



# UNIVERSITAS AHMAD DAHLAN

## KOMITE ETIK PENELITIAN (KEP UAD)

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**Surat Persetujuan Etik (*Ethical Approval*)  
Untuk Penelitian Kesehatan yang Menggunakan Manusia sebagai  
Subjek Penelitian**

PERSETUJUAN ETIK (*ETHICAL APPROVAL*)  
**Nomor : 012008029**

Yang bertanda tangan di bawah ini, Ketua Komite Etik Penelitian Universitas Ahmad Dahlan, setelah dilaksanakan pembahasan dan penilaian, dengan ini memutuskan protokol penelitian yang berjudul: **"Developing Covid-19 Dashboard for Supporting Surveillance and Data Visualisation in Indonesia"**

yang mengikutsertakan manusia sebagai subjek penelitian, yang diajukan oleh:

Ketua Pelaksana/Peneliti Utama : **Sulistyawati, S.Si., M.PH**

Anggota : **Rokhmayanti, S.KM., M.PH**  
**Dr. Budi Aji**  
**Siwi Mars Pramatama, Ph.D**

dapat disetujui pelaksanaannya. Persetujuan ini berlaku selama 1(satu) tahun setelah *Ethical Approval* dikeluarkan.

Pada akhir penelitian, laporan pelaksanaan penelitian harus diserahkan kepada KEP UAD. Jika ada perubahan protokol dan/atau perpanjangan penelitian, harus mengajukan kembali permohonan kajian etik penelitian (amandemen protokol).

Yogyakarta, **24 Agustus 2020**

Komite Etik Penelitian  
Universitas Ahmad Dahlan,



  
**Dr. dr. Akrom., M.Kes.**

# HASIL CEK\_3. IJPHS

*by lkm 3. Ijphs*

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**Submission date:** 07-Feb-2023 01:24PM (UTC+0700)

**Submission ID:** 2008350034

**File name:** 3. IJPHS.pdf (340.5K)

**Word count:** 6417

**Character count:** 33567

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# Factors influencing stress during the second imposed of COVID-19 social restrictions in Indonesia

Journal of Public Health Research  
2022, Vol. 11 (3), 1–9  
© The Author(s) 2022  
DOI: 10.1177/22799036221115771  
journals.sagepub.com/home/phj  
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and Siwi Pramata Mars Wijayanti<sup>2</sup>

## Abstract

**Background:** The spread of the COVID-19 virus has had a significant impact on the governmental and social aspects, as well as to the psychological status of the population. In Indonesia, social restriction was a strategy to limit people's mobility to reduce virus transmission. As social beings, the imposition of social restriction makes them fall into stress due to feeling lonely, and some cannot earn money. The aim of the study was to assess the factor association of stress level and resilience of the Indonesian people during the imposition of the second social restriction due to the COVID-19 pandemic.

**Design and method:** A cross-sectional study was performed on respondents aged at least 18 years on 29 July–16 August 2021, when the social restriction was enforced for the second time. The online survey was conducted through several social media platforms (Facebook, Instagram, Twitter, and WhatsApp) to 256 respondents. The analysis was carried out descriptively and analytically using the chi-square and binary logistic regression.

**Results:** This study shows that there is a significant relationship between age ( $p < 0.001$ ), marital status ( $p < 0.001$ ), occupation ( $p < 0.001$ ), income before and during the pandemic ( $p < 0.001$ ) and resilience level to stress level among Indonesian. Resilience level is the only protective factor for people to not get stressed. Being normal resilience put them at 0.05 times (95% CI 0.01–0.76) more likely to have low perceived stress than low resilience.

**Conclusion:** Resilience level is the only factor that influence stress level among people in Indonesia during the second imposed social restriction in Indonesia.

## Keywords

Stress, resilience, COVID-19, social restriction, Indonesia

Date received: 9 July 2022; accepted: 9 July 2022

## Introduction

Since it was first discovered in Indonesia in March 2020,<sup>1</sup> the Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has continued to spread in Indonesia sporadically until it reached an incredible number at the end of 2020, which is more than 600,000 cases.<sup>2</sup> In July 2021, a more infectious virus called as Delta variant was discovered, which caused the overwhelm of Indonesia's health system to the point of almost collapsing, marked by full of hospitals bed by COVID-19 patients, oxygen scarcity, and delays in the burial of COVID-19 victims.<sup>3–5</sup> In this second wave of COVID-19 transmission, the morbidity rate reached its peak, touching more than 3 million cases of COVID-19 with a mortality rate of more than 2000 (27th July).<sup>6</sup>

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In response to the rapid spread of COVID-19 (Delta variant), the Indonesian government implemented emergency social restrictions for the community intending to suppress the Coronavirus transmission, mainly in Java and Bali island, to reduce people's interaction and mobility

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**Table 1.** Large social restrictions Phase 1 and 2 in Indonesia due to COVID-19 pandemic.

Phase	Date	Area coverages	Rule apply
Phase 1: Regional PSBB (Large-Scale Social Restrictions) or (Partial Lockdown) <sup>13</sup>	10 April-4 June 2020	Started with Jakarta Province and other areas based on government approval	<ul style="list-style-type: none"> <li>- All schools were closed</li> <li>- Malls and shopping centers were closed</li> <li>- Religious activity was restricted</li> <li>- All activity in public space was limited</li> <li>- The social and cultural activity was restricted</li> <li>- Public transportation was restricted</li> <li>- Other restrictions related to defense and security</li> </ul>
Phase 2: Emergency Regional PSBB (Large-Scale Social Restrictions) or (Partial Lockdown) <sup>13</sup>	3 July-2 August 2021	Java and Bali Island	<ul style="list-style-type: none"> <li>- The non-essential sector was closed totally</li> <li>- The essential sector was allowed to operate with 50% of staff</li> <li>- Malls and shopping centers were closed</li> <li>- The social and cultural activity was restricted</li> <li>- Public transportation operated a maximum of 70% from capacity, and a vaccine policy was applied.</li> </ul>

through social distancing.<sup>7-9</sup> This policy is a balance of the lockdown policies by several other countries such as Malaysia, Singapore, the US, England due to the spread of this Delta variant of COVID-19. This social restriction policy in Indonesia is the second time after being implemented at the beginning of the pandemic and some other transition policies. This policy was imposed in early July 2021. In its development, the level of emergency social restrictions varies among provinces, depending on the epidemiological evaluation in the region. Several limitations on community activities such as telework in the non-essential sector apply, partially restrictions on economic activities and public transportation.<sup>10,11</sup> This policy has received pros and cons from Indonesian society. The community is not ready for this regulation because they have just entered a normal situation to restore social life and the economy in the worst case since the pandemic.<sup>12</sup> But that time has to face the same crisis at the beginning of the pandemic even worse. The detailed information between PSBB 1 and 2 can be found in Table 1.

The health crisis significantly impacts human mental health and well-being,<sup>14</sup> continuing to other psychological effects such as stress. Some definitions of stress have been revealed by some expert, one of which was by Safarino, who defined stress as a situation resulting from the interaction between an individual and their environment that cause disharmony among situational demands biopsychosocial resources.<sup>15</sup> The degree of someone being stressed or not is varied among the socio-demographic characteristics and how resilient those individuals are to control the stress.<sup>16-18</sup>

This psychological problem during the COVID-19 was revealed by some previous studies related to COVID-19; for example, a study found that Iranian older (more than 60 years) had higher fear compared to Taiwanese older people,<sup>19</sup> and people with pre-existing psychiatric disorders showed an increase in symptoms during the COVID-19 pandemic.<sup>20</sup> Other studies explained the post-traumatic stress disorder during the COVID-19 pandemic in the

health care worker and teacher.<sup>21-23</sup> All previous research highlights that it is essential to broaden knowledge about the impact of this pandemic on mental health (stress) and how people live at this time (resilience level), specifically in ordinary people.

There are many challenges faced by the country government and the community dealing with the COVID-19 pandemic.<sup>24-26</sup> The COVID-19 pandemic has caused complex psychological and social problems in communities worldwide. For example, it is related to the humanitarian crisis as a result of the economic downturn during the pandemic,<sup>27</sup> the health crisis due to unpreparedness for the pandemic wave, particularly in developing countries,<sup>28</sup> as well as cultural and religious gatherings,<sup>29,30</sup> These things complicate the social restriction program imposed by the government to prevent the spread of COVID-19. Moreover, the COVID-19 outbreak followed by social restrictions and individual/regional quarantines will depend on the community's compliance with the applicable rules.<sup>31-33</sup> Otherwise, the pandemic will continue and potentially have a significant impact on the mental health of the Indonesian people.

Recently, limited data on the community's resilience during the pandemic/social restrictions enforcement. Thus, this study aims to assess the stress level of Indonesian people while implementing the second social restriction (PSBB) in Indonesia. The researcher hypothesizes that stress is related to personal background, social-economic, and resilience levels.

## Design and methods

### Research setting, sample, and data

A cross-sectional study, an online survey, was carried out in Indonesia between 29 July and 16 August 2021. Our survey received a response from 24 out of 34 provinces in Indonesia as presented in Figure 1. Consenting adults aged



**Figure 1.** Distribution of respondents by province reside.

18 years or older were recruited using a google form distributed through several social media platforms, including Facebook, Instagram, Twitter, and WhatsApp. This also referred to our previous research that all mentioned platforms were favorite social media during the COVID-19 pandemic.<sup>34</sup> Recruitment was based on convenience and snowball sampling to ensure that our survey reached a large population. A total of 259 people responded to our survey, three of which we excluded because they stated under 18 years of age. Informed consent had appeared on the first page of the online questionnaire and continued with screening to the respondent before they took the survey by giving them some questions related to the eligibility (1) people who reside in Indonesian during the second impose of COVID-19 social restriction, (2) people aged at least 18 years old while taking the survey. Accordingly, as many as 256 valid responses were included in the analysis.

### Measures of variables

**Stress level.** Stress levels are measured using the Perceived Stress Scale (PSS) developed by Cohen et al. in 1983.<sup>35</sup> This instrument is widely used in psychology, and we translated it into Bahasa Indonesia. This instrument consists of 10 questions, including sadness, disappointment, nerves, stress, anger, and internal troubles. Total stress levels range from 0 to 40, classified based on mean as the cut of low stress (0–16) and high perceived stress (17–40).<sup>36–38</sup>

**Resilience level.** In this study, the measurement of individual resilience was carried out using the adoption instrument “Brief Resilience Scale” or BRS with Cronbach’s alpha ranging from 0.80 to 0.91 (Samples 1–4=0.84– to 0.87.<sup>39</sup> This instrument consisted of six questions, namely (1) ability to return from difficult situations, (2) difficulty

in coping with pressure, (3) ability to return to normal conditions from stress, (4) difficulty returning to normal when something terrible happened, (5) experiencing a slight difficulty, in going through difficult times, (6) takes a long time to overcome a setback in life. The assessment of the resilience level is based on the total score divided by the number of items so that the resulting class is as follows: low resilience (1–2.99), normal resilience (3–4.30), high resilience (4.31–5).<sup>40</sup>

### Data analysis procedures

Descriptive analysis was conducted to calculate the respondents’ demographic data reported in numbers and percentages, while the stress level was presented as mean scores. The association of socio-demographic, resilience level and stress level were evaluated through Chi-Square ( $\chi^2$ ) test (bivariate analysis). Subsequently, variables with a *p*-value less than 0.025 were included in the binary logistic regression analysis to identify the factors influencing stress. This approach was selected because the dependent variable has two outcomes (low or high perceived stress). At this point, the significance and the risk were assessed at *p* < 0.05.

## Result

### General situation of the socio-demographic characteristic of the participants

A total of 256 respondents completed the survey, their socio-demographic were presented in Table 2. The majority of participants were aged 18–35 years (62.9%), had graduated from high education (81.6%), were married (49.2%), occupied (62.1%), not renting the house (80.5%). More than 30% of the participants reported not having

**Table 2.** Socio-demographic characteristics and the mean of stress score among Indonesian during July-August 2021 (n = 256).

Socio-demographic	n (%)	Mean score ± SD of stress score
<b>Age group</b>		
18–35	161 (62.9)	17.98 ± 4.89
36–55	87 (34.0)	14.69 ± 5.79
56–75	8 (3.1)	11.25 ± 5.60
<b>Education</b>		
Basic education (Basic and Junior High School)	4 (1.6)	17.00 ± 3.16
Moderate education (Senior High School)	43 (16.8)	18.79 ± 4.59
High education (Academy or University Education)	209 (81.6)	16.20 ± 5.61
<b>Marital status</b>		
Married	126 (49.2)	14.51 ± 5.65
Not married	124 (48.4)	18.80 ± 4.53
Divorced	6 (2.3)	17.17 ± 4.79
<b>Occupation</b>		
Occupied	159 (62.1)	15.52 ± 5.72
Not occupied	97 (37.9)	18.49 ± 4.66
<b>Housing status</b>		
Not rent	206 (80.5)	16.37 ± 5.62
Rental	50 (19.5)	17.80 ± 5.00
<b>Income before pandemic</b>		
< 1 million/month	20 (7.8)	19.10 ± 3.64
1–3 million/month	46 (18.0)	16.67 ± 4.80
>3–5 million/month	51 (19.9)	14.43 ± 5.08
>5 million/month	61 (23.8)	14.93 ± 6.19
None	78 (30.5)	18.79 ± 5.09
<b>Income during pandemic</b>		
< 1 million/month	28 (10.9)	18.46 ± 4.64
1–3 million/month	50 (19.5)	16.06 ± 4.25
>3–5 million/month	43 (16.8)	14.70 ± 5.29
>5 million/month	49 (19.1)	14.43 ± 6.59
None	86 (33.6)	18.64 ± 5.08
<b>Experiencing with losing occupation due to COVID-19 pandemic</b>		
Yes	43 (16.8)	17.72 ± 5.65
No	213 (83.2)	16.43 ± 5.49
<b>Experiencing with reducing income due to COVID-19 pandemic</b>		
Yes	132 (51.6)	17.07 ± 5.61
No	124 (48.4)	16.20 ± 5.42
<b>Number of days stay at home during the second Enforcement of Restrictions on Community Activities (PPKM)</b>		
<7 day	65 (25.4)	16.18 ± 5.37
8–14 days	34 (13.3)	17.26 ± 5.60
15–21 days	52 (20.3)	16.83 ± 5.32
≥22 day	105 (41.0)	16.65 ± 5.74
<b>Resilience level</b>		
Low	53 (20.7)	19.64 ± 5.21
Normal	198 (77.3)	16.05 ± 5.15
High	5 (2.0)	8.60 ± 8.20

monthly income before and after the pandemic. Most of the participants stated not experiencing losing jobs (83.2%), but most of them said experiencing reducing the monthly income during the pandemic (48.4%). Almost half of the participants reported staying at home more than 22 days during the second social restriction enforcement (41.0%)—more than 70% of respondents in the normal resilience level regarding resilience level. Among the respondent, the highest stress score was obtained by people 18–35 years old, had moderate education, not married, not occupied, lived in a rented house, had income less than 1 million IDR before the pandemic, and without payment during the pandemic, people who are experiencing with loosed job and income during the pandemic, a respondent who stay at home between 8 and 14 days, people with low resilience level.

### Association between socio-demographics, resilience score, and stress level

Among the participant characteristic, seven variables were significantly associated ( $p < 0.05$ ) with stress: age, education, marital status, occupation, income before and during a pandemic, and resilience level. In the next phase, six variables were included in the multivariate analysis using binary logistic regression for variables with a  $p$ -value less than 0.025 in the bivariate analysis. From this analysis, we significantly found that normal resilience put them at 0.05 times (95% CI 0.01–0.76) more likely to have low perceived stress than low resilience people (Table 3).

## Discussion

This study investigates the factors that influence the stress level among Indonesian during the imposed emergency social restriction (PSBB) related to the COVID-19 pandemic. The survey took after about 1 month of the emergency social restrictions policy has been announced. However, the pandemic did not disappear until the middle of 2021, even though the severity level has decreased. Although several studies have revealed mental problems related to the pandemic in Indonesia,<sup>41–43</sup> to our knowledge, there are no publications that precisely measure stress and resilience in Indonesia.

The results of this study indicate that age significantly affects a person's stress level. When observed from the average score, the 18– to 35 age group has the highest stress level compared to other age groups. It is included in the moderate stress level during the implementation of emergency social restrictions in Indonesia. These results follow previous research that age affects stress levels.<sup>44,45</sup> The age group of 18–35 is included in younger adults of productive age. In normal situations, many activities they do outside their house while the social restriction policy, people's space for movement is limited because they have

**Table 3.** Relationship and factor influencing stress level among Indonesian during July-August 2021.

Socio-demographic	Stress level		p-Value for $\chi^2$	OR (95% CI)	p-Value
	Low perceived stress n (%)	High perceived stress n (%)			
Age group			0.001*		
18–35	57 (35.40)	104 (64.60)		I	
36–55	50 (57.47)	37 (42.53)		0.12 [0.11–1.34]	0.086
56–75	7 (87.50)	1 (12.50)		0.11 [0.11–1.14]	0.065
Education			0.055*	NC	
Basic Education	2 (50)	2 (50.00)			
Moderate Education	12 (27.91)	31 (72.09)			
High Education	100 (47.85)	109 (52.15)			
Marital status			0.001*		
Married	77 (61.11)	49 (61.11)		I	
Not married	34 (27.42)	90 (72.58)		3.42 [0.42–27.35]	0.246
Divorced	3 (50.00)	3 (50.00)		0.98 [0.10–9.02]	0.989
Occupation			0.002*		
Occupied	83 (52.20)	76 (47.80)		I	
Not occupied	31 (31.96)	66 (68.04)		0.77 [0.24–2.16]	0.574
Housing status			0.528	NC	
Not rent	94 (45.63)	112 (54.37)			
Rental	20 (40.00)	30 (60.00)			
Income before pandemic			0.001*		
<1 million/month	3 (15.00)	17 (85.00)		I	
1–3 million/month	21 (45.65)	25 (54.35)		0.50 [0.08–3.04]	0.453
>3–5 million/month	35 (68.63)	16 (31.37)		1.36 [0.36–5.09]	0.641
>5 million/month	32 (52.46)	29 (47.54)		2.74 [0.59–12.76]	0.197
None	23 (29.49)	55 (70.51)		0.52 [0.09–2.85]	0.453
Income during pandemic			0.001*		
<1 million/month	7 (25.00)	21 (75.00)		I	
1–3 million/month	26 (52.00)	24 (48.00)		0.80 [0.17–3.68]	0.782
>3–5 million/month	26 (60.47)	17 (39.53)		1.06 [0.27–4.15]	0.931
>5 million/month	28 (57.14)	21 (42.86)		1.03 [0.20–5.27]	0.965
None	27 (31.40)	59 (68.60)		2.08 [0.35–12.38]	0.419
Experiencing losing a job due to COVID-19 pandemic			0.094	NC	
Yes	14 (12.28)	100 (87.72)			
No	29 (20.42)	113 (79.58)			
Experiencing with reducing income due to COVID-19 pandemic				NC	
Yes	52 (39.39)	80 (60.61)	0.102		
No	62 (50.00)	62 (50.00)			
Number of days stay at home during the second Enforcement of Restrictions on Community Activities (PPKM)			0.967	NC	
0–7 days	29 (44.62)	36 (55.38)			
8–14 days	16 (47.06)	18 (52.94)			
15–21 days	24 (46.15)	28 (53.85)			
≥22 days	45 (42.86)	60 (57.14)			
Resilience level			0.002*		
Low	13 (24.53)	40 (75.47)		I	
Normal	97 (48.99)	101 (51.01)		0.05 [0.01–0.76]	0.030*
High	4 (44.44)	5 (55.56)		0.19 [0.17–2.25]	0.191

NC: Not Calculated in logistic regression due to the p-value more than 0.025.

\*Significant at p-value 0.05.



to do a lot of activities from home due to the closure of public facilities, including entertainment purposed.<sup>10</sup> This situation put this group suffering from high perceived stress.

People who are not married have moderate stress levels compared to married or divorced people, but this group has a normal level of resilience compared to other groups. This finding supports previous research that married people have better mental health than non-married people.<sup>46</sup> In addition, the results of the resilience test that marital status is closely related to the level of resilience. During this pandemic, the support system from the environment is crucial to strengthen, share and accompany each other.<sup>47</sup> Especially in the character of the Indonesian people who have a gathering culture, they are making social restrictions hard to do, causing feelings of loneliness for some people who do not have a life partner.

Jobless people have higher stress than people who are working. This finding is supported by research in Denmark that researched the relationship between perceived stress and the risk of unemployment.<sup>48</sup> In our research, the unemployed group also had a lower level of resilience than the employed people. The context of not working in this study is that participants were not working when filling out the survey; it could be because they were fired or had not worked since before the pandemic. The COVID-19 pandemic has significantly impacted the economy, leading to a recession and high inflation worldwide.<sup>49</sup> This resulted in several sectors of the economy collapsing so that they had to reduce staff.<sup>50</sup> In addition, the sluggish economy has weakened people's purchasing power, so the entrepreneurial sector is also affected by this pandemic.<sup>51</sup> Not having a job means no income to fulfill their daily needs. This makes people who do not work more susceptible to stress than those who work.

We found that monthly payment before and during the pandemic was related to a person's stress level. People with less than one million of salary per month would have the highest stress level compared to people who had a revenue of more than 1 million. This income group of less than 1 million also has the lowest level of resilience compared to the upper income. The analogy used is that the higher a person's income before the pandemic, the higher the probability of having savings or assets.<sup>52</sup> These savings or assets can be used as emergency resources during this pandemic, such as daily meals and other primary needs. So, they feel more secure in the face of the pandemic followed by social restrictions.

The only protective factor of the stress level during the imposition of emergency social restriction in Indonesia is the resilience level of people. People with normal resilience have better odds of having low perceived stress than people with low resilience. Our result is consistent with previous research that assessed the association between resilience and stress, including a study that states people with higher resilience will have lower perceived stress,<sup>53</sup> a person's

high resilience is a moderating factor in resisting a person's desire to drink alcohol due to stress during the pandemic,<sup>54</sup> and the correlation between ego resilience and stress.<sup>55</sup>

Our research has some weaknesses in the self-reported questionnaire that can be biased in answering the questions that potentially lead to a single rater bias in which a biased due to respondent might present skewed or inaccurate data. In addition, the design of this study only allows capturing at a time. The sampling technique is also a weakness of this study, where it is difficult to predict the representation of each province in Indonesia. The use of social media in this survey will not reach a population with low digital literacy. But behind all these weaknesses, this survey is valuable to know the mental health situation in the community. Social restrictions make it impossible to conduct a direct survey, so for reasons of time and field conditions, this inline survey is accepted to be carried out.

## Conclusion

The findings of this study indicate that the implementation of social restrictions in Indonesia has implications for the level of public stress. The critical result of this research is that individual resilience is the only protective factor for people not getting stressed. This could prove the role of resilience as people safeguard have mental health such as stress. Future studies might explore people's opinions on what aspects make someone resilient or not. Qualitative analysis may be a better approach to that study to dig deeper into people's opinions. We suggest that the government strengthen the resilience of vulnerable communities during and after this pandemic. Although this has been completed, it is necessary to provide assistance and program sustainability because of the uncertainty of when the pandemic will end.

## Contribution

SS and RR conceived and designed the study including the research instrument. SS, RR, SW collected the data. SS conducted the statistical analysis and interpretation of the findings. SS wrote the initial draft. SS, SW, and BA wrote the final manuscript. **1** and BA critically reviewed and finalized the manuscript. All authors read and approved the final version of this manuscript

## Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

## Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research was funded by the Ministry of Research and Technology of Indonesia (KEMENRISTEK/BRIN **7**) to finance this research, grant number 3278.7/LLS/PG/2021; 001/SK.PJD/LPPM/VII/2021.

### Ethics approval and consent to participate

Ethical approval was approved by the Research Ethics Committee from Universitas Ahmad Dahlan, Yogyakarta, Indonesia (ethical approval code: 012103017).

### Patient consent for publication

Online consent from the patient for the publication was taken before collecting the data from them.

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### Informed consent

Written informed consent was obtained from a legally authorized representative(s) for anonymized patient information to be published in this article

### Significance for Public Health

The COVID-19 pandemic has affected all sectors of human life, both physically and mentally. Social restrictions are policies to overcome human movement in order to suppress the COVID-19 virus transmission. This study has a contribution to look at the factors that influence stress levels during the implementation of the second social restriction in Indonesia. It also presents that related stakeholder need to strengthen community resilience, because this factor has been shown to influence stress levels.

### Availability of data and materials

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

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