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# Depression Among Islamic Boarding Schools Students During the COVID-19 Pandemic in East Java, Indonesia

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## Abstract

The COVID-19 pandemic significantly impacts many aspects of life, including health, economy, society, education, and mental well-being. The pandemic impact on mental health, in particular, leads to increased rates of depression, anxiety, and stress. This study aimed to determine the prevalence of depression among Islamic boarding school students in Indonesia and identify factors associated with depression symptoms. This cross-sectional study employed questionnaires for data collection. Assessment of depression levels used the DASS-21 tool. Descriptive statistics and multivariate logistic regression were applied to analyze relationships between variables. The study findings indicated that 62.4% of the students exhibited factors associated with depression. In general, education level, personality type, communication with peers, satisfaction with the living environment, and health status demonstrated significant associations with depression. In conclusion, recognizing and intervening at early stages are crucial for depression prevention and mitigation. This study serves as a key instrument for the policymakers in the field of education, providing insights to promptly take immediate actions, especially regarding the placement of students in Islamic boarding schools in Muslim-majority countries.

**Keywords:** depression, Indonesia, Islamic boarding school, policymakers, regulatory

## Introduction

The coronavirus disease 2019 (COVID-19) pandemic has significantly impacted people's lives physically and mentally. The rapid spread of COVID-19 worldwide has resulted in high rates of morbidity and mortality, as well as unexpected health, economic, social, educational, and psychological consequences.<sup>1-2</sup> Until October 2022, globally, over 6 million deaths from over 633 million COVID-19 cases were reported.<sup>3-4</sup> The pandemic has affected the social economy,<sup>5-6</sup> physical health,<sup>7</sup> mental health, such as depression, anxiety, and stress,<sup>8-10</sup> and high mortality rate.<sup>11</sup>

In a previous study, mental health has become a major serious issue among young people, in which almost 40.4% of the younger generation tends to have psychological problems.<sup>12</sup> The relationship between mental health problems and preventive behavior is essential for developing targeted interventions addressing both physical and mental health needs. Individual mental health status may help promote overall well-being and reduce the burden of disease in terms of mental health conditions and physical health issues.<sup>13</sup> Another study also found that 30.8% of the Indian general population reported depression, 26.6% had anxiety, and 24.5% reported stress.<sup>8</sup>

Furthermore, mental health issues among adults and the elderly were also reported to be still high.<sup>14-15</sup> Few studies revealed mental health issues among the young during the COVID-19 pandemic, especially in Islamic boarding schools.<sup>16-17</sup> A study in an Islamic boarding school in Malang City, East Java Province, Indonesia, reported 56% of students developing depression and 76% having anxiety.<sup>18</sup> Moreover, anxiety among adolescents in Indonesia was 54% during the COVID-19 pandemic.<sup>19</sup>

The Islamic boarding schools are inheritance of religious practice from the local community, the oldest type of Islamic education activity for acculturation to the local culture in Indonesia.<sup>20</sup> Islamic boarding schools' elements include dormitories for students to stay and mosques for worship. Islamic boarding schools have several weaknesses, including habits and culture, in which the students are used to doing some activities together, such as eating, studying, and sleeping, as well as the culture of greeting students and teachers with shaking and kissing hands.<sup>20</sup>

Most importantly, one dorm room is commonly occupied with 10-20 students, which could increase the risk of a student contracting COVID-19. Islamic boarding schools implement a rule prohibiting students from

1 carrying their cell phones. This situation may cause a major mental health issue because the lack of information could worsen students' mental health. The Islamic boarding schools with closed spaces should consider the impacts of physical health and non-physical aspects. The uncertainty of the pandemic could affect the mental health status of Islamic boarding school students. Therefore, this study examined Islamic boarding school students' mental health status in Indonesia. In addition, this study aimed to assess the prevalence of depression among demographics and identify potential factors associated with depression symptoms.

## Method

This descriptive-analytic study with a cross-sectional approach was conducted in March-April 2023. It should be noted that the estimated number of the Islamic boarding schools students' population in East Java Province, Indonesia, is approximately 970,541. The study utilized a significance level (alpha) of 0.05 to set a statistical power of 0.95. The 0.95 established a required sample size of 384, representing the precise number of responses needed to reach a specified level of precision. These parameters were based on prior study.<sup>21-23</sup> The sample size study collected 425 student participants meeting the criteria (p-value of 0.05) across Islamic boarding schools in four different regions in East Java Province (Malang, Mojokerto, Jombang, and Bojonegoro).

Convenience sampling methodology was applied. Inclusion criteria required participants to be at least 12 years old and currently reside within the confines of an Islamic boarding school. Preceding the questionnaire distribution to the student cohort, a comprehensive briefing outlining the study's objectives to all participants was conducted. Moreover, the participants were assured that their involvement would not affect their educational pursuits. Confidentiality was of the utmost importance, as all participants were guaranteed that their information would be kept confidential.

Data collection involved questionnaires covering participant sociodemographics, depression-related factors, and depression assessment. Sociodemographics included sex and education level. Depression factors included boarding school preference, parental support satisfaction, personality type, family visit frequency, stay duration, peer communications, satisfaction with the living environment, health status, socializing, sleep patterns, mask-wearing, distancing, and cough etiquette. The questionnaire's clarity was validated on 20 students from an Islamic boarding school.

The primary variable was depression, assessed using a 7-item depression scale from the Depression Anxiety Stress Scale-21 (DASS-21).<sup>24</sup> The validity of DASS-21 in the Indonesian version was previously used in the Indonesian population,<sup>25-26</sup> and the depression scale consisted of 7 items. Each item was scored on a 4-point Likert scale from 0 (never) to 3 (almost always). Scores of 0-9 were considered normal, and 10-42 indicated depression. All questionnaires were tested through linguistic validation before being implemented on the participants to assess items and clarify and identify whether responses were clear.

This study categorized sex as male or female; education level as junior or senior high school; boarding preference as self or parental; financial support from parents as satisfied or dissatisfied; personality as extrovert or introvert; family visit frequency as often, sometimes, or never; stay duration as one year or more than one year; peer communications as good, average, or poor; satisfaction of the living environment as satisfied, neutral, or dissatisfied; health status as good or poor; socializing as good or bad; sleep patterns as good, adequate, or poor; mask-wearing as yes or no; distancing as yes or no; and cough etiquette as yes or no. Data was analyzed using SPSS version 26.0 (IBM Corp., Armonk, NY, USA). Sociodemographics were described with frequencies and percentages. Bivariate analysis used the Chi-squared test. Multivariate logistic regression identified depression-related factors, generating odds ratio (OR) and 95% confidence interval (CI) for each variable in the final model.

### Results

This study involved 425 students from Islamic boarding schools, and Table 1 presents the sociodemographic distribution and Chi-square analysis. The distribution of sex showed that 75.1% of participants were females, while 24.9% were male. For their educational background, 60.2% of students attained a senior high school level, and the remaining 39.8% had attended junior high school. Interestingly, 75.8% expressed their choice to stay at the boarding school, while 24.2% indicated their parents' preference. A noteworthy finding showed that 90.8% of the students were content with the financial support they received from their parents, opposing the 9.2% showing their dissatisfaction. In term of personality, 56.5% of them identified as introverts, while 43.5% identified as extroverts. Family visit frequency varied, in which 27.8% experienced frequent visits, 68.2% had occasional visits, and 4.0% never had family visits. A substantial 82.6% of students stayed at Islamic

**Table 1. Sociodemographic Distribution and Chi-squared Analysis Among Islamic Boarding School Students (n = 425)**

Variable	Category	n (%)	Depression		p-value
			Normal (n (%))	Depression (n (%))	
Sex	Male	106 (24.9)	42 (9.9)	64 (15.1)	0.628
	Female	319 (75.1)	118 (27.8)	201 (47.3)	
Education level	Junior high school	169 (39.8)	52 (12.2)	117 (27.5)	0.017*
	Senior high school	256 (60.2)	108 (25.4)	148 (34.8)	
Preference to stay at a boarding school	Self-preferred	322 (75.8)	125 (29.4)	197 (46.4)	0.378
	Parents	103 (24.2)	35 (8.2)	68 (16.0)	
Satisfied financial support from parent	Satisfied	386 (90.8)	151 (35.5)	235 (55.3)	0.049*
	Dissatisfied	39 (9.2)	9 (2.1)	30 (7.1)	
Type of personality	Extrovert	185 (43.5)	81 (19.1)	104 (24.5)	0.022*
	Introvert	240 (56.5)	79 (18.6)	161 (37.9)	
Frequency of family visit	Often	118 (27.8)	43 (10.1)	75 (17.6)	0.917
	Sometimes	290 (68.2)	110 (25.9)	180 (42.4)	
	Never	17 (4.0)	7 (1.6)	10 (2.4)	
Duration of stay	≤1 year	74 (17.4)	27 (6.4)	47 (11.1)	0.821
	>1 year	351 (82.6)	133 (31.3)	218 (51.3)	
Peer communication	Good	324 (76.2)	139 (32.7)	185 (43.5)	<0.001*
	Average	89 (20.9)	17 (4.0)	72 (16.9)	
	Poor	12 (2.8)	4 (0.9)	8 (1.9)	
Satisfaction with the living environment	Satisfied	252 (59.3)	107 (25.2)	145 (34.1)	0.020*
	Neutral	163 (38.4)	48 (11.3)	115 (27.1)	
	Dissatisfied	10 (2.4)	5 (1.1)	5 (1.2)	
Health status	Good	395 (92.9)	156 (36.7)	239 (56.2)	0.004*
	Poor	30 (7.1)	4 (0.9)	26 (6.1)	
Interacting with friend	Good	404 (95.1)	157 (36.9)	247 (58.1)	0.023*
	Bad	21 (4.9)	3 (0.7)	18 (4.2)	
Sleep need	Good	254 (59.8)	107 (25.2)	147 (34.6)	0.025*
	Adequate	102 (24.0)	36 (15.5)	66 (15.5)	
	Poor	69 (16.2)	17 (4.0)	52 (12.2)	
Wearing a mask while doing activity	Yes	106 (24.9)	38 (8.9)	68 (16.0)	0.659
	No	319 (75.1)	122 (28.7)	197 (46.4)	
Keeping a safe distance	Yes	106 (24.9)	38 (8.9)	66 (15.5)	0.048*
	No	319 (75.5)	122 (28.7)	199 (46.8)	
Covering mouth with tissue or the inner arm while coughing	Yes	160 (37.6)	128 (30.1)	197 (46.4)	0.183
	No	265 (62.4)	32 (7.5)	68 (16.0)	
Depression	Normal	160 (37.6)	-	-	
	Depressed	265 (62.4)	-	-	

Note: \*p-value <0.05

boarding schools for over a year.

Peer communications were generally positive, with 76.2% reporting good communication, 20.9% stating



it average, and only 2.8% considering it poor. Furthermore, 59.3% expressed satisfaction with their living environment. Personal health was vital for their mental well-being, as 92.9% reported good health, while 7.1% indicated poor health. Furthermore, students overwhelmingly had good relationships with their friends (95.1%) and reported relatively positive sleep quality (59.8%).

However, a significant proportion (75.1%) did not wear masks during activities, and 62.4% did not adhere to hygiene practices, for example, not covering their mouth while coughing. Remarkably, 62.4% of the students reported indicated depression scores above nine on the DASS-21 scale, indicating a significant prevalence of depression among the study samples. These findings shed light on the diverse characteristics and well-being of students at the Islamic boarding school, highlighting areas of concern, such as mental health and hygiene practices, which may warrant further attention and support.

The study employed Chi-square analysis to explore potential associations between various variables and depression within the studied population. The corresponding p-values were utilized to evaluate the statistical significance of these associations. Notably, the analysis revealed no statistically significant association between sex and depression (p-value = 0.628), indicating that both males (9.9%) and females (15.1%) in the sample exhibited similar rates of depression. Additionally, significant associations were found, particularly with educational level emerging as a noteworthy factor (p-value = 0.017). The findings suggested that individuals with senior high school levels were more likely to experience depression compared to those with junior high school levels. This underscores the importance of educational.

**1 Table 3. Classification Results Based on the Logistic Regression Model**

Observed	Predicted		Correct (%)
	Normal	Depression	
Normal	55	105	34.4
Depression	36	229	86.4
Overall			66.8

Furthermore, dissatisfaction with living conditions was associated with an increased likelihood of depression, supported by a statistically significant OR of 1.162 (95% CI = 1.029–1.908). Conversely, students with poor health status had an exceptionally elevated risk of depression, as indicated by a strikingly high OR of 10.77 (95% CI = 2.084– 55.65). These results underscored the critical role of environmental and health factors in shaping mental health outcomes. In contrast, higher levels of education were found to be protective against depression, with students attaining a senior high school education having an OR of 0.53 (95% CI = 0.325–0.895), signifying a lower likelihood of experiencing depression. Findings thus elucidated the potential buffering effect of education against depressive symptoms in this study population. These statistical findings provided a comprehensive and quantitative understanding of the complex interplay of personality traits, social interactions, living conditions, health status, and education with depression among Islamic boarding school students in Indonesia.

As displayed in Table 3, the model’s classification table reveals an overall accuracy of 66.8%. While this accuracy rate falls below a high threshold, it is noteworthy that the model can identify students with depression, achieving an accuracy of 86.4%. It suggests that this has the potential to serve as a valuable tool for screening depression among students.

## Discussion

The elevated depression within Islamic boarding schools presented a substantial and potentially pervasive concern. These findings ascertained that the prevalence of depression among Islamic boarding school students stood at 62.4%, a notably higher figure compared to prior studies among Malaysian students, in which depression rates were observed at 29.4% and 53.9%.<sup>22,26</sup> A similar pattern emerges in Morocco,<sup>27</sup> and Islamic boarding schools in Malang City, East Java Province, Indonesia, which recorded 56%.<sup>18</sup> While the exact reasons for this heightened prevalence of depression in Islamic boarding schools remain unclear, several plausible explanations can be posited.

The pandemic probably interrupted regular daily schedules, giving rise to sensations of uncertainty and isolation. Despite not adhering strictly to protocols, the data indicates that individuals did not completely sever their social connections. Situations such as lockdowns and social distancing measures may have restricted social interactions, amplifying feelings of loneliness and isolation, consequently exacerbating symptoms associated with depression. It is essential to recognize that the contributing factors to depression are multifaceted and context-dependent. This analysis provided a general overview rather than a definitive statement regarding the Indonesian situation, underscoring the necessity for further research to elucidate the underlying causes of this increased depression prevalence.

This study's findings disclosed no statistically significant sex-based differences in depression prevalence, mirroring findings from a previous study in Malaysia.<sup>22</sup> Moreover, a higher level of education was linked with a higher likelihood of depression, consistent with studies among Palestinian<sup>28</sup>, Chinese<sup>29</sup>, and Pakistan<sup>30</sup> students, in which older students exhibited a greater propensity for depression. In the context of Islamic boarding schools, no substantial discrepancy in depression prevalence was discerned between senior and junior high school students. This complex pattern might be attributed to individual variations. Having potentially remained at home during the pandemic, senior high school students may have grappled with the challenges of online learning and social distancing to a greater extent. Understanding precise reasons for the elevated depression rates within this context necessitates up-to-date studies and data.

Regarding personality types, introverted individuals were more prone to depression, aligning with earlier studies indicating that introverts experienced positive and negative emotional impacts.<sup>29-30</sup> Multiple factors may contribute to this heightened susceptibility among introverts, such as diminished social support and a smaller circle of close friends, potentially rendering them less inclined to seek help or openly discuss their struggles. It is crucial to emphasize that not all introverted personalities would encounter depression, as diverse factors influence mental health conditions, and the relationship between introversion and depression is merely a correlation.

The findings of this study demonstrated that strong peer communication was associated with a reduced likelihood of depression, corroborating findings from other studies.<sup>31-32</sup> This might be attributed to friends' supportive space, allowing students to express their thoughts and emotions openly. Sharing one's feelings could be therapeutic, aiding individuals in processing their emotions and alleviating emotional distress, possibly preventing the onset of depression.<sup>33</sup> During times of upheaval like the COVID-19 pandemic, maintaining peer communications offers a sense of continuity and normalcy in relationships, offering comfort amidst uncertainty.

Satisfaction with one's living environment was associated with lower rates of depression, in line with previous studies.<sup>34-35</sup> Many factors, including past experiences and environmental influences, could explain this phenomenon. Nonetheless, it is essential to acknowledge that satisfaction with the living environment represents only one facet of an individual's mental health.<sup>36-37</sup> Promoting a gratifying living environment is

pivotal in supporting students' mental well-being and fostering a positive and supportive atmosphere, contributing to their overall welfare, academic performance, and personal growth.

Nonetheless, this study underscored a significant correlation between poor health status and elevated rates of depression, in line with a previous study in Bangladesh.<sup>38</sup> Students with compromised health were more prone to depression,<sup>39</sup> potentially attributable to the impact on health. The pandemic presented various health challenges, and students contracting the virus or enduring other health issues during this period might continue to grapple with physical and emotional repercussions, amplifying their susceptibility to depression.

This study represented the inaugural exploration of mental health among Islamic boarding school students in East Java Province, Indonesia. However, it is vital to acknowledge several limitations which necessitate consideration in interpreting these findings and guide future studies. The cross-sectional design provided a snapshot but did not establish causal relationships over time. Convenience sampling, prompted by movement restrictions, may limit result generalizability, as social desirability bias or concerns about stigma could influence symptom reporting.

Consequently, these results cannot be used as a generalization of depression among students at all Islamic boarding schools in East Java or Indonesia. Additionally, Islamic boarding schools possess unique cultural, religious, and social contexts that may influence depression prevalence and expression differently than in non-religious educational settings. The questionnaires to assess depression and associated factors may not fully capture the complexity of students' experiences, potentially affecting result accuracy. Furthermore, these findings highlighted that the standard DASS-21 measure could not capture the situation.

The study findings suggested several implications and recommendations, such as acknowledging the imbalance of sex, with 75.1% female and 24.9% male participants potentially impacting generalizability. Future studies should aim for a more balanced representation to enhance the external validity and provide a nuanced understanding of gender-specific influences on phenomena observed. Also, mental health classes integrating religious values alongside a comprehensive understanding of depression should be provided and implemented. Additionally, offering faith-based counseling services and conducting training sessions for caregivers and teachers on early recognition of depression signs, as well as guidance on providing emotional and spiritual support to students, are crucial. By these measures, Islamic boarding schools could deliver culturally and contextually relevant interventions to address and overcome depression among students effectively.

## Conclusion

Introverted personality traits, moderate peer communications, dissatisfaction with their living environment, and poor health status significantly correlated with depression among Islamic boarding school students. Addressing the mental health requirements of students facing health issues in Islamic boarding schools is of the utmost importance. Establishing a supportive and empathetic environment, promoting mental health awareness, and providing accessible mental health resources are pivotal in bolstering the students' well-being during the arduous period. Timely recognition and intervention are essential in the prevention and management of depression among students grappling with health-related challenges, while nurturing a compassionate and understanding community may wield a profound impact on their overall mental health.

## Abbreviations

COVID-19: Coronavirus Disease 2019; DASS-21: Depression Anxiety Stress Scale-21; OR: Odds Ratio; CI: Confidence Interval; AOR: Adjusted Odds Ratio.

## 1 Ethics Approval and Consent to Participate

This study was approved by the Health Research Ethics Committee of Politeknik Kesehatan Kemenkes Malang, with approval No. 088/III/KEPK POLKESMA/2023.

## Competing Interest

The authors declare that there are no significant competing financial, professional, or personal interests that might have affected the performance or presentation of the work described in this manuscript.

## Availability of Data and Materials

The datasets generated during and/or analyzed during the current study are available from the corresponding author upon reasonable request.

## Authors' Contribution

Writing original draft manuscript: YA. Formal and statistical analysis: YA and MS. Data curation: YA and DP. Technical writing, proofreading, validating, reviewing, and editing: YBM. All authors contributed to the study design and interpretation of the analysis and approved the final draft of the manuscript.

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