

# Psychological and coping strategies of the red zone community: a cross-sectional study of COVID-19 pandemic in rural area in Indonesia



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## ABSTRACT

**Introduction:** People who live in red zone communities are at high risk of COVID-19 transmission. This condition can elicit various societal reactions, both physically and psychologically. This psychological response will urge them to search for alternative solutions. The fundamental purpose of this study was to determine the psychological state and coping mechanism, especially for people living in the rural red zone.

**Methods:** A cross-sectional study was conducted on 12,423 persons living in a rural area of East Java province. According to Krejcie and Morgan's table, the sample size was 372 participants. The questionnaires were circulated through social media applications and a Google form. Two experts examined the validity of the content. In early June 2021, data collection began. The data were analyzed using descriptive statistics, Pearson correlation, and Kruskal-Wallis tests.

**Results:** The population suffers from three categories of ailments, the most common of which are anxiety and stress. The community employs both emotion-focused and problem-focused coping mechanisms. Seeking emotional and instrumental social support, turning to religion, acceptance, mental and behavioral divergence, active coping activities, focusing and releasing emotions, denial, and bodily symptoms are examples of coping mechanisms. The findings also show a significant relationship between several demographic variables, precisely age and coping strategies. People who live in the rural red zone have varied psychological reactions, such as anxiety and stress. The community's coping mechanisms tend to revolve around releasing emotions and denial.

**Conclusions:** The increasing prevalence of COVID-19 contributes to the onset of psychological health problems in some people living in the red zone. When psychological health difficulties occur, they urge an individual to develop coping mechanisms for coping with the current condition.

**Keywords:** Psychological, Coping Strategies, Community, Red zone, Rural area.

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## INTRODUCTION

Infections of confirmed COVID-19 infection are increasing daily, according to WHO data, which indicates that the global total of confirmed COVID-19 cases has reached 185,291,530.<sup>1</sup> In Indonesia, the total number of confirmed cases of COVID-19 patients has reached 2,491,006; this figure is spread across several provinces, one of which is East Java province, particularly the city of Probolinggo, which has reached 3,709 confirmed cases of covid-19; this figure is so high that several villages in the city of Probolinggo are dubbed the red zone.<sup>2</sup> The ongoing spread of COVID-19 can have several negative consequences, including the onset of a life crisis, physical stress, and psychological pressure in tension,

worry, melancholy, and fear among the community, patients, and medical workers.<sup>3</sup>

The covid-19 pandemic can exacerbate anxiety and stress in healthy individuals to the point where the number of people who experience stress on their mental health is greater than the number of people infected with COVID-19.<sup>4,5</sup> According to the findings of a study of multiple studies, survivors' anxiety levels were much more significant than those who survived the virus, which was 7.3 percent of sufferers. In Taiwan, as many as 60 percent of total research respondents expressed concern about the virus recurrence.<sup>6</sup> Other research demonstrates the psychological impact, with 50% of 1,210 respondents reporting moderate to severe anxiety and one-third

reporting moderate to severe anxiety.<sup>7</sup>

The increasing number of COVID-19 cases has resulted in various psychological responses within the population, encouraging people to seek remedies known as pandemic coping techniques. Individuals employ coping methods differently; for example, some individuals use problem-focused coping strategies to seek social support and positive thinking. Meanwhile, emotional coping mechanisms include rejection/avoidance.<sup>8</sup> The coping strategies have different effects, which can protect or exacerbate mental health.<sup>9</sup> Coping strategies play a critical role in people's psychological well-being, particularly those in the red zone; adaptive coping strategies that the community can implement include self-care activities

such as adequate rest and time with loved ones, as well as encouraging behavior that promotes more adaptive responses during stressful periods during the pandemic.<sup>6</sup> Another study suggests that if someone is experiencing worry due to the rising number of COVID-19 cases, coping options include discussing the anxieties with those who can help to overcome them and maintaining personal health through adequate sleep and frequent exercise.<sup>10</sup> Adopting a positive attitude during a pandemic can significantly impact stress reduction because it enables individuals to positively reinterpret unpleasant conditions that affect self-efficacy, psychological well-being, and overall quality of life.<sup>11</sup> Other research indicates that two additional coping methods, namely social support and avoidance, are risk factors for dysfunctional responses to stressful situations, owing to the likelihood of adopting an avoidance-based coping strategy (rejection) during a pandemic.<sup>12</sup> Based on the description above, the research will describe the psychological status of the community and the coping methods implemented by persons living in the red zone during the epidemic.

## METHODS

### Study Design

This research is a cross-sectional survey with a purposive sampling technique that selects the respondents who match the inclusion criteria.

### Data Collection

The population of this study is people who live in the red zone. The sample size is 372 respondents. The inclusion criteria of this study were people living in the red zone, at least 18 years old, have a smartphone and access to social media applications (Facebook and/or Line), and willing to participate in this study (a consent form was provided during the first page of the Google form questionnaire). The exclusion

criteria of this study were illiterate people. A self-administered questionnaire was used to collect data which consists of four parts:

Part I: General information, four items.

Part II: DASS (psychological condition) questionnaire, which is a questionnaire to determine normal conditions, anxiety, stress and depression. Each question item has a four-point rating scale (0=never, 1=sometimes, 2=often, 3=almost all the time)

1. Anxiety scale No: 2, 4, 7, 9, 15, 19, 20, 23, 25, 28, 30,36, 40, 41
2. Stress scale No: 1, 6, 8, 11, 12, 14, 18, 22, 27, 29, 32, 33, 35, 39
3. Depression scale No: 3, 5, 10, 13, 16, 17, 21, 24, 26, 31,34, 37, 38, 42

The assessment indicators are shown in [Table 1](#).

Part III: Emotion-Focused and Problem-Focused Coping Strategy Questionnaire. Each question item has a rating scale (very rarely, sometimes, often, always). This coping strategy questionnaire consists of 8 categories:

The coping instrument has been validated for validity with a value of  $r$  arithmetic  $> r$  table (0.444), indicating that it is a valid instrument for use in research; the reliability test indicates that Cronbach's alpha value of 0.888 is greater than the  $r$  table (0.444), meaning that the instrument is reliable in this study. The validity test indicates that the tool is valid in this study. The self-concept questionnaire has an arithmetical value more significant than the  $r$  table (0.444), indicating that it is a valid instrument for use in research. In contrast, the reliability test indicates that

the instrument has a Cronbach's alpha value greater than the  $r$  table (0.444), indicating that it is reliable in this study.

The data collection period lasted four weeks in May 2021. The questionnaire questions were created using a Google form. The questionnaire was delivered via the Facebook application, and during the COVID-19 epidemic, the program was utilized to collect data. The Google form's questionnaire link was distributed to Facebook friends and WhatsApp researchers. The researcher requested that they share the link with their red zone acquaintances.

### Data analysis

The data were analyzed using SPSS 26.0 and descriptive statistics (frequency, percentage, mean, standard deviation, maximum, and minimum). Correlations between the independent and dependent variables were analyzed using Pearson and Kruskal-Wallis correlations. Age, education, occupation, gender, anxiety, stress, and depression were all subjected to univariate analysis. The bivariate analysis consists of Pearson correlation which examines the variables, and Kruskal-Wallis, which examines the effects of education, occupation, and gender on coping strategies.

## RESULTS

According to [table 3](#), the average age of respondents in the study is 34.54 years, the majority of respondents have a high school education (34.90%), the majority of respondents are self-employed (45.40%),

**Table 1. Stress Anxiety Depression Level.**

Level	Depression	Anxiety	Stress
Normal	0 – 9	0 – 7	0 – 14
Low	10 – 13	8 – 9	15 – 18
Currently	14 – 20	10 – 14	19 – 25
Heavy	21 – 27	15 – 19	26 – 33
Very heavy	> 28	> 20	> 34

**Table 2. Coping Strategy Questionnaires.**

Categories	Seeking Support	Turning to religion	Acceptance	Mental and behavioral disperagement	Coping active	Focus & releasing emotional	Denial	Physical symptoms
No	23, 24, 29, 31, 34, 38, 40	25,46,47	21,33	16,17,27,44	18,19,20,22,11, 32,35,36,37,41, 42,43,45,48,49	1,2,3,28	4,26,30,38	5, 6, 7, 8, 9, 10, 12, 13, 14, 15

and the majority of respondents are female (53.80 %).

According to table 4, 34.15 percent

of respondents living in the red zone reported having mild anxiety, while 17.47 percent reported having moderate anxiety.

Mild stress affected 33.33 percent of respondents, moderate stress affected 2.15 percent, and depression affected 23.66 percent of respondents but was classified as mild depression.

Based on table 5, the description of the coping strategies of respondents who live in the red zone shows that 14.52% of respondents choose a coping strategy that focuses on releasing emotions, then 13.98% of respondents choose a coping strategy with denial, 13.44% of respondents choose a coping strategy. In the form of mental and behavioral disparagement and 12.09% of respondents chose a coping strategy to seek social support.

Table 6 shows a significant association between coping techniques and age. Coping strategies are not significantly connected to education, work, gender, anxiety, stress, or depression, whereas education, work, and gender are associated considerably with anxiety, stress, and depression.

**Table 3. Characteristics of Age, Education, Occupation, and Gender of Respondents.**

	M	SD	(n)%
Age	34,54	10,633	
<b>Education</b>			
No School			7,50
Primary School			15,60
Junior high school			32,50
Senior high school			34,90
University			9,10
<b>Profession</b>			
Government employees			13,20
Private employees			20,40
Self-employed			45,40
Does not work			21,00
<b>Gender</b>			
Man			46,20
Women			53,80

**Table 4. Distribution of Psychological Conditions of Respondents Living in the Red Zone.**

Categories	Amount	
	n (372)	(%)
<b>Normal Psychology Condition</b>		
<b>Psychological Problem</b>		
Normal	180	48,38
Low anxiety	127	34,15
Moderate anxiety	65	17,47
	Mean=6,00 SD=4,50 Min=0 Max=14	
Normal	240	64,52
Low stress	124	33,33
Moderate stress	8	2,15
	Mean=9,24 SD=6,17 Min=0 Max=19	
Normal	284	76,34
Mild depression	88	23,66
	Mean=7,24 SD=3,78 Min=1 Max=12	

**Table 5. Coping Strategies of Respondents Living in the Red Zone.**

Coping category	Total N (372)	Percentages (%)
Seeking Support	45	12,09%
Turning to religion	43	11,56%
Acceptance	43	11,56%
Mental and behavioral disparagement	50	13,44%
Coping active	44	11,83%
Focus & releasing emotional	54	14,52%
Denial	52	13,98%
Physical symptoms	41	11,02%

## DISCUSSION

According to the study, the psychological state of those living in the red zone, particularly those feeling anxiety, stress, and depression, was found to be mild to moderate on average. This demonstrates that the red zone, usually referred to as the area with the highest number of Covid-19 cases, contributes to the local community's psychological and physical well-being. Covid-19 is a stressor that precipitates the onset of psychological disorders in an individual.<sup>13</sup> According to the psychology of people who live in the red zone, 34.15 percent suffer from mild anxiety and 17.47 percent from moderate anxiety. Then there is 33.33 percent who feel mild stress, 2.15 percent who suffer moderate stress, and 23.66 percent who experience depression but only mild depression. This condition is consistent with previous research, which indicated that up to 35% of women and 19% of men reported feeling moderate to severe depression.<sup>14</sup> The introduction of novel virus varieties and the increasing number of covid cases can exacerbate an individual's mental health condition, regardless of whether they previously had a history.<sup>15</sup>

The community's psychological state will urge people to overcome the problem;

**Table 6. Relationship between age, education, occupation and gender Psychological conditions and coping strategies.**

	1	2	3	4	5	6	7	8
1 Age	1							
2 Education	0,00	1						
3 Profession	0,04	0,00	1					
4 Gender	0,80	0,00	0,00	1				
5 Anxiety	0,98	0,03	0,00	0,00	1			
6 Stress	0,49	0,00	0,00	0,00	0,00	1		
7 Depression	0,83	0,00	0,00	0,00	0,00	0,00	1	
8 Coping	0,02	0,42	0,98	0,77	0,55	0,64	0,94	1

this action or response is a coping strategy. Even if the problems are identical, the coping mechanisms will differ. In general, a person's coping methods consist of two types: those that emphasize emotions and those that emphasize problems. However, the two types of coping strategies do not have the same effect on managing stressful events caused by a pandemic.<sup>16</sup>

A problem-focused coping strategy seeks social assistance, whereas an emotional-focused coping strategy is to feel worried and afraid about the current circumstance. People who live in the red zone employ inefficient coping mechanisms such as focusing on releasing emotions. One feels anxious and terrified for no apparent reason, denial, and belittling, specifically remaining together with friends even though crowds are prohibited. Effective coping requires obtaining social support, such as discussing current circumstances with others and being prepared to take input from others. Ineffective coping techniques can exacerbate a person's mental state, demonstrating that they are ineffective for conquering challenges. In contrast, effective coping strategies can improve mental stress conditions by lowering anxiety, stress, and depression.<sup>17,18</sup> If concern regarding covid-19 occurs, these issues can be overcome by communicating fears with others since this can assist in calming and developing self-awareness.<sup>10</sup>

Another form of social support that may be provided is to participate actively in attempts to prevent the spread of covid through the implementation of health protocols, as can also use this way to alleviate fear associated with the current situation.<sup>19</sup> A person's psychological health can be protected during a pandemic if he or she can cooperate with others, such

as seeking social support, as this is a critical factor in lowering stress.<sup>20</sup> Age characteristics and coping strategies have a strong correlation. A more mature age contributes to one's readiness to deal with pressures and precision in selecting beneficial coping strategies.<sup>21</sup> Adults and older individuals have greater control and encouragement when creating positive appraisals of conflict situations.<sup>22</sup> Psychological problems associated with work, job position (for example, job loss during a pandemic), and inadequate income can all increase the likelihood of developing psychological problems such as depression.<sup>23-25</sup>

Additionally, gender affects a person's level of depression.<sup>26,27</sup> Women and adolescents are particularly vulnerable to psychological illnesses during a pandemic; additionally, women are more sensitive to psychological difficulties.<sup>28</sup> According to a study, a person's education level can affect their knowledge level; specifically, there is a significant association between a person's anxiety, stress, depression, and level of knowledge.<sup>29</sup> A lack of education can impede developing one's attitudes and knowledge, making it challenging to comprehend and solve problems, which might affect a person's level of conduct.<sup>30</sup>

## CONCLUSION

This study showed that most psychological health problems in persons living in the red zone were mild anxiety. When psychological health difficulties occur, they urge an individual to develop coping mechanisms for coping with the current condition, including releasing emotions. According to the percentage of persons who use inadequate coping techniques, more people employ them than successful coping strategies.

Along with concluding the study's findings, this research advises various parties to assist in treating psychological problems in people living in the red zone and educate the public about appropriate and effective coping strategies. These suggestions include the following: This research can guide the development of solutions to address psychological problems during a pandemic, as well as qualitative investigations of people's perceptions of psychological problems during a pandemic, both in general and in specialized occupations like as medical professionals.

## DISCLOSURE

### Author Contribution

All authors have contributed to this research process, including conception and design, analysis and interpretation of the data, drafting of the article, critical revision of the article for important intellectual content, final approval of the article, collection and assembly of data.

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### Conflict of Interest

There is no conflict of interest for this manuscript.

### Ethical Consideration

This research was approved by the Health Research Ethics Committee of the Department of Public Health, Nahdlatul Ulama University Surabaya. Letter of exemption Ref. No. 17.82/HPZH.22/LL/2020.



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