

# Impact of the restrictions on community activities policy during the COVID - 19 on psychological health

*by* Cek Turnitin

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# Impact of the restrictions on community activities policy during the COVID-19 on psychological health in Indonesia's urban and rural residents: A cross-sectional study

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## Abstract

**Background and Aims:** Although extensive research has been conducted on the psychological impact after exposure to the COVID-19 pandemic, very few studies simultaneously investigated the negative and positive impacts on urban and rural residents. This study aims to compare the extent of psychological impact on Indonesian living in urban and rural areas a year after the first case of COVID-19 was reported.

**Design, Methodology and Approach:** We employed a cross-sectional study design. A total of 428 participants completed a set of web-based questionnaires from February to March 2021, consisting of the Impact of Event Scale-Revised (IES-R), the Perceived Social-Support (PSS), the mental health-related lifestyle (MHLS), and 6-item negative impacts, and the Jenkins' Sleep Scale (JSS).

**Findings:** Over 40% of the participants reported moderate to severe trauma-related distress; 30%–40% increased stress at work, home, and financial stress, and 50% more social support gained from their family and friends. Although 62.1% of participants paid more attention to their mental health, only 30% engaged in a healthier lifestyle, and 36.7% had sleep problems. No significant differences were found between urban and rural residents on psychological impact, changes in mental health and related lifestyles, and sleep quality. Urban residents perceived more negative impacts, in parallel with increased social support, compared to rural residents. We also found a significant correlation between psychological impact, sleep disturbance, and increased social support. However, there was no significant association between mental health-related lifestyles and other scales.

**Originality and Value:** This is among the first studies that examine the urban-rural disparity on the positive and negative impact of the COVID-19 in the later stage of the pandemic. Our findings offer insights to provide equal effort to mitigate the negative impacts of the COVID-19 crisis as well as promote healthy lifestyle behaviors in both urban and rural residencies.

## KEYWORDS

COVID-19, Indonesia, mental health, psychological impact, rural, urban

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## 1 | INTRODUCTION

The new coronavirus SARS-CoV-2 first emerged in late December 2019 in Wuhan, China, and was quickly spreading around the world, forcing the World Health Organization (WHO) to proclaim a worldwide pandemic on March 11, 2020.<sup>1</sup> Since the declaration of the first case in Indonesia on March 2, 2020, Indonesia was struggling with COVID-19 which has not shown any signs of slowing down. Indonesia is among the highest cases in the world, with over 1,322,866 confirmed cases with a total of 35,876 deaths by February 26, 2021.<sup>2</sup>

In response to the COVID-19 crisis, governments around the world have taken a wide range of measures including border shutdowns, travel restrictions, complete and partial lockdowns, and public activities restrictions. These measures have profoundly affected people's economy, livelihood, and physical, and mental well-being.<sup>3,4</sup>

To balance tackling COVID-19 and saving the economy,<sup>5</sup> the Indonesian Government has not imposed a complete lockdown policy, rather, implemented the Large-Scale Social Restriction Policy (*Pembatasan Sosial Berskala Besar/PSBB*) in several provinces that restricted nonessential businesses, encourage telework, distance learning, and still allowed people to carry out social activities such as doing religious prayer with certain limitations. About 10 months after the PSBB implementation, although fluctuating, the curve of daily new cases and deaths continues to rise. Accordingly, the Indonesian Government has implemented the Policy for Enforcement of Restrictions on Community Activities (*Pemberlakuan Pembatasan Kegiatan Masyarakat/PPKM*) that restricts community mobility at the micro-scale.<sup>6</sup> While the PSBB was issued by the Health of Ministry, the decision to implement the PPKM was the regional leaders' responsibility. Under the PPKM policy, for the badly affected area, access to public places is restricted, for example, by limiting people working at the office by 25% of the maximum capacity, conducting online teaching and learning activities, allowing the restaurant to serve dine-in customers at only 25% of the total venue capacity, and instructing places of worship to reduce visitor capacity to 50 percent. Essential sectors can continue to operate normally and must adhere to health protocols. In addition, during this micro-scale restriction, the implementation of 3 T (tracing, testing, treatment) in the villages has been strengthened.

Although these measures are less stringent than the requirements under the PSBB or complete lockdown, the PPKM implementation is also likely to pose adverse impacts on Indonesian physical and mental health,<sup>4,6</sup> significantly affect everyday life with psychosocial consequences.<sup>7</sup> In the early stage of the pandemic, studies on the mental health impact in Indonesia showed a high prevalence of depression, anxiety, and other worse psychological symptoms.<sup>7,8</sup> A survey on 2364 people from 34 provinces also revealed the most prevalent complaints were worrying too much, getting irritated easily, having difficulty relaxing, fatigue, and sleep problems.<sup>9</sup>

On the other hand, such a crisis offers an opportunity to enhance family bonds and provide assistance.<sup>10</sup> In collectivist cultures such as Indonesia, the extended family system is considered a pillar of the

society which shall act as a protective factor concerning mental health difficulties and other negative impacts during times of crisis. Meanwhile, the Indonesian government has launched the Sejiwa program (meaning "healthy mind") to provide free psychological consultation services, volunteered by hundreds of psychologists. During 12 days from its launching date on April 29, 2020, Sejiwa received more than 7500 calls and has responded to 14,916 calls until the end of May,<sup>11</sup> indicating people paid more attention to their mental health, a favorable behavior that raises the likelihood of early intervention and fast recovery.<sup>12</sup> Furthermore, to deal with the activities' restrictions during the PPKM, people were obligated to modify their living conditions, sleep hygiene, and daily activities. However, it is unclear whether people are more or less likely to adopt healthier lifestyles. When people need to maintain their physical health or prevent diseases and reduce the risk of COVID-19 hospital admission,<sup>13</sup> they might spend more time resting and relaxing and engaged in more physical activities.<sup>14,15</sup> Conversely, they might also act toward the opposite, become physically inactive, and develop other poor behavior lifestyles.

A great deal of previous research<sup>16</sup> focused on the psychological impact and sleep disturbance amid the COVID-19 pandemic in the general population as summarized in recent systematic reviews.<sup>16-20</sup> The authors found the presence of substantial heterogeneity between the included studies, suggesting different social groups, contexts, and countries may have different impacts on psychological health due to the COVID-19 pandemic.

Researchers also attempted to assess the possible positive impacts including favorable lifestyle changes<sup>13,15,21,22</sup> and increased social support.<sup>23,24</sup> So far, however, there has been a lack of studies simultaneously that investigated the negative and positive impacts of the COVID-19 pandemic. A pioneer epidemic study showed a moderate to a severe disturbance caused by the SARS outbreak, accompanied by other positive and negative behaviors.<sup>25</sup> However, the novel SARS-CoV-2 was much more contagious and infectious, resulting in more devastating effects. Other studies have been undertaken in Egypt,<sup>26</sup> China,<sup>27</sup> UAE,<sup>28</sup> and the Middle East and North Africa region<sup>29</sup> which found mild to severe posttraumatic stress symptoms and other negative impacts such as an increased feeling of fear, amplified stress at work and home, financial burden, difficulties with sleep, and somatic complaints.

While research on the psychological impact has been emerging, the disparities between residence types are less studied. There is a need to explore how the psychological distress caused by a traumatic life event affects residents in urban and rural settings considering the differences in the status of health literacy, health infrastructure, and risk of infection with SARS-CoV-2.<sup>30</sup> A better understanding of the psychological and behavioral responses of the general public would contribute to controlling the pandemic and promote psychological preparedness for emerging infectious diseases.<sup>25</sup> Research shows inconsistent findings on the effect of the COVID-19 pandemic on mental health among urban and rural residents across countries. While psychological distress in the United Kingdom<sup>31</sup> and China<sup>32</sup> living in urban areas was greater compared to rural areas, the overall

life satisfaction and mental health of US rural populations have been severely affected by the pandemic.<sup>30,33</sup>

Therefore, we aimed to examine whether any differences in the psychological impact as measured by trauma-related distress, changes in lifestyle, social support, and sleep quality among urban and rural Indonesian residents at the later stage of the pandemic. This study also assesses to what extent the correlation between all the psychological impact variables. People from different countries have been experiencing varying degrees of trauma-related distress, based on the rate of coronavirus spread, the laws imposed by governments, and prior experience. We expect to provide insights into evidence-based public health policies and resource allocation.

## 2 | METHOD

### 2.1 | Participants and study design

A total of 428 out of 434 (98.6%) from 25 of 34 provinces in Indonesia completed a cross-sectional web-based survey from February 27 to March 30, 2021. The study inclusion criteria were living in Indonesia, age  $\geq 18$  years. Those who were known to have any psychiatric illness, a history of COVID-19, or were diagnosed with COVID-19 were excluded. Participants were invited to participate in the study using convenience and snowball sampling methods through social media and authors' networks. Socio-demographic characteristics were collected including age, gender, education level, employment status, and marital status. The study was approved by the Ethics Committee of the Bhayangkara Brimob Hospital (No KET/EC-16/VII/2021/RS.BHAY.TK.I) and followed the STROBE reporting guidelines for cross-sectional studies to ensure accuracy, transparency of results, and quality of observational research. The participants were informed about the purpose of this study, and before participation in the survey, all of them provided informed consent. Anonymity, confidentiality, and voluntary participation with no monetary benefits were ensured, meaning that respondents could withdraw their data at any time from the study.

### 2.2 | Measures

The Indonesian version of the impact event scale revised (IES-R) was used to assess the psychological impact after traumatic and/or stressful experiences.<sup>34</sup> The questionnaire consists of 22 items with three subscales measuring avoidance, intrusion, and hyperarousal, and are rated on a 5-point Likert-type scale, ranging from 0 ("not at all") to 4 ("completely agree"). The total IES-R scores were summed (range 0–88) to perform the inferential statistics. For descriptive purposes, the total scores were divided into normal (0–23), mild (24–32), moderate (33–36), and severe psychological distress ( $>37$ ). A score  $\geq 26$  was used as a cut-off to represent moderate-to-severe impact.<sup>25</sup> The internal consistency Cronbach  $\alpha$  was 0.94 in our sample.

Six questions were used to measure other negative mental health acts because of the COVID-19 pandemic, adapted from Lay et al.<sup>25</sup> Respondents were asked whether they experienced increased stress at work or study, at home, and in financial status as compared to the prepandemic period. Three other questions asked to what extent the respondents felt horrified, apprehensive, and helpless due to the pandemic. The response options range from "much decreased" (1) to "much increased" (5). These questions had a Cronbach  $\alpha$  of 0.83.

A perceived support scale was used to assess the impact of the COVID-19 pandemic on the support received from family or friends.<sup>25</sup> Participants were asked about: support from friends, support from family members, sharing feelings with a family member, sharing feelings with others when in blue, and caring for family members' feelings. The response options were "much decreased" (1) to "much increased" (5). The Cronbach  $\alpha$  for this study was 0.87.

Participants were also asked to rate to what extent the changes in their lifestyle might have affected them due to the COVID-19 pandemic using the Mental Health Lifestyle Scale (MHLS)<sup>25</sup> which comprised of four items: attention to mental health, spending enough time to rest, relax, and exercise. The response options range from "much decreased" (1) to "much increased" (5). The internal consistency value of this study was 0.74.

The Jenkins Sleep Scale (JSS) was used to assess sleep efficiency during the previous month about difficulty falling asleep, awakening during the night, trouble remaining asleep, and feeling tired and sleepiness when awaking from sleep.<sup>35</sup> The respondents were asked to rate on a six-point Likert scale from 0 "not at all" to 5 "22–28 days." The scores were summed (0–20) with higher scores being related to more severe sleep disturbance. The cut-off score ( $>6$  as poor sleep quality) was used for descriptive and further analysis.<sup>36,37</sup> The Cronbach  $\alpha$  value for our sample was 0.86.

### 2.3 | Data analysis

Numeric variables were represented by the mean and standard deviation (SD) for normally distributed data, and medians and ranges or interquartile ranges (IQRs) for nonnormally distributed data. Categorical variables were represented by absolute ( $n$ ) and relative frequency (%). The original five-point Likert scores of negative mental health, social support, and mental health-related lifestyle were calculated as the composite score by taking the average of the total scores on each scale. These scales were also dichotomized by collapsing responses for much decreased (1), decreased (2), and same as before (3) into the decrease or similar category, while increased (4), and much increased (5) were collapsed into an increased category.

To examine the differences between total IES-R and sleep scores by residential location, the nonparametric Mann-Whitney test was used. The association between each indicator of other measures (negative mental health, social support, attention to mental health, lifestyle changes) and residency was calculated using Phi and Cramer V statistics. We further conducted a Spearman analysis to evaluate

**TABLE 1** Descriptive statistics of sample characteristics (n = 428)

Variable	Categories	Count	Percentage
Age	<30	202	47
	>30	226	53
Gender	Female	232	54
	Male	196	46
Residency	Urban	278	65
	Rural	150	35
Education	High School or less	172	40
	College/University	188	44
	Postgraduate	68	16
Occupation	Non-HCW	226	53
	HC workers	74	17
	Students	68	16
	Unemployment	60	14
Marital status	Single	182	42.5
	Married	236	55.1
	Widow/divorced	10	2.4

the correlation between IES-R, JSS, and the composite scores of the other three scales because data were not normally distributed. All analysis was performed using SPSS 23.0 (IBM) at two-tailed a significance level of 0.05.

### 3 | RESULTS

The majority of respondents were female (54.2%), more than 30 years (52.8%), and married (55.1%) (see Table 1). More than 65% of respondents lived in urban areas, 43.93% had college or university degrees, and 17.30% worked as health care workers.

#### 3.1 | Differences between outcome variables by residency

Table 2 presents the total sample scores and frequencies for all measured variables and their differences statistics between rural and urban respondents. The overall mean IES-R score was 29.92 (SD = 18.45), indicating that the COVID-19 pandemic had a mildly stressful effect on the surveyed subjects. About 44% of respondents reported indicating significant psychological impact (mean IES-R scores  $\geq 33$ ). There are no significant differences in IES-R total scores and IES-R categories according to the residencies.

About 31%–40% of the participants perceived an increased level of stress at home, in financial matters, and at work or study. Those who live in urban areas significantly experienced a greater level of

stress as compared to rural residents. More than 44% of participants felt horrified due to the COVID-19 even after 1 year, 49.3% felt apprehensive, and 25.8% felt helpless. However, the difference between such feelings and those who live in urban or rural areas was not observed.

Furthermore, more than half of the sample perceived increased support from family and friends, shared feeling with family, and caring for family members' feelings, while about 40% reported increased shared feelings with others when blue. These increases were much higher among urban than rural respondents.

A year after the first case was confirmed, about two-thirds of the participants paid more attention to their mental health which was reported similar by those living in the rural and urban regions. In contrast, only 35%–36% of the sample took more time to rest, relax, and do exercise. No significant differences were found in the lifestyle changes between the urban and rural residents. For sleep quality, about a third of the sample reported sleep disturbance and urban residents experienced slightly higher sleep scores, indicating worse sleep problems. Nevertheless, the difference between the two residency groups was not statistically significant.

#### 3.2 | Correlation analysis

Table 3 displays the Spearman rho's coefficient of correlation among all scales. The IES-R scores were significantly correlated with the JSS (sleep disturbance), negative mental health impacts, and increased PSS (social support) ( $p < 0.05$ , Table 3). However, the association between IES-R scores and the composite score of mental health-related lifestyles was not observed. Similar findings were also found for the correlation between sleep disturbance and other variables of interest.

### 4 | DISCUSSION

We found that a year after the first case was confirmed, urban and rural residents reported moderate levels of psychological impact, and more than one-third reported increased stress at home, work, and financial stress. Although almost half of the reported felt horrified and apprehensive, only 25% felt helpless. While the majority of participants reported more attention devoted to their mental health, only 34%–40% spent more time resting, relaxing, or doing

exercise. The prevalence rate of sleep problems accounted for 36.1%. There were no differences between urban and rural areas on residents' psychological impact, mental health and related lifestyle, and sleep disturbance. On the other hand, differences were observed in some indicators of negative impacts and perceived social support.

Compared to other countries, using the same instrument in the general population, we found that our IES-R mean score was higher than people from China,<sup>27</sup> relatively similar to Middle East regions,<sup>29</sup> UAE,<sup>28</sup> and Italy,<sup>38</sup> but lower than Egypt,<sup>26</sup> and Portugal.<sup>39</sup> This result corroborates the finding of prior meta-analysis studies that found the

**TABLE 2** Psychological impact, negative mental health impacts, changes of family and social support of the sample, attention to mental health, and lifestyle changes by residency types

		Response	All N = 428 n (%)	Urban N = 278 n (%)	Rural N = 150 n (%)	p value
Psychological impact IES-R	Total IES-R Scores	Mean (SD)	29.92 (18.45)	29.87 (30)	30.00 (20)	0.891 <sup>a</sup>
		Median (IQR)	30.0 (15.0–43.0)	30.0 (16.0–42.0)	29.5 (13–45.3)	
	Intrusion	Mean (SD)	10.01 (7.38)	10.25 (7.16)	9.55 (7.77)	0.199
		Median (IQR)	9.0 (4.0–15.0)	10.0 (4.0–15.0)	9.0 (2.0–15.0)	
	Hyperarousal	Mean (SD)	7.63 (5.63)	7.56 (5.48)	7.76 (5.92)	0.934
		Median (IQR)	7.0 (3.0–11.0)	7.0 (3.0–11.0)	7.0 (3.0–12.0)	
	Avoidance	Mean (SD)	12.28 (7.33)	12.05 (6.88)	12.69 (8.10)	0.424
		Median (IQR)	12.0 (7.0–17.5)	12 (7.0–17.0)	13 (6.0–18.2)	
	Normal		160 (37.4%)	100 (36%)	60 (40%)	0.425
	Mild		79 (18.5%)	56 (20%)	23 (15%)	
Moderate		39 (9.1%)	28 (10%)	11 (7%)		
Severe		150 (35%)	94 (34%)	56 (37%)		
Negative mental health	Composite scores	Mean (SD)	3.2 (0.69)	3.2 (0.72)	3.1 (0.61)	0.002 <sup>a</sup>
		Median (IQR)	3.2 (3.0–3.7)	3.3 (3.0–3.7)	3.0 (2.8–0.35)	
	Increased Stress from work/ study	Median (IQR)	3.0 (3.0–4.0)	3.0 (3.0–4.0)	3.0 (3.0–4.0)	
		Yes	171 (40.0%)	135 (48.6%)	36 (24.0%)	<0.001
	No	257 (60.0%)	143 (51.4%)	114 (76.0%)		
	Increased Stress from home	Median (IQR)	3.0 (3.0–4.0)	3.0 (3.0–4.0)	3.0 (3.0–4.0)	
		Yes	133 (31.1%)	104 (37.4%)	29 (19.3%)	<0.001
	No	295 (68.9%)	174 (62.6%)	121 (80.7%)		
	Increased Financial Stress	Median (IQR)	3.0 (3.0–4.0)	3.0 (3.0–4.0)	3.0 (2.0–4.0)	
		Yes	151 (35.35%)	112 (40.3%)	39 (26.0%)	0.003
	No	277 (64.7%)	166 (59.7%)	111 (74%)		
	Feel horrified due to COVID-19	Median (IQR)	3.0 (3.0–4.0)	3.0 (3.0–4.0)	3.0 (3.0–4.0)	
		Yes	191 (44.6%)	130 (46.8%)	61 (40.7%)	0.226
	No	237 (55.4%)	148 (53.2%)	89 (59.3%)		
Feel apprehensive due to COVID-19	Median (IQR)	3.0 (3.0–4.0)	4.0 (3.0–4.0)	3.0 (3.0–4.0)		
	Yes	211 (49.3%)	147 (52.9%)	64 (42.7%)	0.044	
No	217 (50.7%)	131 (47.1%)	86 (57.3%)			
Feel helpless due to COVID-19	Median (IQR)	3.0 (3.0–4.0)	3.0 (3.0–4.0)	3.0 (3.0–4.0)		
	Yes	110 (25.75)	78 (28.1%)	32 (21.3%)	0.129	
No	318 (74.3%)	200 (71.9%)	118 (78.7%)			
Social support	Composite scores		3.6 (0.70)	3.7 (0.71)	3.6 (0.68)	0.042 <sup>a</sup>
			3.6 (3.00)	3.8 (3.2–4.0)	3.5 (3.0–4.0)	
	Increased support from family	Median (IQR)	4.0 (3.0–4.0)	4.0 (3.0–4.0)	4.0 (3.0–5.0)	
		Yes	267 (62.4%)	186 (66.90%)	81 (54.0%)	0.009
No	161 (37.6%)	92 (33.10%)	69 (46.0%)			

(Continues)

TABLE 2 (Continued)

	Response	All N = 428 n (%)	Urban N = 278 n (%)	Rural N = 150 n (%)	p value	
2	10					
	Increased support from friend	Median (IQR)	4.0 (3.0–4.0)	4.0 (3.0–4.0)	3.0 (3.0–4.0)	
	Yes	229 (53.5%)	160 (57.60%)	69 (46.0%)	0.022	
	No	199 (46.5%)	118 (42.4%)	81 (54.0%)		
	Increased shared feeling with family members	Median (IQR)	4.0 (3.0–4.0)	4.0 (3.0–4.0)	3.0 (3.0–4.0)	
	Yes	229 (53.50%)	160 (57.60%)	69 (46.0%)	0.016	
	No	199 (46.5%)	118 (42.4%)	81 (54.0%)		
	Increased shared feeling with others when blue	Median (IQR)	3.0 (3.0–4.0)	3.0 (3.0–4.0)	3.0 (3.0–4.0)	
	Yes	182 (42.5%)	130 (46.8%)	52 (34.70%)	0.016	
	10					
	No	246 (57.5%)	148 (53.2%)	98 (65.30%)		
	Increased caring for family members' feeling	Median (IQR)	4.0 (3.0–4.0)	4.0 (3.0–4.0)	4.0 (3.0–4.0)	
	Yes	302 (70.6%)	206 (74.1%)	96 (64.0%)	0.029	
	No	126 (29.4%)	72 (25.9%)	54 (36.0%)		
Mental health & Lifestyle	Composite scores	3.3 (0.71)	3.3 (0.72)	3.4 (0.70)	0.135 <sup>a</sup>	
		3.2 (3.0–3.8)	3.3 (3.0–3.8)	3.3 (3.0–4.0)		
	Increased mental health	Median (IQR)	4.0 (3.0–4.0)	4.0 (3.0–4.0)	4.0 (3.0–4.0)	
	Yes	266 (62.1%)	173 (62.2%)	93 (62.0%)	0.963	
	No	162 (37.9%)	105 (37.8%)	57 (38.05)		
	Increased relax	Median (IQR)	3.0 (3.0–4.0)	3.0 (2.8–4.0)	3.0 (3.0–4.0)	
	Yes	147 (34.3%)	92 (33.1%)	55 (36.7%)	0.458	
	No	281 (65.7%)	186 (66.9%)	95 (63.3%)		
	Increased rest	Median (IQR)	3.0 (3.0–4.0)	3.0 (3.0–4.0)	3.0 (3.0–4.0)	
	Yes	158 (36.9%)	100 (36.0%)	58 (38.7%)	0.422	
	No	270 (63.1%)	178 (64.0%)	92 (61.3%)		
	Increased workout	Median (IQR)	3.0 (3.0–4.0)	3.0 (3.0–4.0)	3.0 (3.0–4.0)	
	Yes	153 (35.7%)	94 (33.8%)	59 (39.7%)	0.256	
	No	275 (64.3%)	184 (66.2%)	91 (60.7%)		
Sleep	Total JSS scores	Mean (SD)	4.00 (4.13)	4.21 (4.28)	3.60 (3.82)	0.193 <sup>a</sup>
		Median (IQR)	3.0 (0.0–6.0)	3.0 (0.0–6.0)	3.0 (0.0–6.0)	
	Poor	157 (36.7%)	105 (37.8%)	52 (34.7%)	0.525	
	Good	271 (63.3%)	173 (62.2%)	98 (65.3%)		

Abbreviations: IES-R, impact event scale revised; IQR, interquartile range; JSS, Jenkins' Sleep Scale.

<sup>a</sup>Mann-Whitney test.

pooled prevalence of psychological problems in the general population from the Asia region accounted for more than 30%<sup>16,20,40</sup> and larger than of the European, North American, and Oceanian.<sup>17</sup> Moreover, no significant differences in psychological impact were observed between citizens living in urban and rural areas. Prior studies were conducted mostly at the early stage of the pandemic (March to July 2020), while our study was carried out about a year

after discovering the first case. This implied Indonesian continued to experience higher posttraumatic event symptoms.

We found that increased perceived social support was larger than reported in UAE<sup>28</sup> and Egypt,<sup>26</sup> implying families and friends were highly valued in times of stress event. Such behaviors provide psychological advantages for people who encountered negative feelings during the pandemic.<sup>41</sup> Compared to rural citizens, urban

**TABLE 3** Correlation between all scales

	IES-R	JSS	Negative	PSS	MHLS
IES-R	1				
JSS	0.60**	1			
Negative	0.33	0.31**	1		
PSS	0.22**	0.14**	0.26**	1	
MHLS	0.04	-0.02	0.13**	0.36**	1

Abbreviations: IES-R, Impact Event Scale-Revised; JSS, Jenkins' Sleep Scale; MHLS, Mental Health-Related Lifestyle; Negative, 6-item other negative impact; PSS, Perceived Social Support.

\*\*Significant at  $p < 0.001$ .

citizens perceived significantly increased stress at work, at home, and financially. However, they also reported more support from their friends and family as well as more shared feeling and caring which might explain why the psychological distress of both groups of residencies is relatively similar. One of the crucial factors to cope with difficulties and develop resilience in times of crisis is a feeling of connectedness.<sup>7</sup>

Furthermore, the majority of urban and rural residents paid more attention to their mental health which might help participants to overcome other negative impacts. Unfortunately, only a third of participants reported increased healthier lifestyles which might be due to the restriction of outdoor activities during the PPKM. No significant differences in mental health awareness, time spent on rest, relaxation, and exercise were found according to residency type which supports a prior study from China.<sup>15</sup> It seems that family members of urban residents devoted more time together and were more concerned about their health and family, rather than leisure activities. According to the current findings, less time spent on rest, relaxation, and physical activity was parallel with higher scores on the IES-R scale, implying that such unfavorable behaviors might exacerbate the event's negative impact. Jiménez-Pavón, et al.,<sup>42</sup> suggested that physical activity is an effective therapy to combat the detrimental effects of quarantine on mental and physical impacts.

In terms of sleep, our result was consistent with a recent systematic review that summarized the prevalence of sleep problems during the COVID-19 affected more than one-third of people in the general population.<sup>16,43</sup> Another study in Turkey during the 3-month lockdown also reported a somewhat similar JSS score.<sup>36</sup> This level was found to be 18% higher than that of pooled estimated from the general population in 39 countries.<sup>19</sup> Similar to post-trauma-related stress symptoms, we were unable to demonstrate the differences in sleep problems between residential groups. Nevertheless, Spearman's correlation reveals the positive association between IES-R, other negative impacts, and JSS scores. Increased negative feelings due to the COVID-19 pandemic (e.g., increased stress at work) was significantly associated with more posttraumatic stress symptoms and worse sleep quality which are in accord with recent systematic review studies.<sup>16,17</sup> These results implied potential interrelationships

among all three variables which need more complex path analysis to quantify these pathways in future studies.

Furthermore, we also found a positive correlation between psychological impact, sleep disturbance, and increased family and social support. Those who reported greater levels of trauma-related distress and poorer sleep quality were likely to receive more social support during the COVID-19 pandemic. This result highlights the protective factor of social support against developing mental health difficulties and sleep disturbances.<sup>24</sup>

Interestingly, in contrast to previous findings,<sup>21</sup> neither trauma-related distress nor the quality of sleep was significantly related to mental health-related lifestyle concerns. This result may partly be explained by the association between psychological impact and sleep quality with the intensity of lifestyle behaviors. Studies have demonstrated that more intensive physical activity was needed to achieve greater psychological health.<sup>44,45</sup>

Our findings should be considered in light of some limitations. Using a web-based questionnaire with a convenience sampling technique raises the generalizability issue while the cross-sectional study design hinders us to infer causality. These limitations were mainly due to the intention to avoid possible infection during the activities restriction policy as well as constraints on time and resources. Future research requires a more rigorous design. Secondly, the data were self-reported that could not rule out social and memory recall biases. Nevertheless, the use of online platforms and emphasis on anonymity and confidentiality reduce the impact of the biases. Lastly, we extended the use of a 6-item scale to measure other negative impacts in the SARS epidemic context into the COVID-19 pandemic.<sup>25</sup> It may raise a concern about its contextual use because the current pandemic had more devastating economic, social, and health consequences than the SARS outbreak. This scale, however, has been used in COVID-19-related studies worldwide<sup>26–28,39</sup> which enables us to make comparisons across different populations. Findings of this scale also helped us better interpret results from other well-established instruments used in this study, such as IES-R and JSS. Further studies, yet, should consider several measures developed specifically to study the psychosocial impact of the COVID-19 pandemic such as the Short Multidimensional Inventory Lifestyle Evaluation tool<sup>14</sup> and COVID-19 Pandemic Mental Health Questionnaire (CoPaQ).<sup>46</sup>

Notwithstanding these limitations, our study also has strengths. First, to the best of our knowledge, this is the first urban-rural disparity study on the simultaneous positive and negative impact of the COVID-19 in the later stage of the pandemic in a developing country. Second, the use of similar measures allows us to make cross-country comparisons in the general population.

#### 4.1 | Implication

Since the prevalence of psychological impacts and sleep problems among urban and rural residents did not differ significantly, policies should focus on developing mitigation plans that are not



urban-centric for the rural population to ensure a successful recovery for all parts of the country. It is also important to promote adherence to healthy lifestyle behavior as protective factors for worse psychological impact and sleep disturbance. A more precise physical activity recommendation is required to significantly improve individuals' mental health. This study has also contributed to the literature on the prevalence of trauma-related distress symptoms simultaneously with positive impacts during the COVID-19 pandemic not only on urbanized areas but also on rural areas which have been paid less attention.

## 5 | CONCLUSION

Our study examined to what extent the psychological impact and positive impacts of Indonesia's urban and rural residents at the later stage of the COVID-19 pandemic. In summary, regardless of the residency areas, this study confirms that the prevalence of psychological problems after 1 year of exposure to a COVID-19 crisis remains substantial. This evidence reveals the need to provide equal effort to mitigate the negative impacts of the COVID-19 crisis as well as promote healthy lifestyle behaviors. Further studies need to explore other influencing factors in rural communities.

## 5 AUTHOR CONTRIBUTIONS

**Conceptualization:** Desdiani Desdiani, Auditya Purwandini Sutarto. **Methodology:** Desdiani Desdiani, Auditya Purwandini Sutarto. **Data Collection:** Desdiani Desdiani. **Formal analysis:** Auditya P. Sutarto. **Supervision:** Desdiani Desdiani. **Writing—Original draft:** Auditya P. Sutarto. **Writing—Review and Editing:** Desdiani Desdiani. All authors have read and approved the final version of the manuscript. Desdiani Desdiani had full access to all of the data in this study and takes complete responsibility for the integrity of the data and the accuracy of the data analysis.

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## 30 CONFLICT OF INTEREST

The author declares no conflict of interest.

## 52 TRANSPARENCY STATEMENT

Desdiani Desdiani affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted.

## 3 DATA AVAILABILITY STATEMENT

The data are available from the corresponding author upon reasonable request.

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