

*Original Article*

# The effectiveness of the Youth-Oriented Mental Health Education Program (Y-MIND) school-based psychoeducational program in improving mental health literacy and reducing psychological distress among adolescents in Klaten, Indonesia: A quasi-experimental study

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## Abstract

**Background:** Adolescent mental health is a major public health concern, including in Indonesia, where many cases remain undetected and untreated. Limited mental health literacy may contribute to poor help-seeking behavior and adverse mental health outcomes. Psychoeducation is a promising school-based strategy to address these challenges.

**Objective:** This study aimed to evaluate the effectiveness of the Youth-Oriented Mental Health Education Program (Y-MIND) in improving mental health literacy and reducing psychological distress among adolescents.

**Methods:** A quasi-experimental pretest-posttest control group design was conducted among 70 eleventh-grade students at SMA Muhammadiyah 1 Klaten, Indonesia. Participants were selected using proportional stratified random sampling and assigned to an intervention group (n = 35) and a control group (n = 35). The intervention group received the four-session Y-MIND psychoeducational program. Mental health status was assessed using the Self-Reporting Questionnaire-20 (SRQ-20), and mental health literacy was measured using the Multicomponent Mental Health Literacy Measure (MMHLM). Data were analyzed using the Wilcoxon signed-rank test and Mann-Whitney U test.

**Results:** The proportion of participants without psychological distress increased from 45.7% to 91.4% in the intervention group, compared with 60.0% to 62.9% in the control group. High mental health literacy increased from 5.7% to 74.3% in the intervention group. Between-group analysis showed significantly greater improvements in psychological distress (p = 0.001) and mental health literacy (p < 0.001) in the intervention group compared with the control group.

**Conclusion:** The Y-MIND program effectively improved mental health literacy and reduced psychological distress among adolescents. School-based psychoeducation may be an effective strategy for promoting adolescent mental health.

## Background

Mental health problems among adolescents have become a major global public health concern, attracting increasing attention in recent years (McGorry et al., 2024). The World Health Organization (WHO, 2023) reports that approximately one in seven adolescents aged 10–19 years globally experiences mental health problems, yet many cases remain undetected and untreated (WHO, 2023). A similar situation exists in Indonesia, where the 2023 Indonesian Health Survey (SKI) reported that 130,977 adolescents aged 15–24 years (2.8%) experienced mental health problems, but only 10.4% received treatment. Additionally, 0.39% of adolescents reported suicidal ideation within the previous month (Kementrian Kesehatan RI, 2023). These findings highlight a substantial treatment gap and

emphasize the need for early, accessible, and school-based preventive interventions.

Concerns regarding adolescent mental health have also increased in the public sphere (Foulkes & Andrews, 2023; Lee et al., 2023). Cases of bullying, depression, and suicide among adolescents are frequently reported in the media, highlighting the growing urgency of adolescent mental health issues. These mental health problems affect not only individuals but also families, schools, and communities (Blignault et al., 2022; Curran et al., 2023; Tam et al., 2024). Although mental health campaigns and digital support services have expanded, access to structured, evidence-based interventions within school settings remains limited, particularly in Indonesia (Magomedova & Fatima, 2025).

Psychoeducation is widely recognized as a feasible and scalable approach to addressing adolescent mental health challenges because it can improve knowledge, attitudes, and practical coping skills (Cumming et al., 2024; Moghimi et al., 2025). The theoretical foundation of psychoeducation is grounded in cognitive-behavioral theory, which emphasizes the relationship between thoughts, emotions, and behaviors, as well as social learning theory, which highlights learning through observation, modeling, and behavioral reinforcement (Cahyani, 2023; Morgado et al., 2021; van Loon et al., 2020). In addition, this intervention aligns with Jorm's Mental Health Literacy framework, which emphasizes the ability to recognize mental health problems, understand risk factors, access appropriate information, adopt self-help strategies, and seek professional support when needed (Jorm et al., 1997; Soria-Martínez et al., 2024). Together, these theoretical perspectives support psychoeducation as an effective approach for promoting cognitive and behavioral change among adolescents (Maya Jariego et al., 2024).

The effectiveness of psychoeducational interventions may be understood through a sequential pathway. First, psychoeducation improves adolescents' mental health literacy by increasing knowledge, symptom recognition, awareness of available support resources, and understanding of adaptive coping strategies (Morgado et al., 2021; Seedaket et al., 2020). Improved mental health literacy may contribute to better mental health outcomes by reducing stigma, encouraging earlier help-seeking, strengthening emotional regulation, and enhancing self-awareness (Goss et al., 2022; Hassen et al., 2022). Therefore, mental health literacy may serve as an important pathway linking psychoeducational interventions to improvements in adolescents' mental health status.

The Indonesian government has demonstrated commitment to addressing mental health challenges through Law No. 18 of 2014 concerning Mental Health and Law No. 17 of 2023 concerning Health, both of which recognize mental health as an essential component of national health services (UU No 17 Th 2023, 2023; UU No 18 Th 2014, 2014). These policy commitments are aligned with Sustainable Development Goal 3.4, which aims to reduce the burden of mental health disorders (United Nations, 2015). However, implementation within school settings remains challenging due to limited trained personnel, persistent stigma, and low levels of mental health literacy (Kamila et al., 2025; Putra et al., 2024). Existing school-based mental health activities in

Indonesia are often limited to one-time health education or lecture-based awareness programs, with minimal emphasis on interactive skill-building components such as emotional regulation, coping, stress management, and self-care.

Furthermore, empirical evidence regarding school-based mental health interventions among Indonesian adolescents remains limited and fragmented. Previous studies in Indonesia have examined the effects of mental health education, psychoeducation, and stress-management interventions on adolescents' mental health outcomes (Efendi et al., 2025; Fatah et al., 2024; Khadijah & Indriastuti, 2023). However, these studies primarily focused on improving mental health status or reducing emotional and psychological problems, without simultaneously evaluating mental health literacy and psychological distress within a comprehensive intervention framework. In addition, several previous studies employed pre-experimental or quasi-experimental designs, limiting the strength of evidence regarding intervention effectiveness. Existing interventions have also largely emphasized information delivery rather than integrating practical skill-building components that support adolescents in managing stress, regulating emotions, developing adaptive coping strategies, and practicing self-care. Consequently, evidence remains insufficient regarding whether a comprehensive, theory-informed, school-based psychoeducational intervention can simultaneously improve mental health literacy and reduce psychological distress among Indonesian adolescents. Addressing this gap is important because mental health literacy and psychological well-being are closely interconnected and may influence adolescents' help-seeking behavior, coping capacity, and overall mental health outcomes.

Therefore, this study aimed to examine the effectiveness of the Y-MIND Program (Youth-Oriented Mental Health Education Program) in improving adolescents' mental health literacy and reducing psychological distress. The Y-MIND Program was designed as a structured school-based psychoeducational intervention that integrates mental health education with interactive learning and practical skill-building components, including stress management, emotional regulation, adaptive coping, and self-care strategies, to support adolescents in maintaining their mental well-being.

## Methods

### *Study Design*

This study employed a quasi-experimental pretest–posttest control group design to evaluate the effectiveness of the Y-MIND Program (Youth-Oriented Mental Health Education Program) in improving adolescents' mental health status and mental health literacy. Participants were assigned to intervention and control groups based on existing school classes. Both groups completed assessments before and after the intervention period. This design enabled the comparison of changes in mental health status and mental health literacy between adolescents who participated in the Y-MIND program and those who received no intervention (See Figure 1).

### *Study Setting and Respondents*

The study was conducted between January and March 2026 at SMA Muhammadiyah 1 Klaten, Central Java, Indonesia. The target population consisted of all 11th-grade students ( $N = 336$ ). A total of 70 respondents were included and equally allocated to the intervention group ( $n = 35$ ) and control group ( $n = 35$ ). The sample size was considered feasible for implementing the school-based intervention and was consistent with previous comparable adolescent school-based mental health intervention studies conducted in similar educational settings, which included sample sizes ranging from 56 to 100 respondents (Efendi et al., 2025; Fatah et al., 2024; Khadijah & Indriastuti, 2023).

All 11th-grade students at SMA Muhammadiyah 1 Klaten ( $N = 336$ ) were screened for eligibility according to the predefined inclusion and exclusion criteria. Students who were undergoing intensive psychological or psychiatric treatment were excluded from participation. Respondents meeting the study criteria were selected using proportional stratified random sampling and subsequently randomly assigned equally to the intervention group ( $n = 35$ ) and control group ( $n = 35$ ). All respondents completed the pretest, intervention period, and posttest assessment, with no dropout or loss to follow-up. Therefore, all randomized respondents were included in the final analysis.

Participants were included in the study if they were officially enrolled and actively attending SMA Muhammadiyah 1 Klaten during the study period,

were present during data collection, and voluntarily agreed to participate by providing informed consent. Students were excluded if they were undergoing intensive psychological or psychiatric treatment during the study period, failed to complete the intervention protocol, or withdrew their participation at any stage of the study.

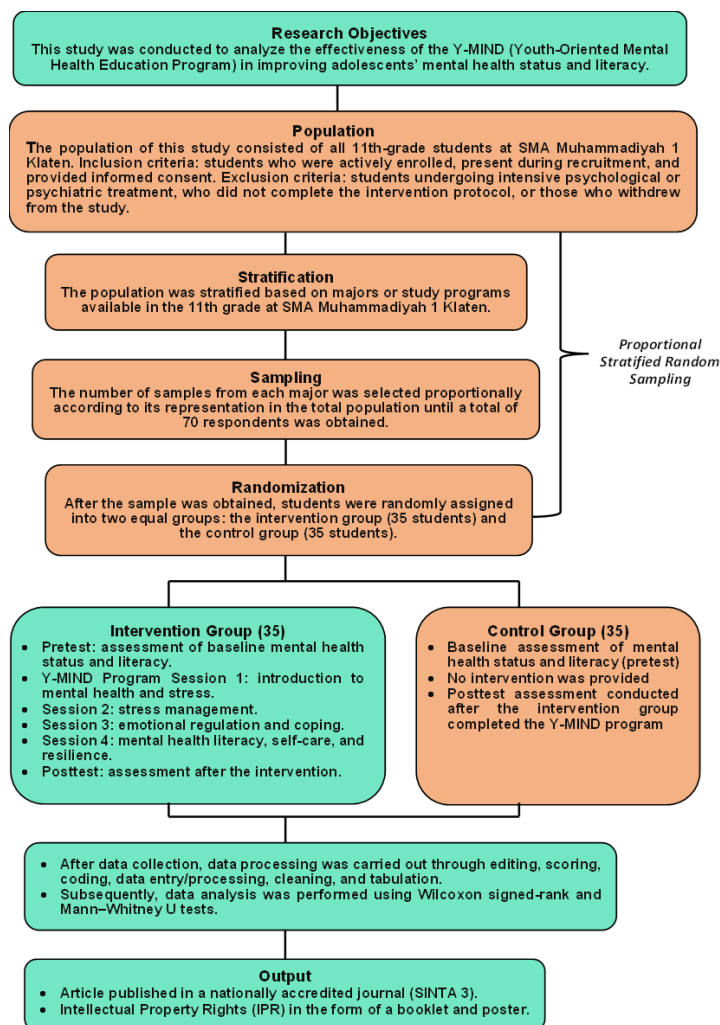
A proportional stratified random sampling technique was used to select study respondents. Stratification was based on study programs (majors) among 11th-grade students to ensure proportional representation across different academic tracks. The total population consisted of Study Program A ( $n = 152$ ), Study Program B ( $n = 99$ ), and Study Program C ( $n = 85$ ). Accordingly, proportional allocation was applied, resulting in 32 respondents from Study Program A, 20 respondents from Study Program B, and 18 respondents from Study Program C. Within each stratum, respondents were selected using simple random sampling based on the class attendance list. Each eligible student was assigned an identification number, and random selection was performed until the required sample size from each stratum was achieved. After sample selection, respondents from all strata were pooled and subsequently assigned to intervention or control groups through individual-level simple randomization, rather than separate allocation within each stratum.

### *Group Assignment and Randomization*

The sampling procedure was conducted separately from the group assignment process. After eligibility screening and sample selection, respondents were assigned to either the intervention or control group using individual-level simple randomization with a 1:1 allocation ratio. Random allocation was performed by a member of the research team using the RAND() function in Microsoft Excel, ensuring that each participant had an equal probability of assignment to either group. The unit of randomization was the individual participant rather than the class or study program. Due to the nature of the educational intervention, allocation concealment and participant blinding were not feasible. Nevertheless, random allocation was conducted using a predefined randomization procedure to minimize selection bias.

The control group continued routine school activities and retained access to regular school counseling services through the guidance and counseling teacher if needed, as part of standard school practice. To reduce the risk of contamination between groups, intervention activities were conducted separately from the control group in different rooms within the same school setting. Respondents in the intervention group were instructed not to share educational

materials or discussion content with control group respondents during the study period. The intervention booklet was provided only to the intervention group during the study and was distributed to the control group after completion of the posttest assessment as an ethical consideration. The control group did not receive any additional mental health intervention during the study period.



**Figure 1.** Stages of the Research Process

### Intervention

The Y-MIND (Youth-Oriented Mental Health Education Program) was developed as a structured school-based psychoeducational intervention to improve adolescents' mental health literacy and mental health status. The program consisted of four face-to-face weekly sessions delivered over a four-week period, with each session lasting approximately 60 minutes. The intervention was delivered by the research

team in collaboration with the school guidance and counseling teacher. Standardized educational materials were used throughout the intervention, including a structured Y-MIND educational booklet, audiovisual educational videos, guided discussions, reflective activities, case-based learning, worksheets, and practical exercises.

The intervention content was organized as follows; Session 1: Introduction to Mental Health and Stress. This session introduced the basic

concepts of mental health, myths and facts related to mental health, adolescent mental health challenges, and common sources of stress. Activities included program orientation, myth-fact ice-breaking activities, educational video viewing, group discussion on daily stressors, and individual self-reflection on personal stress triggers. Session 2: Stress Management. This session focused on understanding the impact of stress and practical stress management skills. Respondents received education on stress management strategies, including time management, relaxation techniques, and healthy daily routines. Activities included educational video viewing, guided diaphragmatic breathing practice, stress management demonstrations, interactive scheduling activities, and home-based relaxation exercises.

Session 3: Emotional Regulation and Coping. This session aimed to strengthen emotional awareness and adaptive coping skills. Respondents learned to identify emotions, distinguish adaptive and maladaptive coping strategies, and apply appropriate coping responses to common adolescent situations. Activities included review of prior practice, case discussions, guided worksheets, and coping strategy exercises. Session 4: Mental Health Literacy, Self-Care, and Resilience. The final session emphasized early recognition of mental health problems, help-seeking behavior, self-care practices, and resilience-building. Respondents developed an individual Personal Mental Health Action Plan and engaged in reflective sharing activities.

To ensure intervention consistency, all sessions followed a standardized intervention guide and were delivered by the same research team with facilitator support. Participant attendance was monitored using attendance checklists for each session.

The control group did not receive any additional mental health intervention during the study period and continued their routine school activities as usual. Students in the control group retained access to regular school counseling services through the guidance and counseling teacher if needed, as part of standard school practice. Thus, the control group functioned as a no-treatment control under usual school practice. To reduce the risk of contamination between groups, intervention sessions were conducted

separately in different rooms within the same school setting. Respondents in the intervention group were instructed not to share intervention materials or discussion content with control group respondents during the study period. After completion of the posttest assessment, the educational booklet used in the Y-MIND intervention was also provided to students in the control group as an ethical consideration.

### *Instruments and Tools*

Data collection was carried out using validated instruments as follows: 1. Multicomponent Mental Health Literacy Measure (MMHLM). Mental health literacy was assessed using the Multicomponent Mental Health Literacy Measure (MMHLM) developed by Jung et al. (2016), which consists of 26 items across three domains: knowledge (12 items), beliefs (10 items), and resources (4 items). The Indonesian version used in this study was adapted from the version translated by Idham (2019), which has previously been used in studies involving Indonesian populations. Previous studies reported acceptable reliability coefficients of 0.75 for the knowledge-oriented domain, 0.77 for the beliefs-oriented domain, and 0.84 for the resource-oriented domain. The knowledge and beliefs domains were assessed using a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree), while the resources domain used dichotomous yes/no responses. Negatively worded items (items 13–22) were reverse-coded prior to analysis. Total scores ranged from 26 to 104, with higher scores indicating better mental health literacy. For descriptive and inferential analyses, total MMHLM scores were converted into percentages of the maximum possible score and categorized into three levels: low (<60%), moderate (60–79%), and high (≥80%).

Self-Reporting Questionnaire (SRQ-20). Mental health status was assessed using the Self-Reporting Questionnaire-20 (SRQ-20) developed by the World Health Organization (WHO) (World Health Organization (WHO), 1994). The Indonesian version of the SRQ-20 has previously been translated and validated by Ganihartono (1996) against the Present State Examination (PSE) and has been widely used in national mental health surveys, including the Indonesian Basic Health Research (Riskesdas) (Badan Penelitian dan Pengembangan Kesehatan, 2013, 2018). Recent psychometric evaluation of the Indonesian

SRQ-20 also demonstrated good construct validity and internal consistency (Cronbach's  $\alpha = 0.84$ ) (Prasetyo et al., 2022). The instrument consists of 20 dichotomous items assessing symptoms of psychological distress, with response options scored as "Yes" = 1 and "No" = 0, resulting in total scores ranging from 0 to 20. Higher scores indicate greater psychological distress. A cut-off score of  $\geq 6$  was used to identify respondents at risk of psychological distress. This threshold is based on validation studies conducted in Indonesia by Ganihartono (1996), which established a 5/6 cut-off point against the Present State Examination (PSE), and has subsequently been adopted in national surveys, including Riskesdas, and other epidemiological studies in Indonesia (Ganihartono, 1996; Idaiani et al., 2016). Although the original validation was conducted in an adult Indonesian population, the same cut-off has been widely applied in mental health screening and epidemiological research, supporting its use in the present adolescent sample.

Both questionnaires were self-administered by the respondents in classroom settings. Prior to questionnaire completion, the research team provided standardized instructions regarding questionnaire completion procedures. The questionnaires were completed separately according to participant group allocation and subsequently collected by the research team. Because questionnaire administration was conducted separately according to participant group allocation, research personnel were aware of participant group assignment during data collection. All data were processed and analyzed using IBM SPSS Statistics version 22.

#### *Data Collection Procedure*

The data collection process was conducted in three sequential stages: pretest, intervention, and posttest. The pretest phase aimed to establish baseline measurements of mental health status and literacy among respondents. This was followed by the intervention phase, when the intervention group received the Y-MIND program, while the control group got no intervention. Subsequently, a posttest was conducted to evaluate changes following the intervention.

#### *Data Analysis*

Data analysis included descriptive and inferential statistical methods. Descriptive analysis was used

to summarize respondent characteristics, mental health status categories, and mental health literacy levels. Normality of the score distributions was assessed using the Shapiro-Wilk test, which indicated that normality assumptions were not consistently met ( $p < 0.05$  for several variables). Therefore, non-parametric statistical tests were selected. Mental health status and mental health literacy outcomes were analyzed using coded ordinal scores derived from predefined categorical classifications. Mental health status was categorized based on SRQ-20 scores, with scores  $< 6$  classified as no psychological distress (coded as 1) and scores  $\geq 6$  classified as psychological distress (coded as 2). Mental health literacy scores obtained from the MMHLM were converted into percentages of the maximum possible score and categorized into three levels: low ( $< 60\%$ ), moderate ( $60-79\%$ ), and high ( $\geq 80\%$ ). These categories were coded as ordinal scores (1 = low, 2 = moderate, and 3 = high) for statistical analysis. Within-group differences between pretest and posttest category scores were analyzed using the Wilcoxon signed-rank test. To evaluate differences in intervention effects between groups, category change scores (posttest minus pretest) were calculated and compared between the intervention and control groups using the Mann-Whitney U test. Statistical significance was set at  $p < 0.05$ .

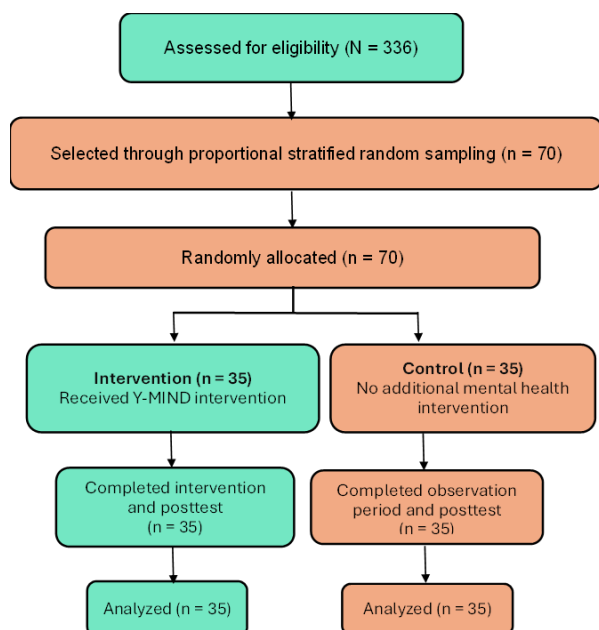
#### *Ethical Considerations*

Ethical approval for this study was obtained from the Research Ethics Committee (No. 191/KET/I.3.AU/F.5/I/2026). Permission to conduct the study was also obtained from SMA Muhammadiyah 1 Klaten. Prior to data collection, all respondents provided informed consent to participate voluntarily. Participant confidentiality and anonymity were strictly maintained throughout the study.

#### **Results**

A total of 336 11th-grade students were screened for eligibility. Following proportional stratified random sampling, 70 respondents were selected and randomly allocated equally to the intervention group ( $n = 35$ ) and control group ( $n = 35$ ). All respondents in the intervention group completed all intervention sessions, and all respondents in both groups completed the posttest assessment, with no dropout or loss to

follow-up. Therefore, all respondents were included in the final analysis.



**Figure 2.** Flow Diagram

According to Table 1, the characteristics of respondents revealed certain variations across both intervention and control groups. In the intervention group, most respondents were 16

years old (57.1%), whereas the control group was predominantly composed of 17-year-olds (74.3%). Respondents aged 18 years constituted the smallest proportion in both groups, each accounting for 2.9%. In terms of gender distribution, males were more prevalent in the intervention group (60%) compared to females (40%). A similar pattern was observed in the control group, where males (54.3%) slightly outnumbered females (45.7%).

With regard to living arrangements, most intervention group respondents lived with their parents (74.3%). In contrast, respondents in the control group were evenly divided between living with parents and staying in dormitories or boarding houses (48.6% each). Most respondents in both groups reported that they had not previously received any mental health education, accounting for 62.9% in the intervention group and 57.1% in the control group. Furthermore, a large proportion of respondents indicated that they had never sought help for mental health-related issues, with percentages of 68.6% in the intervention group and 71.4% in the control group.

**Table 1.** Distribution of respondent demographics across intervention and control groups

| Characteristics                     | Intervention (n=35) |            | Control (n=35) |            |
|-------------------------------------|---------------------|------------|----------------|------------|
|                                     | F                   | %          | F              | %          |
| <b>Age</b>                          |                     |            |                |            |
| 16 years                            | 20                  | 57,1       | 8              | 22,9       |
| 17 years                            | 14                  | 40         | 26             | 74,3       |
| 18 years                            | 1                   | 2,9        | 1              | 2,9        |
| <b>Gender</b>                       |                     |            |                |            |
| Female                              | 14                  | 40         | 16             | 45,7       |
| Male                                | 21                  | 60         | 19             | 54,3       |
| <b>Living Arrangement</b>           |                     |            |                |            |
| Parents                             | 26                  | 74,3       | 17             | 48,6       |
| Relatives                           | 3                   | 8,6        | 1              | 2,9        |
| Dormitory/Boarding House            | 3                   | 8,6        | 17             | 48,6       |
| Pesantren (Islamic boarding school) | 3                   | 8,6        | 0              | 0          |
| <b>Mental Health Education</b>      |                     |            |                |            |
| Never                               | 22                  | 62,9       | 20             | 57,1       |
| Ever                                | 13                  | 37,1       | 15             | 42,9       |
| <b>Experience in Seeking Help</b>   |                     |            |                |            |
| Never                               | 24                  | 68,6       | 25             | 71,4       |
| Ever                                | 11                  | 31,4       | 10             | 28,6       |
| <b>Total</b>                        | <b>35</b>           | <b>100</b> | <b>35</b>      | <b>100</b> |

Table 2 presents the distribution of mental health status and mental health literacy among participants in the intervention and control groups before and after the intervention. At baseline, 54.3% of participants in the

intervention group and 40.0% in the control group were classified as experiencing psychological distress. Following the intervention, the proportion of participants with psychological distress decreased markedly in the intervention group from 54.3% to 8.6%, whereas only a slight reduction was observed in the control group from 40.0% to 37.1%. Regarding mental health literacy, most participants in both groups were categorized as having moderate literacy at baseline. After the intervention, 74.3% of participants in the intervention group achieved a high level of mental health literacy, compared with none of the participants in the control group.

**Table 2.** Distribution of Mental Health Status and Mental Health Literacy in the Intervention and Control Groups Before and After the Intervention

| Characteristics                                             | Intervention (n=35) |            | Control (n=35) |            |
|-------------------------------------------------------------|---------------------|------------|----------------|------------|
|                                                             | F                   | %          | F              | %          |
| <b>Mental Health Status Before Intervention (Pretest)</b>   |                     |            |                |            |
| No psychological distress                                   | 16                  | 45,7       | 21             | 60         |
| Psychological distress                                      | 19                  | 54,3       | 14             | 40         |
| <b>Mental Health Status After Intervention (Posttest)</b>   |                     |            |                |            |
| No psychological distress                                   | 32                  | 91,4       | 22             | 62,9       |
| Psychological distress                                      | 3                   | 8,6        | 13             | 37,1       |
| <b>Mental Health Literacy Before Intervention (Pretest)</b> |                     |            |                |            |
| Low                                                         | 6                   | 17,1       | 7              | 20         |
| Moderate                                                    | 27                  | 77,1       | 27             | 77,1       |
| High                                                        | 2                   | 5,7        | 1              | 2,9        |
| <b>Mental Health Literacy After Intervention (Posttest)</b> |                     |            |                |            |
| Low                                                         | 0                   | 0          | 3              | 8,6        |
| Moderate                                                    | 9                   | 25,7       | 32             | 91,4       |
| High                                                        | 26                  | 74,3       | 0              | 0          |
| <b>Total</b>                                                | <b>35</b>           | <b>100</b> | <b>35</b>      | <b>100</b> |

Table 3 presents the results of the Wilcoxon signed-rank test examining changes in mental health status and mental health literacy before and after the intervention in both the intervention and control groups. In the intervention group, statistically significant improvements were observed in both mental health status and mental health literacy following the Y-MIND program ( $p < 0.001$ ). The mean category score for mental health

status decreased from  $1.54 \pm 0.51$  to  $1.09 \pm 0.28$ , indicating a reduction in the proportion of respondents classified as experiencing psychological distress. Similarly, the mean category score for mental health literacy increased from  $1.89 \pm 0.47$  to  $2.74 \pm 0.43$ , indicating a shift toward higher mental health literacy categories among participants.

**Table 3.** Pre- and Post-Intervention Differences in Mental Health Status and Mental Health Literacy in the Intervention and Control Groups

| Variable               | Group        | Pre-test (Mean $\pm$ SD) | Post-test (Mean $\pm$ SD) | Z      | p-value |
|------------------------|--------------|--------------------------|---------------------------|--------|---------|
| Mental Health Status   | Intervention | $1.54 \pm 0.51$          | $1.09 \pm 0.28$           | -4.000 | <0.001  |
|                        | Control      | $1.40 \pm 0.50$          | $1.37 \pm 0.49$           | -1.000 | 0.317   |
| Mental Health Literacy | Intervention | $1.89 \pm 0.47$          | $2.74 \pm 0.43$           | -5.477 | <0.001  |
|                        | Control      | $1.83 \pm 0.45$          | $1.91 \pm 0.28$           | -1.342 | 0.180   |

In contrast, no statistically significant changes were observed in the control group. The mean category score for mental health status changed

only slightly from  $1.40 \pm 0.50$  to  $1.37 \pm 0.49$  ( $p = 0.317$ ), while the mean category score for mental health literacy increased marginally from  $1.83 \pm$

0.45 to  $1.91 \pm 0.28$  ( $p = 0.180$ ). These findings suggest that significant improvements in mental health status and mental health literacy were observed only among participants who received the Y-MIND intervention.

Table 4 presents the results of the Mann-Whitney U test comparing category score changes in mental health status and mental health literacy between the intervention and control groups. Significant differences were observed between groups for both outcomes ( $p < 0.05$ ). Participants in the

intervention group demonstrated greater improvements in mental health status, with a mean category change of  $-0.46 \pm 0.51$ , compared with  $-0.03 \pm 0.17$  in the control group ( $p = 0.001$ ). Similarly, participants in the intervention group showed greater improvements in mental health literacy, with a mean category change of  $0.84 \pm 0.37$ , compared with  $0.09 \pm 0.37$  in the control group ( $p < 0.001$ ). These findings indicate that the Y-MIND program was associated with greater improvements in mental health status and mental health literacy compared with the control group.

**Table 4.** Differences in the Improvement of Mental Health Status and Mental Health Literacy between the Intervention and Control Groups

| Variable               | Intervention Group (Mean $\pm$ SD) | Control Group (Mean $\pm$ SD) | <i>p-value</i> |
|------------------------|------------------------------------|-------------------------------|----------------|
| Mental Health Status   | $-0.46 \pm 0.51$                   | $-0.03 \pm 0.17$              | 0.001          |
| Mental Health Literacy | $0.84 \pm 0.37$                    | $0.09 \pm 0.37$               | <0.001         |

## Discussion

The present study evaluated the effectiveness of the Y-MIND psychoeducational program in improving adolescents' mental health status and mental health literacy. Most participants were in middle adolescence and reported limited previous exposure to mental health education, highlighting the continuing need for accessible school-based mental health promotion programs. The results demonstrated significant improvements in both mental health status and mental health literacy among participants who received the intervention, whereas no significant changes were observed in the control group. Overall, these findings suggest that the Y-MIND program may serve as an effective school-based strategy for promoting adolescent mental health and strengthening mental health literacy.

The findings demonstrated significant improvements in mental health status among participants who received the Y-MIND intervention. The proportion of adolescents classified as experiencing psychological distress decreased substantially following the program, whereas no significant changes were observed in the control group. These findings support previous studies showing that psychoeducational interventions can reduce emotional distress and improve psychological well-being among adolescents (Lam & Lam, 2023; Li et al., 2024). The observed improvements may be attributed to the program's emphasis on emotional regulation,

stress management, adaptive coping strategies, and self-care practices.

A significant improvement in mental health literacy was also observed among participants in the intervention group. Following the intervention, most participants moved from moderate to high levels of mental health literacy, while no meaningful changes occurred in the control group. This finding is consistent with previous studies demonstrating that structured psychoeducational programs effectively increase adolescents' knowledge, awareness, and understanding of mental health issues (Arnold et al., 2025; Seedaket et al., 2020). Improved mental health literacy is important because it enables adolescents to recognize mental health problems, access appropriate resources, and respond more effectively to psychological challenges.

Comparative analyses further showed that improvements in both mental health status and mental health literacy were significantly greater in the intervention group than in the control group. These findings indicate that the Y-MIND program contributed substantially to the observed outcomes beyond changes that might occur naturally over time. Similar results have been reported in previous school-based and community-based mental health promotion programs, which found that psychoeducation can enhance both psychological well-being and mental health-related knowledge among adolescents (Hassen et al., 2022; Krokos et al., 2024).

From a theoretical perspective, the findings support the concept that mental health literacy serves as an important pathway for improving psychological well-being. Adolescents who possess better mental health literacy are more likely to recognize symptoms, adopt adaptive coping strategies, seek appropriate help, and overcome stigma related to mental health problems (Goss et al., 2022; Hassen et al., 2022). Improved mental health literacy may also help adolescents understand the influence of psychological, behavioral, and environmental factors on their well-being. This interpretation is supported by previous evidence indicating that psychological factors, behavioral patterns, and digital behaviors play an important role in shaping mental health outcomes among young people (Daeli et al., 2026; Purdani et al., 2026). Unlike many previous Indonesian studies that focused on a single outcome, such as stress reduction or mental health status, the present study simultaneously evaluated mental health literacy and psychological distress within a structured school-based psychoeducational intervention, providing a more comprehensive assessment of adolescent mental health outcomes. The findings suggest that improving mental health literacy may contribute to broader improvements in adolescents' psychological well-being.

The findings have important implications for school health promotion. Given that many adolescents have limited exposure to mental health education, integrating structured psychoeducational programs into school settings may provide an effective strategy for improving awareness, reducing stigma, strengthening coping skills, and promoting help-seeking behavior. These findings are particularly relevant in the Indonesian context, where mental health literacy among adolescents remains limited and stigma surrounding mental health problems continues to affect help-seeking behavior. Reducing stigma is particularly important because negative perceptions and misconceptions about mental health problems may hinder individuals from seeking appropriate support. Previous studies have highlighted the importance of strengthening parent-adolescent communication, family support, and mental health awareness as protective factors for adolescent mental health (Saraswati et al., 2026). School-based interventions are particularly relevant because schools offer direct access to adolescents and

provide opportunities for sustainable mental health promotion efforts. Furthermore, improved mental health literacy may facilitate adolescents' willingness to seek help and strengthen engagement with available support systems.

Several limitations should be acknowledged. First, the study was conducted in a single school, which may limit the generalizability of the findings. Second, the use of self-report instruments may have introduced response bias. Third, because both groups were recruited from the same school environment, the possibility of information contamination cannot be completely excluded. In addition, complete blinding during data collection was not feasible, which may have introduced measurement bias. Finally, the study evaluated only short-term outcomes immediately after the intervention. Future studies should involve larger and more diverse populations, incorporate longer follow-up periods, and employ designs that further minimize contamination and measurement bias. Overall, the findings suggest that the Y-MIND program is a promising school-based intervention for improving adolescents' mental health status and mental health literacy.

## Conclusion and Recommendation

This study concludes that the psychoeducational intervention effectively improved adolescents' mental health status and literacy. The intervention group exhibited larger gains than the control group, confirming the program's role in driving these shifts. Such outcomes underscore how targeted mental health education bolsters teens' understanding, resilience, and general wellness. Therefore, psychoeducational programs can be considered an effective strategy for promoting adolescent mental health, particularly within school environments.

Based on these findings, it is recommended that Mental health education should be incorporated into school-based programs as part of preventive and promotive efforts. Collaboration among educators, health professionals, and schools is essential to ensure the effective implementation of structured and age-appropriate interventions. Future studies should involve larger and more diverse populations and apply longitudinal designs to assess long-term impacts. Additionally, policymakers are encouraged to support the expansion of mental health education programs to strengthen adolescent mental health services at both community and national levels.

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## Declaration of conflict of interest

The authors declare no competing interests.

## Declaration on the Use of AI

AI-assisted tools (ChatGPT) were used for language editing and improving the clarity of the manuscript. All content was reviewed and validated by the authors.

## Data Availability Statement

Data sharing is not applicable to this article.

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