypothesized that following two weeks of the completion of the MHLPP, participants of the intervention group would demonstrate higher MHL scores and lower psychological distress scores than the control group.

Methodology

Setting and Sample

This research utilized a quasi-experimental, two-group repeated measures study design to assess the MHLPP. The study population included adolescents in grades M.1–M.6 at secondary schools in Nakhon Pathom province, Thailand, during the second semester of the 2023 academic year. The sample size was calculated using a G*Power of 3.1, ensuring the sample size provided adequate statistical power (Kang, 2021). The calculation demonstrated that 12 participants per group were needed with α of 0.05, β of 0.2 (80% power), and an anticipated large effect size of 0.9, respectively. Participants were selected based on the following inclusion criteria: being an adolescent enrolled in grades M.1–M.6 in secondary schools during the second semester of the 2023 academic year and having received parental consent to participate in the investigation. The multi-stage random sampling involved randomly selecting one out of 29 secondary schools in, then choosing one of the six grades, followed by randomly selecting two classes within that grade. All students of the selected classrooms were asked to participate voluntarily, which is 33 students per classroom, resulting in a total sample size of 66. One of the two classes was randomly assigned as the intervention group, while the other served as the control group. The researcher explained the research methodology, which was intended to overcome the limits of existing data leakage prevention solutions to the intervention group.

Ethical Considerations

The Mahidol University Central Institutional Review Board (MU-CIRB) approved the study before any questionnaires were distributed; the approval reference number for the study is MU-CIRB 2022/140.2812. The consent was signed by the participants and their parents prior to the start of the intervention program. Parents and participants were assured that there were no consequences for refusing to participate at any point and it was entirely voluntary. The adolescents who had been chosen were invited to take part and given a comprehensive description of the study's objectives. The participants were informed of potential risks, which included the possibility of experiencing discomfort due to the delicate nature of certain questions. In the course of the intervention program, participants who displayed distress were given information about mental health specialists in the area.

Study Tools

The research instruments included three self-reported questionnaires for data collection and the MHLPP, detailed as follows:

Personal information record

The personal information record is a self-report that was constructed by the researcher. It includes age, gender, educational grade, academic performance, parents' marital status, and living arrangements.

Revised mental health literacy questionnaire

This questionnaire was developed based on the works of Jorm (2012), Namdej et al. (2018), and Kaewprom et al. (2014) to evaluate the degree of mental health literacy in an adolescent population. The questionnaire included 42 aspects, consisting of five subscales: 1) recognition and understanding of mental health problems; 2) comprehension of the etiology as well as risk factors for mental health problems; 3) comprehension of self-management; 4) attitudes toward mental health problems; and

5) comprehension of assistant-seeking behaviors. Participants could mark each item with either "true", "false", or "I don't know". The "true" answers were scored 1 point, while the "false" and "I don't know" answers were scored 0 points. Scores range from 0–42. Higher scores indicate better mental health literacy, and vice versa. The total score for mental health literacy was categorized as "adequate" (total score ≥ 25) or "inadequate" (total score < 25). Three experts reviewed the validity of the questionnaire and gave it a content validity index of 0.97. The questionnaire was then tested with 30 high school students who were excluded from the main sample group. The questionnaire showed a Cronbach's alpha reliability of .75.

General Health Questionnaire (GHQ – Thai version)

This is a 30-item self-report questionnaire designed to measure psychological distress. Scores range from 0 to 30. Greater scores signify higher levels of distress (Nilchaikovit et al., 1996). This scale has been widely used to determine common distress among Thai people. In the present study, total scores to indicate the presence of psychological distress were categorized as "no or normal" (total score < 4) or "yes or psychological distress" (total score ≥ 4). Among the various GHQ versions, GHQ-30 has demonstrated the most stability and the highest level of validity. In this work, the GHQ exhibited a Cronbach's alpha reliability of .94.

Mental health literacy promotion program

This program to promote mental health literacy was designed by researchers drawing on the mental health literacy framework by Jorm et al. (2012) and Kolb's participatory learning theory (1984). The program's goal was to enhance adolescents' understanding and attitudes regarding mental health issues and encourage help-seeking behaviour. It consisted of four sessions (each approximately 60 minutes long) as follows:

1. Enhancing knowledge and understanding of adolescent mental health and disorders: This session focused on increasing awareness of mental health issues among adolescents. Participants were provided with information about mental health and disorders to facilitate their comprehension. A video clip was produced to explain the definition of mental illnesses, their prevalence, and the most common treatments.
2. Understanding the causes and etiology of mental health illnesses and identifying psychological distress: This session included offering knowledge regarding anxiety and depression. Participants practiced assessing their psychological distress. A PowerPoint presentation and poster were created to explain the emotions and behaviors linked to depression and anxiety, as well as the etiology and causes of these conditions.
3. Enhancing self-management skills for psychological distress through knowledge and practice: This involves strategies to manage psychological distress and prevent mental disorders. The video clip instructed participants in relaxation methods, including breathing exercises, muscle relaxation, and meditation.
4. Improving the ability to seek help from professionals and mental health services: This session featured an interactive lecture accompanied by a poster, focusing on mental health services and specialist teams. Following the lecture, participants engaged in hands-on practice, using the internet to search for additional information on mental health services and specialist teams.

This study utilized group procedures and experiential learning, drawing on Kolb's participatory learning framework (Kolb, 1984). These methods structured each program activity, enabling students to gain experience through interactive lectures, video clips, demonstrations, role-playing, and case studies.

Data Collection

Data collection took place from November to December 2023, following approval from the Institutional Review Board (IRB). The program took place every Wednesday for about 4 weeks, starting at the third week of November 2023 to the second week of December 2023. The researchers also conducted the pre-test in the second week of November 2023 and the post-test and follow-up test in the second and fourth weeks of December 2023, respectively. The program was delivered to the students in the intervention group, but the questionnaires were answered by students in both intervention and control groups. After the follow-up test was complete, the control group received the same program as the intervention group without the tests.

Data Analysis

To examine the individuals' demographic features, descriptive statistics were employed. The substantial difference in mean MHL scores and mean psychological distress levels across the study groups was compared using independent *t*-test and Mixed-model ANOVA.

Results

Most of the participants in both groups were aged between 15 and 18 *(M + SD* = 15.76+0.58*)*, female, and Buddhist. Over half (68.20%) resided with their immediate families and reported that their parents were married. Approximately half of the participants had a grade point average (GPA) above 3.50, with a mean (*M*) of 3.59 and a standard deviation (*SD*) of 0.23. The majority of participants were healthy and had no underlying disease. Only 10.6 percent reported a history of allergic reactions and G-6-P-D.

An independent t-test was conducted to examine the mean difference scores at baseline (T1) of mental health literacy and psychological distress between the experimental group and the control group. No significant differences were found at baseline (T1) between mental health literacy *(t* =.08, *p* > .05*)* and psychological distress *(t* =.05, *p* > .05 (Table 1).

Table 1 Comparison of the MHL and psychological distress scores at baseline (T1)in experimental and control groups

	n	*M*	*SD*	*t*	*p*
MHL scores					
Intervention group	33	37.15	2.68	.08	.94
Control group	33	37.09	3.53		
Psychological distress scores					
Intervention group	33	7.39	5.52	.05	.96
Control group	33	7.45	4.58		

The MHL scores among secondary school students in the experimental group, who received the MHLPP, were higher than those in the control group both immediately after the program and at the two-week follow-up. In the control group, the mean MHL scores at baseline (T1), post-intervention (T2), and two-week follow-up (T3) were 37.09 (SD = 3.53), 37.12 (SD = 3.13), and 37.21 (SD = 2.87), respectively. For the intervention group, there was an increase in MHL scores at baseline (T1), post-intervention (T2), and two-week follow-up (T3), with mean scores of 37.15 (*SD* = 2.68), 39.39 (*SD* = 1.44), and 39.97 (*SD* = 1.29), respectively (Table 2 and Figure 1).

Conversely, the psychological distress scores of secondary school students after receiving the MHLPP in the experimental group were lower than those in the control group after receiving the program and a two-week follow-up. In the control group, the mean scores of psychological distress at baseline (T1), post-intervention (T2), and two-week follow-up (T3) were 7.45 (*SD* = 4.58), 6.27 (*SD* = 4.74), and 6.30 (*SD* = 4.44), respectively. For the intervention group, there was a decrease in psychological distress at baseline (T1), post-intervention (T2), and two-week follow-up (T3) of 7.39 (*SD* = 5.52), 3.27 (*SD* = 2.35), and 2.18 (*SD* = 1.65) (Table 2 and Figure 2).

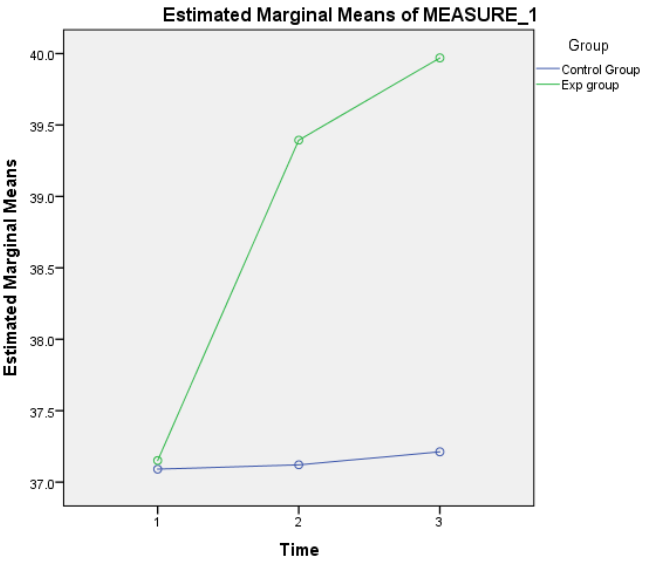

Figure 1 Mean scores of MHL between the intervention and control groups at baseline (T1), post-intervention (T2), and two-week follow-up (T3)

Table 2 Descriptive summary of MHL and psychological distress scores at baseline (T1), post-intervention (T2), and two-week follow-up (T3)

Time	Intervention group (*n*=33)			Control group (*n*=33)		
	Min-Max	*M*	*SD*	Min-Max	*M*	*SD*
MHL scores						
Baseline (T1)	30–41	37.15	2.68	27–42	37.09	3.53
Post-intervention (T2)	37–42	39.39	1.44	28–41	37.12	3.13
Two-week follow-up (T3)	37–42	39.97	1.29	33–42	37.21	2.86
Psychological distress scores						
Baseline (T1)	0–21	7.39	5.52	0–19	7.45	4.58
Post-intervention (T2)	0–9	3.27	2.35	0–17	6.27	4.74
Two-week follow-up (T3)	0–5	2.18	1.65	0–15	6.30	4.44

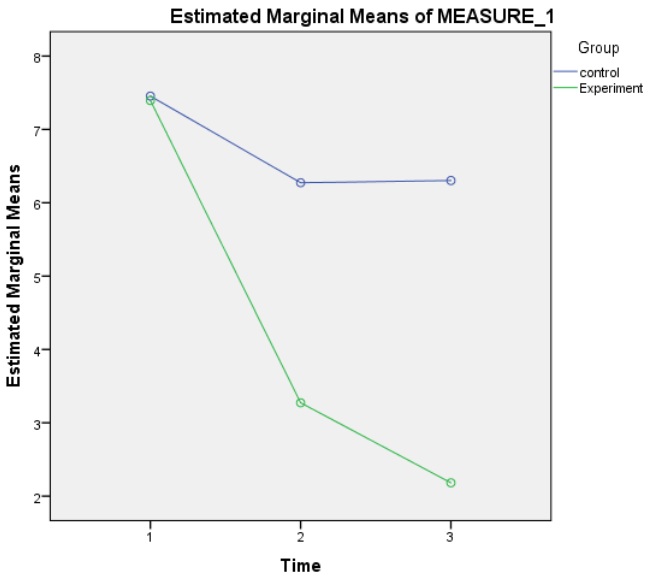

Figure 2 Mean scores of psychological distress between the intervention and control groups at baseline (T1), post-intervention (T2), and two-week follow-up (T3)

A mixed-model ANOVA results are presented in Table 3. A significant main effect of time was observed, indicating a significant difference in MHL scores over time from baseline (T1) to post-intervention (T2) and two-week follow-up (T3) ($F = 6.852$, $p = .001$, *Partial Eta Squared* = 0.097). In addition, there were significant differences between the interaction of time by group in MHL scores ($F = 5.963$, $p = .003$, *Partial Eta Squared* = 0.085). These findings indicate that the participants' MHL scores increased over time. Moreover, there was a significant difference in MHL by group alone ($F = 15.390$, $p < .001$, *Partial Eta Squared* = 0.194) (Table 3). Therefore, it can be stated that participating in different groups contributed to differences in their MHL scores.

Table 4 presents the results of a mixed-model ANOVA for psychological distress scores. There was a significant difference in psychological distress scores over time from baseline (T1) to post-intervention (T2) and at the two-week follow-up (T3) ($F = 35.719$, $p < .001$, *Partial Eta Squared* = 0.358). Additionally, significant interaction effects were observed between times and groups for psychological distress scores ($F = 13.514$, $p < .001$, *Partial Eta Squared* = 0.174). These findings indicate that participants' psychological distress scores decreased over time. Moreover, there was a significant difference in psychological distress scores by group alone ($F = 7.054$, $p = .01$, *Partial Eta Squared* = 0.099) (Table 4). Thus, these findings suggest that participation in different groups contributed to differences in psychological distress scores.

Post hoc testing using Bonferroni indicated that the mean MHL scores were significantly higher for secondary school students at post-intervention (T2) and two weeks after the intervention (T3) than they were for students at baseline (T1) ($p = .4$, $p = .004$), respectively. However, there was no significant difference between the mean MHL scores for secondary school students at post-intervention (T2) and two weeks after the

Table 3 Mixed-model ANOVA for the mean MHL scores of the intervention and control groups

Source	*SS*	*df*	*MS*	*F*	*p*-value	*Partial Eta Squared*
Between Subjects						
Group	142.545	1	142.545	15.390	< .001	.194
Error	592.768	64	9.262			
Within Subjects						
Time	78.374	2	39.187	6.852	.001	.097
Time* Group	68.212	2	34.196	5.963	.003	.085
Error	732.081	128	5.719			

Note: *SS* = Sum of Squares, *df* = degree of freedom, *MS* = Mean Square

Table 4 Mixed-model ANOVA for the mean psychological distress scores of the intervention and control groups

Source	*SS*	*df*	*MS*	*F*	*p*-value	*Partial Eta Squared*
Between Subjects						
Group	283.682	1	283.682	7.054	.010	.099
Error	2573.737	64	40.215			
Within Subjects						
Time	383.586	2	191.793	35.719	< .001	.358
Time* Group	145.121	2	72.561	13.514	< .001	.174
Error	687.293	128	5.369			

Note: *SS* = Sum of Squares, *df* = degree of freedom, *MS* = Mean Square

intervention (T3) (p = .75). Table 5 also demonstrates significant mean variations in psychological distress scores across these time points for the intervention group. The mean psychological distress scores were significantly lower for secondary school students at post-intervention (T2) and two weeks after the intervention (T3) than those at baseline (T1) (p < .001, p < .001), respectively. However, there was no significant difference between the mean psychological distress scores for secondary school students at post-intervention (T2) and two weeks after the intervention (T3) (p = .29).

Table 5 The post hoc pairwise comparison of mean MHL scores and mean psychological distress scores for the intervention group at baseline (T1), post-intervention (T2), and two-week follow-up (T3)

Time	*M*	*MD*		
		T1	T2	T3
MHL scores				
Baseline (T1)	37.15	-	-2.24*	-2.81*
Post-intervention (T2)	39.39	-		-.576
Two-week follow-up (T3)	39.97	-	-	-
Psychological distress scores				
Baseline (T1)	7.35	-	2.65**	3.18**
Post-intervention (T2)	3.27	-	-	.53
Two-week follow-up (T3)	2.18	-	-	-

** p<.01, ** p<.001*

Note: *MD = Mean Difference*

Discussion

This study indicates that participants in the intervention group demonstrated reduced psychological distress post-program, underscoring the impact of the MHLPP compared to standard classroom settings. These findings align with Jorm et al. (1997) and Jorm (2012) on mental health literacy and Kolb's (1984) theory of experiential learning, supported by prior research (Simkiss et al., 2020; Kurki et al., 2021; Morgado et al., 2021) and systematic reviews (Seedaket et al., 2020).

Throughout the four-session MHLPP, participants learned to identify depression and anxiety, recognize psychological distress, enhance self-management skills, and develop help-seeking skills through group activities and experiential learning. Activities included lectures, video demonstrations, and interactive sessions to promote reflection and discussion, enabling students to apply their knowledge effectively. These efforts improved understanding of mental health issues and equipped students with strategies like regular exercise, abstaining from substances, relaxation techniques, and accessing reliable online resources and mental health services, thereby enhancing their MHL. Similar approaches have proven effective among students in Germany (Freţian et al., 2023) and Japan (Yamaguchi et al., 2020).

Following the MHLPP, students reported significantly reduced psychological distress immediately afterward. Psychological distress adversely affects adolescent development globally and is a primary risk factor for mental disorders (Ravindran et al., 2018). These findings are consistent with studies among Thai high school students (Indech et al., 2023), medical students in Finland (Kurki et al., 2021), and Australian adolescents (Liddle et al., 2019), highlighting the MHLPP's potential to alleviate psychological distress among high school students.

Moreover, the MHLPP significantly increased MHL and sustained reductions in psychological distress over the short term, maintaining effects at the follow-up stage compared to the control group. While longer programs may yield greater overall effects, shorter programs offer easier implementation in schools. Educational materials like posters and animated videos can enhance program engagement, making school-based MHL training by qualified teachers pivotal for adolescent well-being.

Nevertheless, this study has limitations. First, it involved students from a single public high school, limiting generalizability. Second, factors such as intellect, socioeconomic status, and prior mental health issues that may influence MHL were not fully examined. Third, the short two-week follow-up period precludes long-term assessment of the MHLPP's effectiveness, necessitating extended follow-up studies to validate its long-term effectiveness.

Conclusion and Recommendation

This quasi-experimental study effectively demonstrates the positive impact of MHLPP on secondary school students, even when administered in a single 1-hour session. The results suggest that integrating MHLPP into the school curriculum can significantly enhance mental health literacy and alleviate psychological distress among secondary school students. Policymakers and healthcare professionals are encouraged to utilize these findings to formulate strategies for promoting mental health literacy among Thai secondary school students.

Conflict of Interest

The authors declare that there is no conflict of interest.

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