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Original Research

Determinants of Mental Health Status in Indonesian Pre-elderly and Elderly with Comorbidities during COVID-19

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Abstracts

Introduction: The pre-elderly and elderly populations with comorbidities are among the vulnerable groups to having mental health issues during COVID-19. This study aimed to examine the mental health status of this population in Indonesia and analyze the associated factors. **Methods:** This cross-sectional study enrolled 105 pre-elderly and older adults residing in Java Island, Indonesia, in September–October 2021. Mental health status was measured using the Depression, Anxiety, and Stress Scale-21 (DASS-21). Sociodemographic factors, hospital visits, and medication during the pandemic were also asked. Comparison of DASS-21 scores across these factors was analyzed with the Mann-Whitney U test. **Results:** More than half of the respondents were within a normal range of DASS scores. About 14% of respondents reported depression, and 17% reported stress symptoms, while about 41% were experiencing anxiety. There were gender differences in anxiety and stress scores and education differences in depression. DASS-21 scores were also varied by marital status ($p < .05$). No significant between-group differences in mental health status according to routine hospital visits or medication during the COVID-19 pandemic. **Conclusion:** Comorbidities are a risk factor for mental health problems in pre-elderly and individuals. Women, low economic level, and unmarried individuals were among the vulnerable groups to develop mental health issues during the COVID-19 outbreak.

Keywords: Elderly, COVID-19, Hospital Visit, Medication, Mental Health

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INTRODUCTION

The COVID-19 outbreak has had an impactful effect on all aspects of individuals' lives, particularly their mental health, due to the fear associated with the pandemic [1]. COVID-19 produced an increasing mortality rate of around 2–3% for adults, and this was even higher in the elderly [2]. However, mental health issues became underappreciated amidst the rapid spread of the coronavirus [3]. Epidemiological data studies in China reported moderate to severe depression, anxiety, and stress in the first stage of the outbreak [4]. The elderly's physical and emotional health is impacted by the COVID-19 pandemic. According to a Hong Kong cohort study of senior citizens with at least two chronic illnesses, there has been a noticeable rise in loneliness, anxiety, and sleeplessness since the COVID-19 outbreak [5]. A similar finding was made in a San Francisco study, where loneliness was reported by over 50% of the elderly and was linked to anxiety and sadness [6]. Research conducted in Germany during the beginning of the pandemic also found a correlation between senior loneliness and depressive symptoms [7]. Additionally, the results of research conducted in Iran during the COVID-19 pandemic demonstrated a reciprocal relationship between the mental health conditions of the elderly and sociodemographic factors, including age, gender, marital status, educational attainment, employment status, economic status, and living situation [8].

Policies like "lockdown" and "stay at home" have curtailed social connections, which has led to an increase in psychiatric problems [9]. The regulation of "physical distance" from the elderly may result in a lack of social engagement for this population. The elderly also cannot obtain routine treatment as previously because of limited access to health care, and an abundance of knowledge about the pandemic (infodemic) can make them feel more stressed and anxious [10]. People naturally started to worry about getting the sickness and the accompanying fear of death, witnessing unimaginably surmounting death cases [11]. Positive psychological traits are essential for reducing the harmful consequences of dread in these unfavorable circumstances because they lower the psychological weight of ongoing discomfort [12]. Research revealed that a considerably higher level of fear of COVID-19 was indicated by those who had previously been hospitalized for their comorbidity, which can result in mental health issues [13].

A coronavirus infection and its associated morbidity and mortality were more common in the elderly due to their advanced biological age and high prevalence of comorbidities [14]. Comorbidities have been found to be a contributing factor to anxiety in studies conducted on general populations [15]. Older persons with comorbidities are substantially more vulnerable than other populations due to diminished cognitive function, poor physiological function and physical fitness, and inadequate immunological function. Older adults have lower cognitive function, which makes them more prone to worry, which leads to psychological instability [16]. Medical conditions like hypertension, diabetes, and chronic obstructive pulmonary disease are major risk factors for the elderly during the pandemic, which threatens their endurance due to mental health problems [14]. Telemedicine may be a solution to the problems caused by the interaction limitation for providing health services. However, the elderly have less knowledge of using technology, which creates a gap in the usage of health services. Elderly people with comorbidities cannot be adequately monitored for hospital visits and treatment during a pandemic, which can exacerbate the illness caused by this limitation [17].

A study on the mental health conditions of the elderly with comorbidities is urgently needed, especially in Indonesia. This study aimed to determine the mental health of the pre-elderly and elderly with comorbidities in Indonesia using the Depression, Anxiety, and Stress Scale-21 (DASS-21). It was hy-

pothesized that mental status in the pre-elderly and individuals with comorbidities was associated with sociodemographic factors, hospital visits, and medication during the COVID-19 pandemic.

METHODS

This study has received ethical approval from the Faculty of Medicine, Universitas Airlangga (No. 167/EC/KEPK/FKUA/2021). This cross-sectional study was performed during the end of the second wave of COVID-19 in Indonesia (September 4th to October 10th, 2021). Pre-elderly and elderly people (≥45 years old) who could read and understand Indonesian from Java Island, Indonesia participated in this study. All participants were completely aware. Those respondents who were experiencing an acute illness, had a positive confirmed COVID-19 test, were in self-quarantine, had a serious mental disease, or had cognitive impairment were excluded. Respondents to an online survey regarding mental health among the elderly were mostly made aware of it through a public webinar. They could either finish and submit the survey on their own or with help from close family.

Using an online survey platform (www.surveyplanet.com) that prevented multiple submissions, the questionnaire was created and distributed in compliance with the Checklist for Reporting Results of Internet E-Surveys (CHERRIES) guidelines. The first page of the consent form contained information concerning respondents' voluntary involvement, the anonymization of published data, and a brief, plain-language description of the study.

The questionnaire comprised three sections: 1) questions on the comorbidities of respondents and data about sociodemographic factors, including age, gender, marital status, education level, and economic status; 2) measurement of mental health status using DASS-21; and 3) questions on hospitals visit and medication during the pandemic.

DASS-21 instrument

The Indonesian version of the DASS-21 instrument had already been tested for validity and reliability previously. It is a self-report tool designed by Lovibond to assess anxiety, depression, and stress scales. The appropriate levels of normal, mild, moderate, severe, and very severe depression, anxiety, and stress were shown alongside the scales for each mental health condition [18].

Hospital Visit and Medication

Questions include hospital visits and medication for chronic illness during the COVID-19 pandemic; these items were given answer choices of frequently, infrequently, and never. Answers were then group into frequent and infrequent never.

Descriptive analyses were performed, and response rates were presented as percentages for the categorical variables. DASS-21 score comparisons across sociodemographic factors, hospital visits, and medication were tested with the Mann–Whitney U test.

RESULTS

A total of 199 respondents visited the informed consent page, and 105 responses were valid for further analyses due to the presence of comorbidities. Respondent characteristics are presented in Table 1. It was discovered that respondents were mostly elderly (53.4%), women (77.1%), average-high economic level (85.8%), bachelor's degree or above in education (59.1%), and married (74.2%). More than 50% of respondents were frequently doing hospital visits and taking medication for treating chronic illness during the pandemic. About 28.6% of respondents had more than one comorbidity, and cardiometabolic disorder was the most common type of comorbidity with a percentage of 40.9% (Table 1). Over half of the respondents were within the normal range according to DASS scores, while no respondents suffered from extremely severe depression and stress. Only anxiety levels vary from mild, moderate, severe, and extremely severe (Table 1). It was reported that about 14.3% of respondents were expe-

riencing depression and about 17.1% were experiencing stress, while about 41% were experiencing anxiety. The categories of depression, anxiety, and stress are divided into mild, moderate, severe, and very severe.

Table 1. Characteristics of Respondents

Characteristics	n	%
Age		
Pre-elderly	49	46.6
Elderly	56	53.4
Gender		
Men	24	22.9
Women	81	77.1
Economic level		
Low	15	14.2
Average-high	90	85.8
Education		
Senior High School or below	43	40.9
Bachelor's degree or above	62	59.1
Marital Status		
Married	78	74.2
Unmarried or Widow or Widower	25	25.8
Hospital Visit		
Frequent	71	67.6
Infrequent-never	34	32.4
Medication		
Frequent	60	57.2
Infrequent-never	45	42.8
Type of Comorbidity		
Cardiometabolic disorder	43	40.9
Joint disorder	14	13.3
Obesity	10	9.5
Asthma	11	10.4
Gastrointestinal disorder	23	21.9
Neurologic disoder	5	4
Number of Comorbidity		
One disorder	75	71.4
More than one disorder	30	28.6
Depression	4 (0-18)	
median (min-max)		
Normal	90	85.7
Mild	10	9.5
Moderate	5	4.8
Severe	0	0
Very severe	0	0
Anxiety	6 (0-30)	
median (min-max)		
Normal	62	59
Mild	11	10.5
Moderate	27	25.7
Severe	3	2.9
Very severe	2	1.9
Stress	10 (0-30)	
median (min-max)		
Normal	87	82.9
Mild	12	11.4
Moderate	4	3.8
Severe	2	1.9
Very severe	0	0

There are no significant associations between respondents age, education, hospital visit, medication, and number of comorbidities during the pandemic and depression, anxiety, or stress level (Table 2). Women reported more serious depression, anxiety, and

stress than men, with a significantly higher anxiety and stress scores (p<0.5). Low economic level showed higher scores for depression, anxiety, and stress with significantly higher depression score (p<0.5). Unmarried or widowed respondents reported higher scores for all mental health problems than those who were married. Marital status was shown to be an important factor that can increase the risk of mental health problems of anxiety and stress (p<.05) (Table 2).

Respondents who infrequent and never visited hospitals during the pandemic reported a higher score of depression, anxiety, and stress. Those who frequently took medication during the pandemic had lower scores of depression, anxiety, and stress, while respondents who had more than one comorbidity showed higher scores of stress. However, no statistical significances were found in this regard. Those having depression and stress symptoms were mostly within mild levels, while anxiety symptoms were mostly within moderate levels. Among studied participants, 9.5% and 11.4% were reported to have mild levels of, depression and stress, while 25.7% were reported to have moderate levels of anxiety, respectively.

Table 2. Comparison of DASS-21 scores

Characteristics	Depression		Anxiety		Stress	
	Median (min–max)	*p value*	Median (min–max)	*p value*	Median (min–max)	*p value*
Age						
Pre-elderly	4 [0-18]	0.314	6 [0-30]	0.323	12 [0-30]	0.076
Elderly	4 [0-16]		4 [0-22]		9 [0-22]	
Gender						
Men	2 [0-10]	0.179	4 [0-12]	0.041*	6 [0-20]	0.005*
Women	4 [0-18]		6 [0-30]		12 [0-30]	
Economic level, n [%]						
Low	6 [2-12]	0.044*	8 [0-12]	0.183	12 [0-20]	0.125
Average–high	3 [0-18]		6 [0-30]		10 [0-30]	
Education						
Senior high school or below	4 [0-14]	0.755	6 [0-16]	0.422	10 [0-22]	0.611
Bachelor's degree or above	4 [0-18]		6 [0-30]		10 [0-30]	
Marital status						
Married	3 [0-18]	0.022*	6 [0-30]	0.029*	8 [0-30]	0.097
Unmarried/ Widow/widower	6 [0-16]		8 [0-22]		12 [0-28]	
Hospital Visit						
Frequent	2 [0-18]	0.288	6 [0-30]	0.292	10 [0-30]	0.929
Infrequent-never	4 [0-16]		6 [0-16]		11 [0-28]	
Medication						
Frequent	4 [0-16]	0.239	5 [0-16]	0.574	8 [0-28]]	0.129
Infrequent-never	4 [0-18]		6 [0-30]		12 [0-30]	
Number of Comorbidity						
One disorder	4 [0-18]	0.305	6 [0-30]	0.325	10 [0-30]	0.179
More than one	4 [0-16]		6 [2-22]		12 [0-28]	

DISCUSSION

This study included pre-elderly and elderly people with comorbidities, who were the most vulnerable population during outbreaks. A previous study in China mentioned the high mortality rate linked to COVID-19, the respondents' sensitivity to COVID-19 infection, limited access to basic medical services and drugs, and respondents with comorbidities who were prone to worry and stress could all be triggers for these mental illnesses [14]. The number of respondents who had depression, anxiety, and stress in the mild to very severe category was less than those in the normal category. In contrast to a study in India, which explains that higher feelings of insecurity, a fear of losing loved ones, higher psychological discomfort, and a decrease in quality of life are caused by prolonged anxiety induced by COVID-19 [18]. Another study in India mentioned that the elderly who had comorbidities had a 4.5-fold increased risk of psychological disorders [19]. The results of this study have the same result as the previous study, which explained that anxiety and stress affect women more frequently. Anxiety is a precursor to depression and can be impacted by hormone fluctuations. Hormonal abnormalities in women are associated with depression, which contributes to the higher score of depression in this population. Women going through menopause experience hormonal abnormalities. Because of this, women who are close to or in their senior years are more vulnerable to pressure, particularly during the COVID-19 pandemic. Rising stress levels will set off hormone imbalances that lead to depression [20]. Other research in Italy showed that virus-induced stress became one of the biggest stressors for women both in Europe and in non-European countries, especially new and unexpected personal experience [18].

Low economic level became one of the risk factors for depression in pre-elderly and elderly during COVID-19, and this is paralleled with another study in China, which explains that the incidence of depressive symptoms was statistically significantly different among subgroups, such as the rate was higher in females and respondents with lower household annual income [16]. Other research has found a relationship between mental health during COVID-19 and marital status. Married respondents had a 1-2% lower likelihood of experiencing mental health issues after work-related income losses since the pandemic began than their single counterparts [21]. It can be explained that single respondents don't have friends to do activities with or talk with throughout the isolation due to the pandemic, which makes them more bored and lonely. Studies have indicated that the stress of living in a pandemic and the loneliness and social isolation brought on by COVID-19 have resulted in psychological trauma, loneliness, and mental health issues [22]. A high level of anxiety increases the probability of negative mental health outcomes during a pandemic, such as mood disorders and peritraumatic distress. The function of psychological flexibility in shielding those who are very susceptible to worse mental health outcomes from pandemic-related health anxiety has not been studied before [21]. We believe this is the first study to identify hospital visits or medication during the pandemic as potential moderating factors for mental health issues in pre-elderly and individuals populations during the COVID-19 outbreak in Indonesia. There were no differences in depression, anxiety, and stress scores according to hospital visit and medication in pre-elderly and elderly with comorbidity. Our result showed nearly one-third of respondents did not do hospital visits regularly during the pandemic. A study in South Korea explained the number of daily outpatient visits declined considerably during the COVID-19 pandemic. The percentage of daily visits for anxiety disorders, depressive disorders, and schizophrenia spectrum disorders decreased significantly, about 29.8%, 14.8%, and 13.3%, respectively. Outpatients with

mental health issues had less access to quality psychiatric care. The pandemic may exacerbate pre-existing mental health illnesses and worsen mental health conditions. Furthermore, individuals with anxiety disorders or depression tend to have a more sensitive response to changes in the risk of viral infection and are reluctant to seek mental health services, possibly due to concerns regarding the spread of COVID-19 in healthcare settings [17]. There is probably a complicated relationship between the use of services and mental and physical health, which depends on a variety of patient, comorbidity, and provider factors. It depends on the quantity and kind of underlying mental and physical health conditions in a population, such as inadequate medication adherence, multiple drug use or inappropriate prescribing, continuity of care, and patient satisfaction, which may have varying effects on hospitalization [17]. The decreasing number of hospital visits could be explained by a number of additional factors, such as operational modifications during the pandemic. A study in South Korea explained that the decrease in psychiatric outpatient visits may be due to the use of telemedicine as an alternative healthcare service, as remote healthcare services are prohibited by medical legislation in Korea. It can be concluded that social distancing regulations caused the patients to temporarily use a primary hospital close to their homes [17]. Due to lack of control, it can aggravate their comorbidity while they should visit the hospital to control their illness, but they also face a higher risk of getting infected by viruses, which leads to fear and anxiety [11]. This study paralleled another study in Turkey that reported a greater increase in mental health problems due to an increase in fear during the pandemic, which can lead to an increase in stressors [1]. Additionally, physical isolation and fear of contacting the virus are critical factors that lead to depression and anxiety [24]. There were no statistical significances found in depression, anxiety, and stress scores according to the number of comorbidities. A study in Italy mentioned that people who had more than one comorbidity showed a higher score of stress due to the complexity of disorder management. Individuals who have five physical conditions are more likely to require hospitalization than those who only have one. Physical and mental health comorbidities may negatively impact mental health, lower quality of life, and increase mortality in individuals with severe mental illness. Increased mortality among those suffering from serious mental disease. Hospitalization for 30 days is more common in groups with underlying diabetes, cardiovascular disease, and COPD than in those without SMI [25].

This study highlights the psychological effects of the COVID-19 pandemic on pre-elderly and elderly people with comorbidities, as shown by the considerable prevalent depression, anxiety, and stress symptoms in this population. We unravel certain subgroups that are more prone to mental problems resulting from public health crises, including women, those of low economic status, and unmarried individuals. The reciprocal influence of physical and mental problems in these vulnerable groups may impose greater risks of morbidity and mortality due to COVID-19. Therefore, a comprehensive healthcare approach should be implemented, including any strategic action to increase mental resilience. Telemedicine could help bridge may be beneficial to fill the gap in health services related to COVID-19 restrictions, within which psychiatric care can be provided to these individuals with physical and mental comorbidities.

This study had several limitations. First, nonprobability sampling possibly created unrepresentative samples in this study, thereby complicating inferences about the population; the sample size was also small. Second, the online questionnaire was probably open to survey biases, although these were already addressed in this study. Future studies on larger and more representative samples are necessary. However, this study

effectively captured mental health conditions in the pre-elderly and individuals with comorbidities during the COVID-19 outbreak in Indonesia.

CONCLUSION

The prevalence of depression, anxiety, and stress in preelderly and elderly with comorbidities during the second wave of COVID-19 in Java Island is 14.3%, 41%, and 17.1%, respectively. Female gender, low economic level, and unmarried status are determinant factors for mental health issues in this population. Therefore, any intervention to improve mental resilience against public health crises should be done heavily targeting these vulnerable individuals.

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CONFLICT OF INTEREST

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