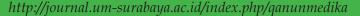Research Article

Depression, anxiety, and stress levels in Denpasar community during the pandemic of Corona Virus Disease 2019 (COVID-19)

I Gusti Ngurah Bagus Rai Mulya Hartawan[1], I Gede Gita Sastrawan[1], Rovie Hikari Parastan[1], Luh Seri Ani[2]

1) Faculty of Medicine, Udayana University, Bali
2) Public Health Department, Faculty of Medicine, Udayana University, Bali

ABSTRACT

The Government of Indonesia has started to implement a Large-Scale Social Limitation (PSBB) in cities and provinces in Indonesia to prevent the increase of COVID-19 transmission. Denpasar city is one of the cities that implemented a similar system. This study aimed to provide an overview of depression, anxiety, and stress in the Denpasar community during the COVID-19 pandemic. This study was a descriptive observational study with a cross-sectional design. The data collection used Google forms that were distributed online. There were 160 respondents participated in this study, dominated by women (56.9%), domiciled in South Denpasar (35.0%), living with family or relatives (85.6%), aged 18-25 years old (63.7%), had a diploma or bachelor degree as their education background (55.0%), unmarried (66.3%), students (38.8%), and no income (44.4%). The results showed that respondents had 1-2 offspring (53.7%), did not experience layoffs (83.9%), and experienced a decrease in income (67.0%). Dominant respondents experienced psychosocial disorders in the form of depression (51.2%) with a moderate degree (31.7%) and anxiety (53.1%) with a mild degree (40.0%). Most respondents did not experience stress (53.1%). In conclusion, the characteristics of respondents' psychosocial disorders were moderate depression, mild anxiety, and did not stress.

INTRODUCTION

A pandemic is an outbreak of infectious disease that infected many people in a large geographical area. Pandemic is global health emergencies at the highest level. According to World Health Organization (WHO), an outbreak is defined as a pandemic if it meets three conditions: 1) the disease is a new emergence into a population, 2) the disease-causing agent infects humans and causes severe disease, and 3) the disease-causing agent spreads easily and continuously in humans. WHO has announced two pandemics, the Spanish Influenza in 1918s and H1N1 Influenza in the 2009s (Tamher & Noorkasiani, 2008). On the 11th of March 2020, WHO announced the third pandemic; it was the Corona Virus Disease 2019 (COVID-19). Since the WHO's declaration, this pandemic has attracted widespread attention, causing concern and panic among the world community (CDC, 2020).

The COVID-19 is a disease caused by Novel Coronavirus or SARS-Cov-2 Virus. As of May 10th 2020, there were 3.9 million confirmed cases globally, and the mortality reached 274 thousand, or the mortality rate was 6% (WHO, 2020). The National Health Commission of the Republic of China recorded at least 80 thousand confirmed COVID-19 cases, with the mortality reached 3 thousand. In America, the deaths due to COVID-19 reached a percentage of 8.2%, higher than the epidemic threshold in various countries, which is 7.2% (PDPI, 2020). There were 14 thousand confirmed cases in Indonesia, and the mortality rate reached 991 people (7%). The COVID-19 in Indonesia was first reported on the 2nd of March 2020, and the number of confirmed cases has increased over time (Kemenkes RI, 2020).

The COVID-19 has a negative impact on the patients' quality of life because it might cause a dangerous acute attack (Li, Liu, Yu, Tang, & Tang, 2020). The patients might get a fever, fatigue, myalgia, diarrhea, and shortness of breath. Those symptoms might be progressively worsened at a severe level. In the young age subjects or who do not have respiratory disease, shortness of breath can appear at any time or later. It has a terrible impact on the productive age group who will carry out the activities (Cascella, Rajnik, Cuomo, Dulebohn, & Napoli, 2020). In severe cases, there can be rapid and progressive deterioration such as septic shock, metabolic acidosis that is difficult to correct, and dysfunction of the coagulation system within a few days. Although most patients have a good prognosis and only a small proportion might get into critical conditions even die, The COVID-19 is still a frightening issue (Wang et al., 2020).

Several regions, office affairs, or agencies have implemented their policies to anticipate the increasing number of sufferers and decrease transmission of COVID-19, including work from home (WFH). The WFH policy requires that all activities like studying, working, and even religious activity have to do at home. The Government of Indonesia in March 2020 decided to implement a Large-Scale Social Limitation (PSBB) in several cities and provinces in Indonesia. The COVID-19 pandemic and the ongoing restrictions might lead to arise in various psychosocial or mental health problems.

Previous studies have revealed psychosocial effects that affect mental health at the individual, community, and international levels during the pandemic quarantine. At the individual level, most people tend to fear falling ill or dying, feelings of helplessness, and stigma (Hall, Hall, & Chapman, 2008). During the influenza epidemic, roughly 10% to 30% of the general public was worried about the possibility of infected by the virus (Rubin, Potts, & Michie, 2010). The closure of public spaces and travel restrictions caused negative emotions at the individual level (Van Bortel et al., 2016). After

the SARS outbreak, many studies investigated the psychological impact on uninfected communities. The study revealed significant levels of psychiatric morbidity found at a younger age and increased self-blame feelings (Sim, Huak Chan, Chong, Chua, & Wen Soon, 2010). These conditions are in line with the theory that humans who are used to living in social groups will respond negatively when isolated. Those reactions are as a response to boredom, loneliness, confinement, and restriction (Sarner, 2020).

As one of the busiest cities in Bali Province, Denpasar City is implementing a PSBB similar system called Community Activity Restrictions (PKM) policy. At present, there is no data available that can describe events related to the psychosocial or mental health aspects of the Denpasar community during the COVID-19 pandemic. This study aimed to provide an overview of depression, anxiety, and stress in the Denpasar community during the COVID-19 pandemic. This research is expected to help the government and professional health services maintain the community's psychological well-being in dealing with COVID-19.

METHODS

This study was a descriptive observational study with a cross-sectional design. The sampling was carried out by a consecutive sampling method, which was conducted from April 20th to April 27th 2020. The respondents living in Denpasar City and their age ranging from 18-65 years were included in this study. The evaluation of depression, stress, and stress levels used the Indonesian version of the Depression Anxiety and Stress Scale-21 (DASS-21) questionnaire. The data collection used Google forms that were distributed online to avoid direct contact with respondents during the COVID-19 pandemic. The respondents were instructed to give scores in each question ranging from 0 (never) to 3 (most often) based on their condition. The

levels of depression, anxiety, and stress were classified based on the total score. The collected data then analyzed using SPSS v.23 software to determine the frequency and distribution of the data. This study has been approved by the Ethical Committee of Udayana University/ RSUP Sanglah Denpasar.

RESULTS

The characteristic of respondents of this study is presented in Table 1. The respondents were dominated by females, with a percentage of 56.9%. The dominant respondents reside in South Denpasar with a frequency of more than one third and a percentage of 35%. The majority of the respondents lived with their families or relatives, with a percentage of 85.6%. The number of respondents whose ages were ranging from 18 to 25 years was more than half the total respondents, with a percentage of 63.7%. The respondents' educational background was dominant of completed a diploma or bachelor degree with a frequency of more than half and a percentage of 55%. The respondents who participated in this study were mostly unmarried, with a percentage of 66.3%. The number of respondents living as students was dominated by more than one third and a percentage of 38.8%. The respondents were also dominated by who rated no income category with a percentage of 44.4%.

The data in table 2 showed that of 54 respondents who were married (married and divorced), the majority of them had 1-2 children with a percentage of 53.7%. There were less than a quarter-respondents who had three or more children with a percentage of 22.2%.

Based on the data in table 3 showed that of 93 people who worked, more than three-quarters did not get employment termination during the COVID-19 pandemic with a percentage of 83.9%. There were two-thirds of respondents who had to get a decrease in income during the pandemic with a percentage of 67.0%.

Table 1. Characteristic of respondents

Socio-demographics	Frequency	Percentage
Sex		
Male	69	43.1
Female	91	56.9
Domicile		
North Denpasar	31	19.4
East Denpasar	41	25.6
South Denpasar	56	35.0
West Denpasar	32	20.0
Residence status		
Alone	23	14.4
With family or relatives	137	85.6
Age		
18-25 years	102	63.7
26-35 years	30	18.8
36-45 years	15	9.4
46-55 years	7	4.4
56-65 years	6	3.8
Educational background		
Elementary school	1	0.6
Junior high school	1	0.6
Senior high school	70	43.8
Diploma or Bachelor degree	88	55.0
Marital status		
Married	53	33.1
Unmarried	106	66.3
Divorce	1	0.6
Profession		
Government employees	17	18.1
Private employees	45	7.5
Entrepreneur	29	8.1
Retired	3	1.9
Student	62	38.8
Unemployment	4	2.5
Monthly income		
Below the UMK	47	29.4
UMK or more	42	26.3
No income	71	44.4
Total	160	100

*UMK is the city minimum wage. The UMK of Denpasar City in 2020 is Rp 2.770.000

Table 2. Characteristic of the respondent's number of children

Number of children	Frequency	Percentage
1-2 children	29	53.7
3 or more children	12	22.2
Do not have children yet	13	24.1
Total	54	100

Table 3. Characteristics of employment status during the COVID-19 pandemic

Employment status	Frequency	Percentage
Termination of employment (n=93)		
Yes	15	16.1
No	78	83.9
A decrease in income (n=100)		
Yes	67	67.0
No	33	33.0

Table 4. Characteristic of respondents' psychosocial status

Psychosocial status	Frequency	Percentage
Depression		
Yes	82	51.2
No	78	48.8
Anxiety		
Yes	85	53.1
No	75	46.9
Stress		
Yes	69	43.1
No	91	56.9
Total	160	100

The study shows that most respondents with a frequency of more than half experienced depression during the pandemic (51.2%). In addition, more than half of the respondents also experienced anxiety (53.1%), and more than half of respondents did not experience stress with a percentage of 56.9% (Table 4).

The data in table 5 showed that most respondents who got depression during the pandemic were classified as moderate degrees with a percentage of 31.7%. Most of the respondents who experienced anxiety during the pandemic were classified as mild anxiety, with a 40.0% percentage. Most of the respondents who got stress during the pandemic were classified as moderate stress with a 42.0% percentage.

DISCUSSION

Based on the study results, it was found that the majority of the respondents were depressed. This result is in line with a survey conducted by the Indonesian Association of Mental Medicine Specialists (PDSKJI), which found as many as 67% of 2.364 respondents spread in 34 provinces in Indonesia had psychological problems in the form of depression. These results were obtained after conducting an independent or self-examination via online about mental health-related impacts of the COVID-19 pandemic conducted on the official PDSKJI website. The main symptoms of depression felt by respondents were sleep disturbance, lack of confidence, fatigue without strength, and loss of interest (PDSKJI, 2020).

This study also found that the majority of the respondents experienced anxiety. This result is back in line with a survey conducted by PDSKJI, which found as many as 68% of the total respondents had psychological problems in the form of anxiety. These results were also obtained after conducting an independent or self-examination online about mental health-related impacts of the COVID-19 pandemic conducted on the official PDSKJI website. The most anxious symptoms felt by respondents are feeling something terrible will happen, worrying too much, irritability or annoyance, and it is hard to relax. The total number of respondents in that study were 2.364 respondents, dominated by female respondents (72%) with a minimum age of 14 years and a maximum of 71 years (PDSKJI, 2020).

A survey conducted by PDSKJI found that 80% of respondents experienced psychological trauma related to COVID-19. As many as 80% of respondents have psychological stress symptoms due to experiencing or witnessing unpleasant events related to COVID-19.
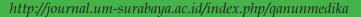
After a prominent trauma, symptoms of stress are feeling distant and separated or disconnected from others, and continuously feeling alert, cautious, guarded. There are also other symptoms such as numbness, angry outbursts or irritability, sleeping difficulty, and concentration problems (PDSKJI, 2020). The results obtained by PDSKJI contradict the results obtained by researchers, which can be caused by sociodemographic differences, economic status, customs, culture, and other values.

The depression that arises during the COVID-19 pandemic can be attributed to one of Fraud's theories of psychosocial factors. Psychosocial factors that influence depression include stressful life events, which more often precede the first episode of mood disorders than later episodes. Fraud's theory also suggests that if a person is hit by stress before the first episode, it can cause long-lasting brain biology changes. These changes cause changes in various neurotransmitters and intraneuronal signaling systems, including the loss of several neurons and decreased synaptic contact. The impact is that an individual at high risk of experiencing repeated episodes of mood disorders, even without stressors from psychosocial. Psychosocial stressors, both acute, such as the loss of a loved one, or chronic stressors such as long-term financial shortages, interpersonal relationship difficulties, experiencing security threats, can cause depression during the pandemic (Kaplan & Sadock, 2010).

The anxiety that arises during the COVID-19 pandemic can be attributed to Stuart's theories of behavioral factors. Based on this theory, anxiety arises because of specific environmental stimuli such as trapped situations, wrong thinking patterns, or circumstances that force unproductive behavior so that it can cause maladaptive reactions. Individuals in an unfamiliar situation or new environment are more easily experienced anxiety than in

an environment where they usually occupy. Excessive assessment of the presence of danger in certain situations and underestimates the self's ability to overcome threats is a cause of anxiety in someone (Stuart, 2013).

Stress arising during the COVID-19 pandemic can be attributed to Nevid's theories of a complex process involving the autonomic nervous system and the endocrine system. Stress caused during the pandemic is not only psychological or emotional stress but also physical stress. Stress is received by the brain in response to be transmitted to the hypothalamus-pituitary-adrenal (HPA) axis. The hypothalamus secretes corticotropic hormone (CRH), and CRH stimulates the pituitary gland to secrete adrenocorticotropic hormone (ACTH). ACTH will induce the adrenal cortex to release cortisol or corticosteroids as stress hormones. If the stressor continues to persist, and the individual experiences a failure to adapt, the individual enters the fatigue stage. The fatigue phase is characterized by the parasympathetic branch's dominance, resulting in a decreased heart rate and breathing speed. In addition to the stress that enters the fatigue stage, various complaints such as numbness, difficulty concentrating, and irritability appear (Nevid et al., 2005).

The COVID-19 pandemic period was not only a health problem but also involved the economic, political, social, and other sectors throughout the world. It is also related to making policy to cut the transmission of COVID-19. Strategies adopted in almost all countries must take into account public health analysis, such as restrictions on contact between people. This is the basis for a lockdown, quarantine, or independent isolation policy, not traveling outside the home or limiting other activities that risk increasing the opportunity for COVID-19 transmission (Xiang et al., 2020).

With the presence of this policy, the length of time staying at home certainly increases.
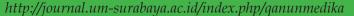
This can cause mental health disorders for some people related to changes in their daily lives' rhythm. There was a change in the frequency and quality of their socializing, which at first collectively became very limited and changed several other daily habits. If these changes cannot be adapted for a while, it is not impossible to cause severe mental health disorders such as stress, depression, irritability, difficulty sleeping, fear, confusion, boredom, anger, frustration, and even stigma (Brooks et al., 2020). A research in China, during the COVID-19 pandemic, 84.7% of respondents spent 20-24 hours a day at home. An evaluation of mental health complaints to respondents found that 16.5% of respondents experienced moderate-severe depression, 28.8% experienced moderate-severe anxiety, and 8.1% experienced moderate-severe stress. People who already have recurrent depressive disorder, these restrictions become one of the stressors that can trigger back the symptoms of depression they have (Wang et al., 2020).

The effects of economic losses are also one of the significant problems beyond the health problems arising from the COVID-19 pandemic. Job losses, financial depletion, and long-term impacts on the economy are also stressors for mental health disorders. In this condition, cortisol levels and activity in the amygdala increase, which can trigger mental health disorders such as depression, stress, and anxiety (Pfefferbaum & North, 2020).

Psychosocial disorders such as depression, anxiety, and stress are known to reduce body immunity, while what is needed to ward off COVID-19 is good immunity. Various ways can be done to overcome the impact of social restrictions on mental health. To deal with depression can be done by spending time with loved ones, maintaining communications with family, friends, colleagues through social media or online, running a new routine, running a new hobby, and expressing negative thoughts

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or emotions regularly. To overcome anxiety can be done by recognizing fear or anxiety so that it can be appropriately managed, dividing precise time between leisure and work time, recognizing activities that give a feeling of calm and happiness, and still maintaining clarity of mind through meditation. Things that can be done to cope with stress are prioritizing physical and mental health over others, regular exercise and eating nutritious food, and meditation (Hiremath, Suhas Kowshik, Manjunath, & Shettar, 2020).

CONCLUSION

In conclusion, dominant respondents were experienced psychosocial disorders during the COVID-19 pandemic in the form of depression (51.2%) with a moderate degree (31.7%), the anxiety (53.1%) with a mild degree (40.0%), and did not experience stress (53.1%).

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