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Original Research

Mental Health Status and Literacy of Adolescent in Rural Area of Mojokerto, East Java, Indonesia

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Abstracts

Introduction: Adolescence is a critical period for the development of mental health. Improving mental health literacy can reduce negative stigma and support early intervention and treatment. This study aims to explore the mental health conditions and mental health literacy of middle and late adolescents in a rural area of Mojokerto District, East Java, Indonesia. **Methods:** A total of 81 students from a high school in Mojokerto District were recruited. The Depression Anxiety Stress Scale – Youth version (DASS-Y) was used to assess symptoms of depression, anxiety, and stress. Mental health literacy was measured using the Adolescent Mental Health Literacy Questionnaire (AMHL). The validity of the questionnaire was tested on 30 students using Pearson correlation. Descriptive statistics were used to examine the frequency of mental health conditions and literacy levels, while inferential statistics were applied to identify associations between mental health status, literacy, and sociodemographic factors. **Results:** The findings reveal that 53% of respondents exhibited signs of mental health problems. While their mental health literacy ranged from moderate to satisfactory, there remains substantial room for improvement. Enhancing literacy could contribute to reducing stigma and promoting better knowledge and attitudes toward mental health. Sociodemographic factors and mental health literacy were found to have only a small influence on mental health status. However, sex showed a significant association with both literacy and mental health status ($p = 0.016$ and $p = 0.032$, respectively). **Conclusion:** Mental well-being during adolescence plays a vital role in shaping adult mental health. Improving mental health literacy is essential for early recognition, reducing stigma, and facilitating access to care.

Keywords: Adolescent, Anxiety, Depression, Literacy, Mental Health

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INTRODUCTIONS

Adolescence, a stage defined by major physical, emotional, and social transitions, often presents challenges for mental health. The transition from childhood to adulthood, hormonal changes, increased independence, academic pressures, and the formation of new relationships might influence mental health problems in adolescents. The impact of these issues can be far-reaching, affecting academic performance, social relationships, and overall well-being.

In 2019, UNICEF reported that 166 million adolescents experience mental health problems, including depression, anxiety, and stress [1]. While in 2022, a study in Indonesia showed that 15.5 million adolescents are having mental health problems [2]. A small study in Mojokerto district shows that 40% of orphan adolescents in one orphanage develop mental health problems, including depression, anxiety, and stress [3].

Several studies revealed that individuals with low literacy levels often struggle with understanding and processing information, leading to difficulties in making informed decisions and following instructions, including on mental health [4]. his can manifest in various behaviors, such as poor health choices, financial mismanagement, and limited engagement in community activities. Additionally, low literacy can hinder individuals' ability to seek and effectively utilize professional help, as they may have trouble navigating complex healthcare systems or communicating their needs to therapists or counselors [5, 6]. Mental health literacy refers to the awareness, knowledge, and understanding of mental health conditions, their causes, and the available treatments. This literacy is crucial for supporting the healthy mental status of adolescents. By understanding the signs and symptoms of mental health conditions, recognizing the necessity of seeking help, and knowing how to access appropriate resources, young people can better manage their own mental well-being. Mental health literacy can empower individuals to make well-informed decisions about their mental health, reduce stigma associated with mental illness, and create a supportive environment for peers. By promoting mental health literacy, we can help adolescents develop the skills and knowledge necessary to lead healthy and fulfilling lives. With good mental health, people will be able to cope with stress, learn and work, and contribute to society [7].

The association between mental health and mental health literacy (MHL) has been extensively studied. A systematic review concluded that young individuals who had experienced moderate to severe levels of depression in the week leading up to the survey were more likely to have an insufficient level of MHL [8]. In Iran, a nationwide survey involving 20,571 adults, including 4597 youth, reports that inadequate health literacy is related to poor mental health status [9]. A similar finding is reported by a study of 700 Chinese adolescents [10]. The same conclusion is reported in 102 Indonesian undergraduate students [11]. These suggest that improving MHL can be an important part of promoting mental health, including in adolescents, as untreated mental health issues in adolescence can persist into adulthood, potentially leading to chronic mental health conditions and subsequent physical and mental health impairments [8]. However, it is necessary to note that the relationship between mental health and MHL is complex. Several sociodemographic factors were found to be associated with mental health literacy and mental health status. For example, socioeconomic status has been shown to affect mental health status and its literacy, with lower socioeconomic status associated with poor mental health and inadequate mental health literacy [10]. Older people and individuals with higher education typically exhibit better mental health status [9].

Since the data about Indonesian adolescents' mental health status and literacy are limited

in Indonesia, this study would like to explore the mental health status and 'literacy in the rural area of Mojokerto, East Java, Indonesia. The relationship between two variables and sociodemographic factors was explored.

METHODS

Study design and data collection

This cross-sectional study was performed in April-May 2024 using the self-administered Depression Anxiety Scale Youth version (DASS-Y) [12] and Adolescent Mental Health Literacy Questionnaire (AMHLQ) [13]. This was a preliminary study to measure mental health literacy and mental health status in adolescents in rural areas. The respondents of this pilot study were 81 adolescents, aged 15-18 years old, at one high school in the Mojokerto district. Schools were chosen for this study based on accessibility, considering both their location and the ease of obtaining necessary permits. Schools then selected first- and second-grade students to participate, taking care to minimize interruptions to their regular classes. The school principal and respondents themselves were informed about the survey, including anonymous publication, before receiving the questionnaire. Informed consent was given by the school principal, who is the guardian of the students. Respondents who did not fully complete the questionnaire or withdrew their consent were excluded from the study. Data were collected at one school in the Mojokerto district, which was conveniently accessible and gave permission to conduct the study. Prior to the survey, an explanation of the questions was given to the respondents before they filled them out independently.

Instruments

The Depression, Anxiety, and Stress Scale for Youth (DASS-Y) was used to measure mental health problems, including depression, anxiety, and stress. This 21-item questionnaire uses a Likert scale ranging from "not true" to "very true" (0-3), with a total possible score of 0 to 63 [12]. Adolescent Mental Health Literacy (AMHL) consisted of 33 questions was used to measure literacy of adolescents about mental health, including erroneous beliefs/ stereotypes (9 questions), knowledge of mental health problems (12 questions), first aid skills and help-seeking behavior (7 questions), and self-help strategies (5 questions) with options in the Likert scale from strongly disagree to strongly agree (1-5) with the possible score of 33 to 165 [13]. The questionnaires were translated by two medical doctors and one social science expert. Face validity was measured in 30 respondents who evaluate the wording, understanding, and format of the questions. Using Spearman's correlation, all the r-values were higher than the r-table (0.362), means all questions of DASS-Y and AMHL in Bahasa Indonesian version were valid to measure the mental health status and literacy (Table 1 and 2). Moreover, Cronbach's alpha test was performed to measure the internal consistency, with the reliability for depression was 0.658, anxiety 0.778, stress 0.610. While the rialibility for erroneous beliefs/stereotypes was 0.752, knowledge of mental health problems was 0.898, first aid skills and help-seeking behavior was 0.873, and self-help strategies was 0.826.

Data analysis

The DASS-Y responses were evaluated based on the established guidelines for depression, anxiety, and stress. The total scores for each category were then divided into five groups representing different levels of severity: normal, mild, moderate, severe, and extremely severe. The AMHL was breakdown into four subsections which were erroneous beliefs/stereotypes, knowledge of mental health problems, first aid skills and help-seeking behavior, and self-help strategies. The subsection and total score of AMHL was calculated, with a higher score indicating good literacy.

Due to not normal distribution of the data, differences between each group were calculated using Mann-Whitney-U and Kruskal-Wallis H-test. Using SPSS 25.00

(IBM, Chicago, IL), the linear regression analysis was performed to investigate the pathways linking sociodemographic factors, mental health literacy, and mental health status. Data were presented graphically using GraphPad Prism 5.0. (GraphPad Software Inc., La Jolla, CA).

Ethical consideration

This study adhered to the Declaration of Helsinki guidelines and received approval from the Ethics Committee under the reference number 72/EC/KEPK/FKUA/2024.

RESULTS

Characteristic of Respondents

Eighty-five responses were received, with eighty-one of them were verified and analyzed. Four responses were discarded due to incomplete data . The mean age of respondents was 16.2 years old (15-18 years old), almost two third of the respondents were female, and three quarters of them were in grade 10th. Majority of them reported average economic status and live with both of parents (Figure 1A-E).

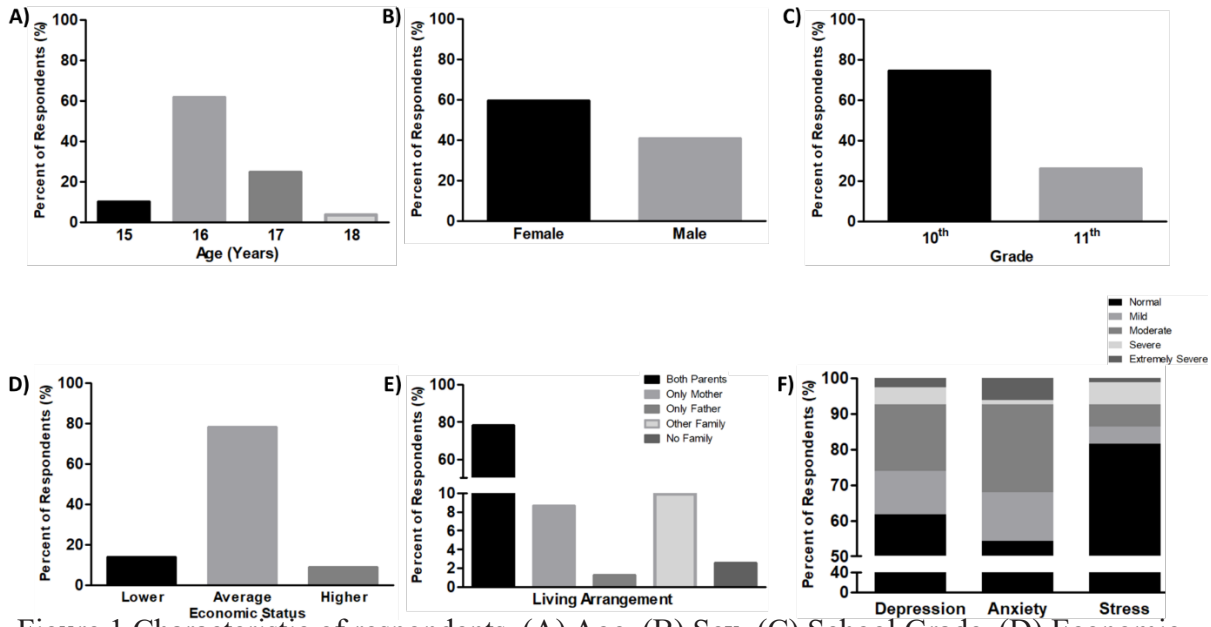


Figure 1 Characteristic of respondents. (A) Age, (B) Sex, (C) School Grade, (D) Economic Status, (E) Living Arrangement, (F) Mental Health Status.

Mental Health Status and Literacy

The results performed that 53% of the respondents has mental health (depression, anxiety, or/and stress). Anxiety was the most frequent mental health problems faced by the adolescents in Mojokerto (45.7%), followed by depression (28.3%), and stress (18.5%). The severity of these three mental health problems mostly in moderate stage, followed by mild stage, with few in severe and extremely severe stage (Figure 1F).

Based on their age, mental health problem was found higher at 16 years old compared to 15, 17, and 18 years old, but not statistically significant different. Female adolescents more likely to had mental health problems compared to male peers (p= 0.019). The 11th grade students, low economic status, also showed higher incidence of depression, anxiety, and stress compared to 10th grade or higher economic status, even though it was not statistically significant different. Interestingly, incidence of mental health problems was less in students that living with both parents compared to incomplete or absence of the parents (Table 1).

Table 1. Mann-Whitney U and Kruskal-Walis test on mental health status

No.	Characteristics	N	Depression		Anxiety		Stress	
			N	H (p)	N	H (p)	N	H (p)
1	**Age**		31 (38.3%)	1.763 (0.623)	37 (45.7%)	1.574 (0.665)	15 (18.5%)	2.714 (0.438)
	15	8	4 (50%)		4 (50%)		0 (0%)	
	16	50	19 (38%)		22 (44%)		9 (18%)	
	17	20	6 (30%)		9 (45%)		5 (25%)	
	18	3	2 (66.6%)		2 (66.6%)		1 (33.3%)	
2	**Sex**		31 (38.3%)	2.376 (0.123)	37 (45.7%)	8.193 **(0.004)**	15 (18.5%)	5.486 **(0.019)**
	Female	48	21 (43.7%)		28 (58.3%)		13 (16.1%)	
	Male	33	10 (30.3%)		9 (27.3%)		2 (6.1%)	
3	**Grade**		31 (38.3%)	0.088 (0.766)		0.183 (0.669)		0.513 (0.474)
	10^{th}	60	23 (28.3%)		26 (33.3%)		10 (16.7%)	
	11^{th}	21	8 (38.1%)		11 (52.4%)		5 (23.8%)	
4	**Economic status**			0.053 (0.974)		0.346 (0.841)		1.747 (0.417)
	Low	11	4 (36.4%)		5 (45.4%)		2 (18.2%)	
	Average	63	24 (38%)		29 (46%)		13 (20%)	
	High	7	3 (42.8%)		3 (42.8%)		0 (0%)	
5	**Living Arrangement**			4.049 (0.399)		3.423 (0.490)		9.718 **(0.045)**
	Both Parents	63	22 (34.9%)		29 (46%)		9 (14.3%)	
	Only Mother	7	3 (42.8%)		3 (42.8%)		1 (14.3%)	
	Only Father	1	1 (100%)		0 (0%)		1 (100%)	
	Other Family	8	3 (37.5%)		3 (37.5%)		2 (25%)	
	No Family	2	2 (100%))		2 (100%)		2 (100%)	

Notes: bold indicates p value < 0.05.

The total score of AMHL ranged from 65 to 143 (possible score 33-165) showed that the respondents had moderate to good mental health literacy, as only 8.6% of them had score under 99. While the subsection score for erroneous beliefs/stereotypes had median 33 (23-41) with possible score for this subsection was 9-45. This result implied the respondents have less negative stigma towards mental health. On the knowledge subsection, our study found that the late adolescents knowledge ranged from 16 to 54, with median 44 (possible score 12-60) which implied they had moderate to good knowledge about mental health. Moreover, the respondents had a moderate to good behavior on first aids and help-seeking as their score ranged from 11-24 with median 24 (possible score 7-35). Similar results also found in subsection self-help strategies as the median was 19 (8-25) as the possible minimum score was 5 and maximum score was 25. Interestingly, the Kruskal-Wallis test showed the differences score between female and male on the respondents' stereotype on mental health, knowledge, and the total score. However, no statistically significant differences were found in mental health literacy between groups based on other sociodemographic factors, either overall or within specific subsections (Table 2).

Table 2. Kruskal-Walis test on mental health literacy

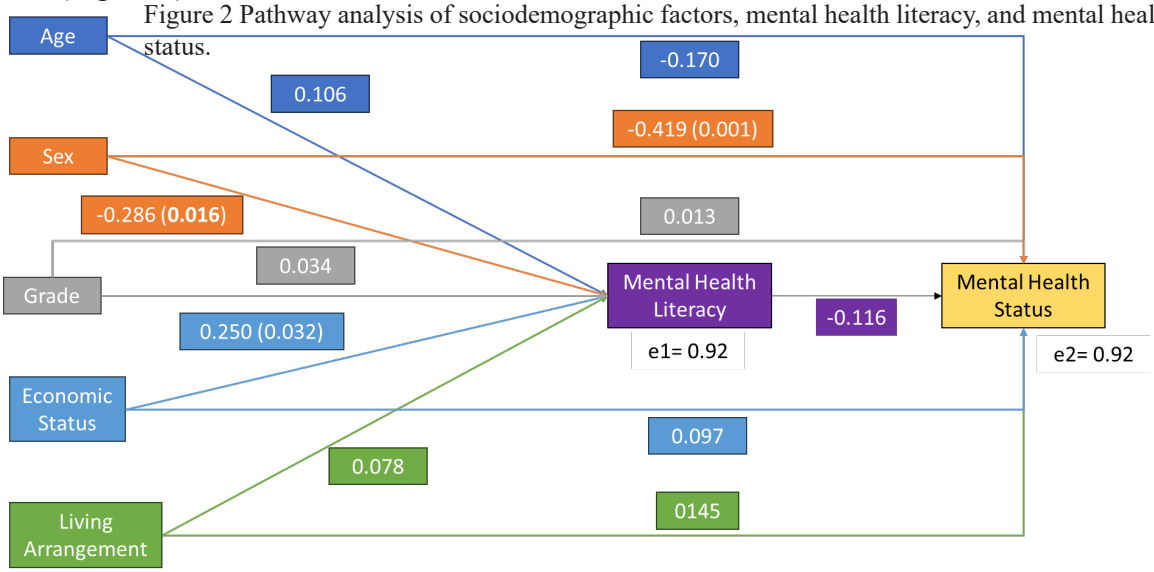
No.	Mental Health Literacy Items	Median (Interval)	Mean ± SD	Age H (*p*)	Sex H (*p*)	Grade H (*p*)	Economic Status H (*p*)	Living Arrangement H (*p*)
1	Erroneous beliefs/stereotypes	33 (23-41)	32.65 ± 4.86	7.599 (0.055)	5.457 (**0.019**)	3.472 (0.062)	0.123 (0.940)	3.112 (0.539)
2	Knowledge of mental health problems	44 (16-54)	42.44 ± 7.33	2.576 (0.462)	6.764 (**0.009**)	2.503 (0.114)	2.803 (0.246)	2.529 (0.639)
3	First aid skills and help-seeking behavior	24 (11-32)	23.85 ± 4.08	1.205 (0.752)	2.073 (0.150)	1.849 (0.174)	5.677 (0.059)	2.677 (0.613)
4	Self-help strategies	19 (8-25)	18.67 ± 3.38	0.471 (0.925)	1.196 (0.274)	0.096 (0.757)	3.680 (0.159)	2.764 (0.598)
5	Total Score	121 (65-143)	117.62 ± 15.35	3.895 (0.273)	7.277 (**0.007**)	3.643 (0.056)	1.541 (0.463)	2.895 (0.575)

Notes: bold indicates p value < 0.05.

Pathway Analysis

Using linear regression, we examined the direct and indirect outcomes of various factors on mental health literacy and status. We found that sociodemographic factors accounted for only 14.8% of the variation in literacy, while the sociodemographic factors and mental health literacy responsible for 16% variation in mental health status. Other factors, such as individual background, experience, social media exposure, and social support, that might contribute to mental health literacy and mental health status [14-16] were not investigated in this study. Our findings revealed that only sex and economic status had a small, negative direct effect on mental health literacy (B = -0.286, p = 0.016 and B = -0.250, p = 0.032, respectively), with an indirect effect of 0.03 on mental health status. In this model, males tended to have lower literacy scores than females, while individuals with higher economic status tended to have higher literacy scores (Figure 2).

Figure 2 Pathway analysis of sociodemographic factors, mental health literacy, and mental health status.



Moreover, only sex had a direct effect on mental health status (B = -0.116, p = 0.001), suggesting that females were more likely to experience mental health problems than males. Our analysis did not identify any significant direct or indirect effects of literacy on mental health status.

DISCUSSIONS

The World Health Organization defines adolescents as the second stage of life, comprising individuals aged 10 to 19 years old [17]. However, some researchers consider adolescence to extend from 10 to 24 years old [18]. Due to this wide age range, the challenges faced at each stage can vary significantly. During early and middle adolescence, the swift physical changes related to puberty frequently lead to increased anxiety in adolescents. Emotional development is also a key focus during these stages, as individuals grapple with feelings of independence and curiosity. In late adolescence, physical development is generally complete, while emotional maturation continues. Problems experienced in earlier stages can have lasting effects on overall development. Mental health disorders during adolescence are known to be linked to impaired mental health in later stages of life. Changes during adolescence can exert pressure on mental conditions [19]. Mental health literacy, encompassing knowledge and awareness of mental health conditions, their causes, and treatments, is crucial for adolescent well-being. Studies consistently demonstrate a correlation between low mental health literacy and poor mental health outcomes among young people [9, 10]. By improving mental health literacy, we can empower adolescents to manage their own mental health, reduce stigma, and create supportive environments. Thus, this study would like to examine mental health literacy and mental health status among adolescents in one rural area in East Java, Indonesia.

Our investigation revealed that 53% of the respondents have mental health problems, with anxiety as the most frequent mental health problem faced by the late adolescents in Mojokerto (45.7%), followed by depression (28.3%) and stress (18.5%). The severity of these three mental health problems varied, ranging from mild to extremely severe. Our finding supported a similar study involving orphan adolescents in Mojokerto and a study of WHO and I-NAHMS in Indonesian adolescents [2, 3, 20].

This study showed female adolescents were more likely to develop mental health problems compared to males, which differs from a small study involving adolescent orphans that showed males were more likely to develop mental health problems [3], and also differs from a study by WHO, which concluded older adolescents were more likely to develop mental health problems [20]. Additionally, this research revealed that adolescents living in intact families had a lower likelihood of experiencing mental health issues, such as depression, anxiety, and stress. This findings in line with a survey in 3,464 Chinese adults that concluded the lack of parental presence in the household can lead to long-term health problems for children, both physically and mentally, especially in female [21]. A similar study of 154 patients at a behavioral health center in the US concluded that there was an association between incomplete family structure and behavior and mood disorders [22]. Our study did not find any difference in mental health status between each group's age, grade, and economic status, which supports the conclusion from the national study [2].

Our study revealed that the adolescents had moderate to good mental health literacy in every aspect of literacy, including the stereotypes, knowledge, finding help behavior, and self-help strategies, but still need to improve. This finding was in line with a survey involving 1000 Spanish adolescents that concluded the respondents had adequate literacy but needed some improvement in help-seeking behavior and erroneous beliefs [23]. Moreover, female adolescents

were more likely to have less stigmatized and better knowledge about mental health. Our study is consistent with previous studies that revealed female students tend to have higher literacy [24] however, from our analysis pathway, the effect was small, which also supports the previous study in 491 adolescents [25].

From the analysis pathway, this study found that sociodemographic factors had a small contribution in mental health literacy and mental health status, as well as mental health literacy to mental health status. Our findings revealed that only sex and economic status had a small, negative direct effect on mental health literacy, with an indirect effect of 0.03 on mental health status. In this model, males tended to have lower literacy scores than females, while individuals with higher economic status tended to have higher literacy scores. This finding supports a previous study in China that concluded socioeconomic status was a moderator for mental health literacy [10]. Unfortunately, several other factors that might have contributed more to the mental health literacy and status were not investigated in this study, including exposure to mental health, having family or friends with mental health problems, exposure to social media about mental health issues, social support from surroundings, and also psychological resilience [10, 14-16]. Our analysis did not identify any significant direct or indirect effects of literacy on mental health status, which differs from the previous study involving 4597 Iranian youth and 700 Chinese students that found a correlation between inadequate health literacy and poor mental health status [9, 10].

Interestingly, a study in Banyumas, Indonesia, involving 410 nuclear families of patients with mental disorders showed a positive correlation between knowledge and therapy behavior. However, almost half of the respondents still chose traditional treatment as the first aid for mental health [26]. This phenomenon suggests that a more comprehensive approach is needed to address the complex factors influencing mental health literacy and status, including their treatment-seeking behavior, for all ages, regardless of whether they have a relationship with a person with mental health issues or not. By identifying the specific factors that contribute to positive mental health outcomes, researchers and practitioners can develop targeted interventions to improve mental health literacy and promote overall well-being.

Due to the complex nature of mental health literacy, policymakers should prioritize mental health education in schools, increase funding for mental health services, and reduce stigma through public awareness campaigns [27]. Educational institutions should train educators to recognize signs of distress and create supportive school environments. By integrating mental health into curricula, providing accessible services, and challenging negative stereotypes, we can empower individuals to prioritize their mental well-being and seek help when needed [28].

As a pilot study, this study outlined the mental health disorders, which were depression, anxiety, stress, and mental health literacy among adolescents in the Mojokerto district. Despite its limitations, including a small sample size and fewer independent variables that might affect the literacy, this study showed the necessity to improve the mental health literacy in a rural area, which can be a crucial component of promoting mental health.

CONCLUSIONS

The growing prevalence of mental health problems among adolescents worldwide, including in Indonesia, is a significant concern. Childhood mental well-being is a key determinant of positive mental health in adulthood. Mental health literacy can help reduce stigma, identify symptoms, and navigate the process of seeking help, but while adequate in this study, it still

requires improvement. To gain a broader understanding of mental health conditions among Indonesian adolescents, particularly those in rural areas, broader research with a randomized sampling is essential. Moreover, investigating other factors that might affect mental health status and literacy, such as individual background, experience, social media exposure, and social support, might increase understanding of these complex domains. Thus, to effectively address the complex factors influencing mental health literacy, policymakers should prioritize mental health education in schools, increase funding for mental health services, and reduce stigma through public awareness campaigns. Additionally, educational institutions should train educators to recognize signs of distress and create supportive school environments to empower individuals to prioritize their mental well-being and seek help.

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Nil

CONFLICT OF INTEREST

Nil

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Nil

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