AIRLANGGA DEVELOPMENT JOURNAL
ADJ
p-ISSN: 2528-3642

Sekolah Pascasarjana Universitas Airlangga
Jalan Airlangga No. 4-6, Surabaya - 60286
Telp. : (031) 5041566, 5041536
Email : adj@journal.unair.ac.id
Website : https://e-journal.unair.ac.id/ADJ

THE RISK OF TRANSMISSION OF COVID-19, COMMUNITY STIGMA, THE AVAILABILITY OF PPE AS A STRESS TRIGGER FOR HEALTH WORKERS

Arif Fatah Hidayat, Sri Iswati*
Sekolah Pascasarjana, Universitas Airlangga, Surabaya, Jawa Timur, Surabaya
* Corresponding author E-mail: iswati@feb.unair.ac.id

ABSTRACT

In the midst of the Covid-19 pandemic, the role of health workers is very important. The high risk of transmission causes stress for them. The aim of the research is to empirically determine the influence of the risk of Covid-19 transmission, public stigma, and the availability of PPE on the stress of health workers in hospitals. Using a quantitative approach, the cross section with a sample of 122 was tested with multinomial logistic regressions. Univariate results show that the risk of transmission is low, public stigma is moderate, PPE availability is high and stress is moderate. The results of the bivariate analysis show that the risk of Covid-19 transmission has a positive effect, community stigma has a positive effect, and the availability of PPE has a positive effect on health worker stress, all of which are significant. Multivariate analysis results indicate that all independent variables have a significant effect on health worker stress. The risk variable for transmitting Covid-19 is the most dominant. Screening for the risk of Covid-19 transmission, complete personal protective equipment, and positive stigma can provide health workers with a sense of security so that the risk of stress can be minimized.

Keywords: *Personal Protective Equipment, Multivariate Analysis, Risk of Covid-19 Transmission, Community Stigma, Health Worker Stress.*

INTRODUCTION

1. Background

Coronavirus disease (Covid-19) is a new disease that threatens global life in 2020. People with Covid-19 experience mild respiratory problems, fever, an average of 5-6 days after infection, ranging from 1-14 days (WHO, 2020). LaMotte (2020) explains that this virus originates from animals such as bats and snakes, it is strongly suspected that it started spreading in animal markets in the Wuhan area, China. The first infection in humans began at the end of 2019, where a person was diagnosed with pneumonia, but with an uncommon condition. This first case makes Covid-19 a special concern because it can be transmitted from animals to humans. The spread of Covid-19 turned out to be widespread and massive. The case of 707 passengers on *the Diamond Princess* cruise ship tested positive for Covid-19, 6 of whom died, *the case-fatality ratio* for this population was 0.85% (Pappas, 2020). Worldometer (2020) reported that as of April 3 2020 there were 1,015,964 positive cases of Covid-19 in 201 countries, of which 212,994 people were declared cured and 53,219 people died. Figure 1.1. shows the growth of the spread of Covid-19 over time which continues to increase exponentially.

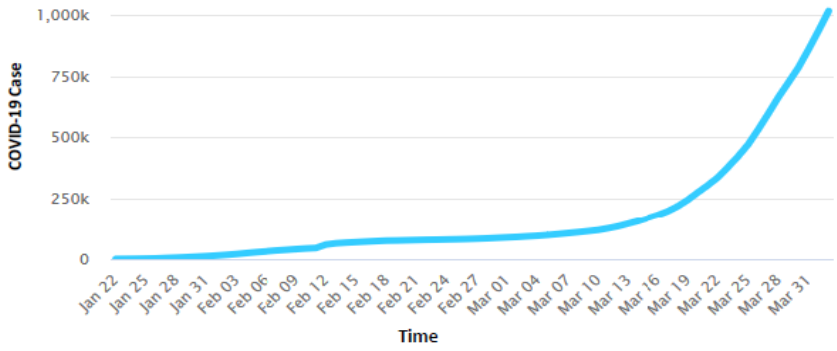

Figure 1.1
Growth in the Spread of Covid-19

The World Health Organization (hereinafter referred to as WHO, 2020) stated that the Indonesian Government as of April 1 2020 had reported 1677 cases of Covid-19, of which 103 people recovered and 157 people died. Monday, 21 December 2020, 671,778 (+6,848) health workers who tested positive for Covid-19, 546,884 (+5,073) recovered, 20,085 (+205) died, 104,809 were treated/self-isolating. This raises concerns, including health workers (hereinafter referred to as health workers) who experience depression, excessive anxiety and stress.

According to Ivancevich (2007:306), stress is defined as an individual's interaction with the environment. Nasrullah's research (2020:1) shows that 55% of health worker respondents in Indonesia experienced stress due to the Covid-19 outbreak, with 0.8% very severe stress and 34.5% mild stress.

The Ministry of Health (2020) stated that Covid-19 transmission occurs through direct contact with infected people and indirect contact with surfaces or objects used by infected people. This adds to the psychological burden on health workers. Sembiring (2020:79) proves that 325 people (80.2%) of respondents were in the risk category of contracting Covid-19 in North Sulawesi. The way to reduce the risk of contracting Covid-19 is not to be exposed to Covid-19, through close contact with sufferers, touching objects that suffer from Covid-19 and following health protocols such as wearing a mask, washing hands with soap and running water for at least 20 seconds, using cleaning fluid when running water is not available, maintain a distance of at least one meter, avoid touching your nose, eyes, mouth and face with hands that have not been cleaned.

The next factor that can influence health workers' stress is community stigma. According to *Surgeon General Satcher's* in Teresa (2010), Agustang, (2020) stigma is an event or phenomenon that prevents someone from getting attention, reduces someone from getting opportunities and social interactions. Stigma is wrong thoughts and beliefs as well as a phenomenon that occurs when individuals experience labeling, stereotypes, separation and experience discrimination, thus affecting the individual as a whole.

Covid-19 is a new disease, where humans tend to be afraid of the unknown. This causes the emergence of social stigma and discrimination against certain ethnicities and also people who are considered to be related to this virus. The feelings of confusion, anxiety and fear that we feel are understandable, ultimately leading to prejudice towards sufferers, caregivers, families, or those who have symptoms similar to Covid-19. Social stigma can make them hide their illness so as not to be discriminated against, prevent them from seeking immediate health assistance, and prevent them from adopting healthy lifestyle behaviors (Dai, 2020:67).

The results of the FIK UI and IPKJI Survey in April 2020 showed that 2050 nurses were found to have felt humiliated (140 respondents), threatened with eviction (66

respondents), avoided by closing the house fence or door when they saw a nurse (160 respondents), and stayed away from the nurse's family (71 respondents) (Yunere and Yaslina, 2020:3). This negative stigma makes many health workers experience stress.

The completeness of Personal Protective Equipment (hereinafter referred to as PPE) influences the stress of health workers. According to *the Occupational Safety and Health Administration* (OSHA), PPE is defined as equipment used to protect workers from injury or disease caused by contact with hazards *in* the workplace, whether chemical, biological, radiation, electrical, mechanical or other. other. Based on research conducted by Sinaga (2021:521). Completeness of PPE affects the mental readiness of health workers in caring for Covid-19 patients. Apart from that, the use of PPE still carries the risk of transmitting the corona virus through droplets or aerosols from patients in the air and entering through gaps created accidentally by health workers when handling patients (Handayani, et al. 2020:356). This causes health workers to experience anxiety which triggers stress.

X Ponorogo General Hospital (hereinafter referred to as RSUX) is a private hospital designated as a Covid-19 referral hospital and the only hospital that provides RT-PCR examinations independently. On June 10 2021 the number of Covid-19 patients in Ponorogo reached 4,236 cases. The BOR value of the RSUX Covid-19 patient treatment room reached more than 90%. As well as daily sample examinations of Covid-19 patients averaging around 130 which are carried out over 24 hours with a 3 work *shift pattern* .

2. Review of previous research results

Nasrullah (2020:1) found that 55% of health workers experienced very severe stress levels of 0.8% and mild stress of 34.5% in handling Covid-19. Sembiring (2020:79) said that in North Sulawesi people are used to doing the 3M Movement (wearing masks, washing hands and maintaining distance - hereinafter referred to as 3M) so that 80.2% of people are found to be at low risk of contracting Covid-19. Wang et al (2019) proved that preventive movements reduce the risk of Covid-19 transmission. The 3M Movement contributes to health workers' stress levels. During the Covid-19 outbreak, it was found that half of the respondents experienced severe stress, while a third experienced moderate to severe stress. Irmawati (2021), concluded that the implementation of 3M had an effect on the anxiety of health workers at the Pontianak City Health Center. Poor implementation of 3 M tends to increase health workers' anxiety. Li Ran et al. (2019) shows that there is a relationship between proper hand washing and Covid-19 transmission. Poor hand washing and maintaining hand hygiene after and before contact with patients are correlated with the transmission of Covid-19. This fear of infection puts a mental burden on health workers

Community stigma is the second factor in triggering stress. Social stigma can make people with Covid-19 symptoms hide their illness so as not to be discriminated against, this can also make them reluctant to seek help, thus making the situation worse. Dai (2020:68) explains that health workers are no longer allowed to live in the same complex, because they are thought to carry the Covid-19 virus. It was also found that the homeowners unilaterally terminated the contract with the health workers, so that they were evicted from the rental. Sad stories also occurred in Semarang, Pakan Baru and several other areas in Indonesia, where health workers whose bodies died were rejected by the community to be buried in public cemeteries. This negative stigma makes many health workers experience stress. Handayani (2020) proves that what causes stress for health workers is negative stigma. The stigmatization of health workers is as if they are carrying the virus to the community. Saleha (2020) concluded that social support had an effect on stress by 52.7%. The higher the social support, the lower the health workers' stress

The completeness of Personal Protective Equipment (hereinafter referred to as PPE) influences the stress of health workers. Fadli (2020) concluded that the availability of PPE affected the anxiety of health workers in three hospitals and nine health services. Sinaga (2021) proves that the limitations of PPE affect the mental readiness of health workers in caring for Covid-19 patients. Irmayanti (2021) explained that the availability of PPE affects the anxiety of health workers. Completeness with PPE strengthens the mental readiness of health workers in caring for Covid-19 patients. Although the use of PPE does not guarantee that there is no risk of infection. Because transmission is also triggered by patient droplets or aerosols that are in the air and enter through gaps created accidentally by health workers when handling patients (Handayani, et al. 2020:356). This causes health workers to experience anxiety which triggers stress.

Based on previous research studies, the novelty of this research is, 1) the research was carried out when Covid-19 was starting to decline, while the research referred to was carried out when the pandemic was heating up. 2) has never been done at a private hospital in Ponorogo. 3) RSUX Ponorogo is the only hospital that provides RT-PCR examinations independently and is a reference for samples from several surrounding hospitals. 4) several independent variables studied by previous researchers were carried out separately, whereas in this research they were combined.

3. Problem Formulation

1) Does the risk of Covid-19 transmission affect the stress of health workers?
2) Does community stigma influence health worker stress?
3) Does the availability of PPE affect the stress of health workers?
4) Do the Risk of Covid-19 Transmission , Community Stigma, and Availability of PPE simultaneously influence Health Worker Stress?

4. Research Objectives

1) Obtain empirical evidence of the influence of the risk of Covid-19 transmission on health worker stress.
2) Obtain empirical evidence of the influence of community stigma on health worker stress
3) Obtain empirical evidence of the influence of PPE Availability on Health Worker Stress.
4) Obtain empirical evidence of the simultaneous influence of Covid-19 Transmission Risk , Community Stigma, and Availability of PPE on Health Worker Stress

5.Theory and Hypothesis

Covid-19 Transmission on Health Workers' Stress.

Health worker stress is a condition of tension that causes psychological or physical imbalance that affects emotions (Rivai and Sagala, 2009). Stress can be influenced by the environment, organizations and individuals. Environmental factors during the Covid-19 pandemic were the risk of transmission of Covid-19 , via droplets (Ministry of Health, 2020). According to Dinah and Rahman (2020), the anxiety level of nurses in both developing and developed countries indicates an increase. Furthermore, Irmayanti (2021) described many factors that trigger anxiety among health workers in Pontianak, apart from the risk of infection, also the completeness of PPE. Pinggian (2021) also proves that there was a significant psychological impact on health workers during the Covid-19 pandemic . Perwitasari (2016), Nasrullah (2020) revealed that there are many factors that influence the

stress of health workers, as well as the psychological impact of health workers in dealing with Covid-19 . Sembiring (2020) found that the risk of contracting Covid-19 can trigger stress

Covid-19 is a micron-sized virus with very fast transmission, so complex management of Covid-19 patients is required to minimize the risk of transmission. Exposure to zones, interactions with co-workers, unhealthy lifestyles that are not good make the risk of transmission even higher. This will increase the stress of health workers to high levels.

H_1 : The risk of Covid-19 transmission influences the stress of health workers at RSUX

The Influence of Community Stigma on Health Worker Stress

According to Link Phelan (2021), stigma is when someone is labeled, stereotyped, separated, and experiences discrimination (Scheid and Brown, 2010). Stigma is also defined as an event that prevents someone from getting attention, obtaining opportunities and social interactions (Teresa, 2010). Castro (2005) generally provides an overview of how to understand the stigma given to people with AIDS. This has a negative impact on the sufferers. In line with this, health workers dealing with Covid-19 also experienced the same thing. According to Dai (2020), the public stigma towards Covid-19 also worsens and triggers increased stress among health workers. Dinah and Rahman (2020) show that the anxiety level of nurses in both developing and developed countries indicates an increase. Pinggian (2021) also proves that there was a significant psychological impact on health workers during the Covid-19 pandemic .

The public stigma towards Covid-19 health workers , health workers are considered to be carriers of the virus (Handayani, 2020), the impact is that health workers are shunned by the community, this disrupts the community interaction and education process. Sarfika (2018) states that the stigma factor is important in treating patients with mental disorders. Yunere and Yaslina (2020) prove that there is a significant relationship between stigma and anxiety. Based on the things above, it can be hypothesized:

H_2 : Community Stigma Influences Stress of Health Workers at RSUX

The Effect of PPE Availability on Health Workers' Stress.

Personal Protective Equipment (PPE) is equipment used to protect workers from injuries or illnesses caused by contact with hazards *in* the workplace, whether chemical, biological, radiation, electrical, mechanical and other. PPE for handling Covid-19 patients is specifically regulated (Sinaga, 2021). Asriani and Sriningsih (2020) show that anxiety levels tend to increase if the availability of PPE is incomplete. Dinah and Rahman (2020) stated that the anxiety level of nurses in both developing and developed countries indicates an increase. Irmayanti (2021) describes many factors that trigger anxiety among health workers in Pontianak, apart from the risk of infection, also the completeness of PPE. Pinggian (2021) also proves that there was a significant psychological impact on health workers during the Covid-19 pandemic . Perwitasari (2016), Nasrullah (2020) revealed that there are many factors that influence the stress of health workers, as well as the psychological impact of health workers in dealing with Covid-19 . Wee et.al. (2020) also revealed the importance of PPE for health workers in China. The availability and completeness of PPE is a factor that really determines safety in handling Covid-19 so that it can reduce stress for health workers. Based on the research results, the research hypothesis is:

H_3 : Availability of PPE Influences Stress of Health Workers at General Hospital

Simultaneous Influence of the Risk of Covid-19 Transmission , Community Stigma, and Availability of PPE on Health Worker Stress

Some research previously disclosed shows that the risk of Covid-19 transmission, community stigma and the availability of PPE will be partially tested for health workers' stress. Next, it will be tested simultaneously. Some additional research by Fadli (2020) shows that the availability of PPE is the most influential factor in health workers' anxiety compared to age, knowledge, and family status. Hanggoro (2020) proves that the Covid-19 pandemic has an impact on increasing psychological problems (anxiety disorders, depression and insomnia) in health workers. Social support and nurses' spiritual intelligence simultaneously have an influence on stress of 52.7% (Saleha, 2020). Based on this, the fourth hypothesis is:

Covid-19 Transmission , Community Stigma, and Availability of PPE simultaneously influence Health Worker Stress

METHOD

1. Type of Research

This research uses quantitative methods, is carried out in a structured manner and qualifies the data for generalization (Anshori and Iswati, 2017: 14) with a *cross-sectional approach* , where the dependent and independent variables are observed simultaneously (Notoatmojo, 2010: 37-38)

2. Population and Sample

The population in this study were health workers (nakes) who handle Covid-19 patients, namely: doctors, nurses, physiotherapy, laboratory, nutrition workers, health workers, and pharmacists totaling 150 people. The sampling technique used *simple random sampling* . Using the Slovin formula (Umar, 2004:108), 109 respondents were obtained, the questionnaire was distributed via *Google Forms*

3. Time and Place of Research

When this research was carried out in November 2021, the place where this research was carried out was at General Hospital X in Ponorogo, hereinafter referred to as RSUX.

4. Variables and Operational Definition of Variables

There are three independent variables (X1, X2, X3) and one dependent variable which are explained as follows:

1) Risk of Covid-19 Transmission (X1) is a person's behavior in preventing transmission of Covid-19. Measurement using *the Covid tracing assessment* with the Guttman scale , low risk: 0-3, medium: 4-7, high: 8-10.
2) Community Stigma (X2) is a negative label given by a person/group of people to other people. This stigma is related to health workers who handle Covid- 19 . There are 4 indicators: Labeling, Stereotypes, Separation, Discrimination. Measured with *the Internalized Stigma of Metal Illness Scale* (ISMI) Stigma Questionnaire. Mild stigma : 0-43, moderate stigma: 44 – 87, severe stigma: 87-130
3) Availability of PPE (X3) is the availability of PPE by hospitals handling Covid-19 patients . Measured using the Guttman scale, present = 1, absent = 0. It is categorized as complete if all PPE when handling patients is available, with a total score of 9. Incomplete category if one or more PPE is not available, with a total score <9.
4) Health Worker Stress (Y) is the feeling of pressure experienced by health workers in facing the Covid-19 pandemic . Measurement using the *Perceived Stress Scale* (PSS) instrument. Score for mild stress: 0-13, moderate stress: 14-26, and severe stress: 27-30

5. Validity and Reliability Test

Testing the validity of *the Pearson product moment correlation* with a significance level of 5%. The test results show that the questionnaire is valid. Next, measuring reliability, the level of reliability of variables measured using the *Guttman scale* was tested using the *split half method* , while the reliability of variables measuring the Likert scale was tested using the *Cronbach alpha method.* The test results show that all variables are valid.

6. Data Analysis Techniques

The data analysis technique used is: 1) Univariate analysis to describe the characteristics of each research variable. 2) Bivariate analysis to test the relationship between the independent variable (X) and the dependent variable (Y). 3) Multivariate analysis to find out which independent variable has the most influence among other independent variables (Notoatmodjo, 2010:183).

RESULTS AND DISCUSSION

1.RSUX Overview

RSUX Ponorogo is a type C hospital, with 401 health workers, 164 beds with VVIP, VIP, Class 1-3, Perinatology, ICU, Covid-19 treatment rooms. 24 hour emergency room, Hemodialysis services, TB DOTS and 25 other types of outpatient clinics. RSUX's superior services include Insurance Services (60 insurance institutions), Operation Services and Emergency Services. Operation services are carried out by seven specialist doctors. The newest emergency service is the Emergency Ambulance (AGD) which can be accessed using the hospital's online application.

Rumah RSUX is the first private hospital designated as a referral hospital for Covid-19 patients in Ponorogo. RSUX has its own PCR sample examination tool and is a reference place for examining samples from Covid-19 patients. Play an active role in the program to dispose of the bodies of Covid-19 patients. With 32 beds specifically for Covid-19 patients. Each room has a negative pressure room, and there are two negative pressure ICU beds with ventilators. RSUX also focuses on being a *Smart Hospital,* so the process of digitizing services continues to be carried out. Starting from registration, patient administration and other services are carried out using an online system. RSUX succeeded in achieving the best type C hospital award in 2019 in the 2019 BPJS Health Award competition.

2. Characteristics of Respondents

The respondents in this study were RSUX health workers who treated Covid-19 patients, a total of 122 people, 36 men (29.5%) and 86 women (70.5%). Age range 21- 56 years. 94 people (77%) have a diploma education and 28 people (23%) have a bachelor's degree. There were 36 health workers with less than 5 years of service (29.5%), 31 people with 6-10 years of service (25.4%), 29 people with 11-15 years of service (23.8%) and more than 15 years as many as 26 people (21.3%).

Univariate Analysis

Covid-19 Transmission Risk Variables

Based on Table 1, it is known that health workers think that the risk of Covid-19 transmission at RSUX is relatively low. This can be seen from the good responses to the question items for this variable, including using surgical masks, not shaking hands with colleagues, always washing hands with *hand sanitizer* and other activities when doing work. The only activity that the health workers did not respond well to was the habit of exercising 3 times a week.

Community Stigma Variable

Respondents' responses to the *labeling dimensions* of the Community Stigma variable in Table 2 are included in the medium category. The item that was responded to best in the *labeling dimension* was regarding the community's willingness to accept back someone who has/has experienced a Covid-19 virus infection. The item with the lowest response was the public belief that the existence of the Covid-19 virus was a conspiracy.

The health workers' responses to the *stereotype dimension* in the community stigma variable, Table 3, are included in the medium category. The item that was responded to best on the stereotype dimension was the opportunity to socialize with society even though the opinion given was rejected. Meanwhile, the item with the lowest response was regarding the belief that health workers handling Covid-19 could infect other people.

In the separation dimension, Table 4, health workers' responses are included in the low category with a mean of 2.49. The separation dimension item that was responded best to the stereotype dimension was the absence of negative views about Covid-19 so that health workers were not isolated from the environment. Meanwhile, the item with the lowest response was regarding the assumed view of Covid-19 when people access health services.

In the last dimension of the Community Stigma variable, namely discrimination, as stated in Table 5, it is known that health workers' responses are in the medium category with a mean of 2.62. The item on the separation dimension that was responded to best in the discrimination dimension was the absence of the community blocking communication with health workers. Meanwhile, the item with the lowest response was regarding the acceptance of opinions about Covid-19 by the public due to distrust in the existence of Covid-19.

Paying attention to the description of the four dimensions, the response of health workers to Community Stigma is included in the medium category with a total mean value of 2.65 obtained from the average of the means for each dimension. Thus, health workers consider that the stigma that occurs in society due to the presence of the Covid-19 virus does exist and is classified as moderate.

PPE Availability Variable

Respondents' responses to the variable PPE Availability are summarized in table 6. Respondents considered that the availability of PPE at RSUX was good. This can be seen from the availability of N-95 masks, surgical masks, hazmat suits, boots and other PPE for work purposes in hospitals. The availability of PPE that is still relatively lacking is Google glasses and disposable shoe covers.

Health Worker Stress Variables

Respondents' responses to the Health Care Stress variable are in table 7. In total, they are included in the medium category. The item that responded best to the stress variable was the absence of anxiety and pressure. Meanwhile, the item with the lowest response was regarding confidence in one's ability to overcome personal problems.

Bivariate Analysis

The respondents' responses to the research variables were then categorized according to previously determined provisions. The categorization results are summarized in table 7. The health workers have a moderate level of stress (56.6%), consider the risk of Covid-19 transmission to be low (71.3%), consider the availability of PPE to be complete (69.7%), and also consider the public stigma to be moderate. (83.6%).

The results of categorizing each variable were then analyzed bivariately *to* determine the relationship between each variable. *Bivariate* analysis was carried out using cross tabulation analysis, results in table 9. Cross tabulation between the variables Risk of Transmission of Covid-19 and Stress. The result is that health workers consider the risk of Covid-19 transmission to be low but their stress level is in the moderate category. For health workers who consider the risk of Covid-19 transmission to be moderate, most of them have high levels of stress. From the *Chi Square value* of 70.599, a significance value of 0.000 is obtained, which is smaller than the 5% significance level, so it can be concluded that there is a significant influence between the risk of Covid-19 transmission and the stress of health workers at RSUX.

Cross tabulation between the variables Community Stigma and Stress shows that health workers think that the stigma of Covid-19 is low, most of them do not experience stress, while health workers think that community stigma about Covid-19 is moderate and generally experience moderate levels of stress. Meanwhile, health workers who consider the public stigma regarding Covid-19 to be high all have high levels of stress. Table 10 shows the *Chi Square* value of 67.099 with a significance value of 0.000 which is smaller than the 5% significance level so it can be concluded that there is a significant influence between Community Stigma regarding Covid-19 and Health Care Workers' Stress at RSUX.

Next, there is a cross tabulation between the variables Availability of PPE and Stress of Health Workers in table 11. Health Workers who think that PPE does not experience high stress. On the other hand, health workers who considered complete PPE had moderate stress. The cross tabulation results show *a Chi Square* of 59.967 with a significance value of 0.000 which is smaller than the 5% significance level, so it is concluded that there is a significant influence between the availability of PPE and the stress of health workers at RSUX.

Multivariate *Analysis*

bivariate analysis of each independent variable: Risk of Transmission of Covid-19, Community Stigma and Availability of PPE with Health Worker Stress, it is known that the three independent variables have a significant association with Stress. Based on these results, the three independent variables will be included in *multivariate testing* with *multinomial logistic regressions.*

a. Simultaneous Test

Simultaneous tests were carried out to determine whether the independent variables used in the model had a significant influence on health workers' stress levels. This test with the *multinomial logistic model* was carried out using the *Likelihood Ratio test* in table 12.

a very large decrease in the -2 *Log Likelihood* value from 232.282 in the model without predictors (*intercept only*) to 80.399 in the model with predictors included (*final*). This decrease shows that the factors included in the model are able to have a meaningful influence on stress levels. The results of the simultaneous *Chi Square test* , also known as the G value test, obtained a value of 151.833 with a p-value of 0.000 which is smaller than 0.05, so it can be concluded that together the independent variables have a significant effect on the stress level of health workers.

b. Model Fit Test

The model suitability test is used to ensure that the *multinomial logistic model estimates* are *fit* in determining the model. The *multinomial logistic* model suitability test is shown in table 13. The deviation test results obtained a D (*Chi Square*) value of 73.232 with a p-value

of 0.999. Based on these results, it can be concluded that the *multinomial logistics model* is suitable so that the model is suitable for use.

c. Parameter Significance Test

The results of the parameter significance test in *multinomial logistics* using the *Wald test* were carried out to test the research hypothesis in table 14. Based on the estimation results above, a logistic model of stress levels for health workers can be prepared as follows:

Moderate Stress g1(x) = 30.735 - 2.969 Risk + 0.093 Stigma - 0.921 APD
High Stress g2(x) = 38,530 - 4,163 Risk + 0.216 Stigma - 2,015 APD

1) The g1(x) model can be explained as follows:
   a) The risk variable for Covid-19 transmission has a significant negative effect on moderate stress levels with a significance value of 0.000 (<0.05). The significant negative effect explains that if health workers' responses regarding the risk of transmission are better, the possibility of health workers experiencing moderate stress is smaller with an *odds ratio* (Exp β) value of only 0.051. An *odds ratio* value of 0.051 means that if the risk of Covid-19 transmission is responded well by the health workers, the probability that the health workers will experience a moderate level of stress is 0.051 times compared to health workers who respond less well regarding the risk of Covid-19 transmission.
   b) The community stigma variable was concluded to have a significant positive effect on moderate stress levels with a significance value of 0.039 (<0.05). This explains that if the health workers' response regarding public stigma gets worse, the health workers experience moderate stress with an *odds ratio* (Exp β) of 1.098. An *odds ratio* value of 1.098 means that if the health workers' response to community stigma is getting worse, the probability that health workers will experience moderate stress is 1.098 times compared to health workers who give a good response to community stigma.
   c) The variable PPE availability was concluded to have an insignificant negative effect (no effect) on moderate stress levels with a test significance value of 0.303 which was greater than 0.05.

2) The g2(x) model can be explained as follows:
   a) The risk variable for Covid-19 transmission has a significant negative effect on high stress levels with a test significance value of 0.000 (<0.05). This means that if the health workers' response regarding the risk of transmission is better, the health workers will experience less moderate stress with an *odds ratio* (Exp β) value of only 0.016. An *odds ratio* value of 0.016 means that if the risk of Covid-19 transmission is responded to well by health workers, the possibility of health workers experiencing high stress is only 0.016 times compared to health workers who give a poor response regarding the risk of Covid-19 transmission.
   b) Community stigma variable significant positive effect on high stress levels with a significance value 0.003 (<0.05). This means that if the response of health workers regarding public stigma is getting worse, the health workers experiencing high stress will also be greater with an *odds ratio* (Exp β) of 1.242. The *odds ratio* value means that if the health workers' response to public stigma gets worse, the health workers will experience 1.242 times higher stress compared to health workers who give a good response. of societal stigma.

c) PPE availability variable significant negative effect on high stress levels with a significance value of 0.042 (<0.05). This explains that if the response of health workers regarding the availability of PPE is better, the health workers experiencing high stress will be less with an *odds ratio* (Exp β) value of 0.133. The *odd* value means that if the health workers' response to the availability of PPE is getting better, the possibility that the health workers will experience high stress is only 0.133 times compared to health workers who gave less good responses .

d) R-Square Coefficient
The results of the *multinomial logistic analysis* were obtained *R-Square* is 0.828. This means that the existence of risk factors for Covid-19 transmission, public stigma and the availability of PPE can explain the possibility of stress levels among health workers at RSUX of 82.8%.

DISCUSSION

1. Influence of the risk of Covid-19 transmission on health worker stress.

Covid-19 is a disease caused by coronavirus. Initially Covid-19 was discovered in China in 2019 and then spread throughout the world so it was categorized as the Covid-19 Pandemic. In Indonesia, Covid-19 is known to have entered in early 2020 (WHO, 2020). Covid-19 is classified as an infectious disease. The average incubation period is 5-6 days with a range of one to 14 days. The risk of transmission is very high, where infected people can be immediately contagious from up to 48 hours before symptoms appear to 14 days after symptoms. It is known that Covid-19 is transmitted through droplets. Transmission of Covid-19 can occur through direct contact and indirect contact with Covid-19 patients (Ministry of Health, 2020). Assessment of the risk of Covid-19 transmission can be seen from a person's behavior in carrying out prevention (Sembiring and Meo, 2020).

Based on the results of a significant Chi Square value of 70.599, it was concluded that there was a significant association between the risk of Covid-19 transmission and the stress of health workers. These results support previous research conducted by Wang et al (2019) that prevention movements in reducing the risk of Covid-19 transmission contribute to the stress levels of health workers. Irmawati (2021), Sembiring (2020) that implementing prevention of the risk of contracting Covid-19 can affect the anxiety of health workers.

Bivariate analysis showed that health workers who considered the risk of Covid-19 transmission to be moderate had a high level of stress with a significant *Chi Square of* 70.599 , so it was concluded that there was a significant influence between the Risk of Covid-19 Transmission and the stress of health workers at RSUX. The risk variable for Covid-19 transmission has a significant negative effect on moderate stress levels with a significance value of 0.000 (<0.05). The significant negative effect explains that if health workers' responses regarding the risk of transmission are better, the possibility of health workers experiencing moderate stress is smaller.

The results of this research are in line with Irmayanti (2021), Implementing risk behavior for Covid-19 transmission by implementing the 3 M's is a good prevention method. To minimize the risk of Covid-19 transmission, good management is needed so that health workers can minimize stress. Li Ran et al (2019) *My 5 Moments For Hand* is able to prevent the transmission of Covid-19. This fear of infection is a mental burden on health workers, so proper stress management is needed. Rosyanti and Hadi (2020) said that the source of stress for health workers is the risk of transmitting Covid-19 either when caring for patients or when interacting with co-workers. Health workers' activities such as clinical discussions, handovers, breaks, working in confined spaces are sources of stress felt by health workers

when working. Hasibuan (2020) is one of the strategies in an effort to manage the stress of health workers by forming a regulation that calls for attention to mental and physical health including support and encouragement such as providing a proper place to rest, nutritious food, medical assistance.

The Influence of Community Stigma on Health Worker Stress.

Stigma is an event or phenomenon that prevents someone from getting attention, reduces someone from getting opportunities and social interactions (Sheid and Brown, 2010). Forms of stigma given to someone include labeling, stereotypes, separation, and discrimination (Link and Phelan (in Scheid & Brown, 2010), Labeling is giving a label or name to someone, Stereotypes are society's beliefs about someone, separation is the separation of someone, and Discrimination is behavior that demeans people.

The results of the analysis show that public stigma towards health workers at RSUX is moderate. The highest indicator of stigma is labeling health workers. Cross tabulation between Community Stigma and Stress shows that health workers think that the stigma of Covid-19 is low and therefore do not experience stress, while health workers think that community stigma is moderate, experiencing moderate stress. Health workers who perceived high stigma all had high levels of stress. The *Chi Square* result of 67.09 is significant, it can be concluded that there is a significant influence between community stigma regarding Covid-19 and health workers' stress at RSUX.

Community stigma has a significant positive effect on moderate stress levels with a significance value of 0.039 (<0.05). This explains that if the health workers' response regarding public stigma gets worse, the health workers experience moderate stress with an *odds ratio* (Exp β) of 1.098. The *odd ratio* value means that if the health workers' response to community stigma gets worse, the health workers will experience moderate stress of 1.098 times compared to health workers who give a good response to community stigma. The community stigma variable was concluded to have a significant positive effect on high stress levels with a significance value of 0.003 (<0.05). This means that if the health workers' responses regarding public stigma are getting worse, the health workers experiencing high stress will also be greater with an *odds ratio* (Exp β) of 1.242. The *odds ratio* value means that if the health workers' response to community stigma gets worse, the health workers will experience high stress of 1.242 times compared to health workers who give a good response to community stigma.

This research is in line with Handayani (2020) that the factor that causes stress for health workers is negative stigma. The stigma they receive as if they are carrying the virus makes them stressed. Saleh (2020) concluded that social support has an effect on stress by 52.7%. Putri (2021) Research at Raja Ahmad Tabib Hospital, Riau Province, with results that there was a relationship between stigma and health workers' stress. The existence of social stigma in society towards sufferers or those suspected of suffering makes preventing transmission increasingly difficult. This is because a person will cover himself with his situation so that other people do not know so that he can gather with other people normally. As a result, the risk of possible spread is increasingly unpredictable. Stigma will give rise to new social turmoil and problems in the form of loss of harmony in society. Likewise for health workers who work with Covid-19 patients. Ironically, panic in the form of strict control is not directed at the virus but also at the patient, resulting in exclusion, expulsion, and even rejection (Dai, 2020). The stigmatization received and making health workers carriers of the virus is an attitude that can trigger psychological disorders in health workers (Tsamakis, Triantafyllis, Tsiptsios, Spartalis, Mueller, Tsamakis, Chaidou, Spandidos, Fotis,

Economou, Rizos, 2020). In addition, health workers during the Covid-19 pandemic worked amidst intense media and public attention, long work durations, and massively triggered negative psychological effects including emotional disorders, depression, stress, low mood, irritability. , panic attacks, phobias, symptoms, insomnia, anger, and emotional exhaustion. The most effective way to raise awareness in ending the stigma of Covid-19 is education. Forms of education can be through social media, leaflets, animated stories so that children are more interested in watching.

The Influence of PPE Availability on Health Worker Stress.

According to Minister of Manpower Regulation 08/2010, PPE is a tool that has the ability to protect a person whose function is to isolate part or all of the body from potential dangers in the workplace. According to *the Occupational Safety and Health Administration* (OSHA), PPE is equipment used to protect workers from injury or disease caused by contact with hazards *in* the workplace, whether chemical, biological, radiation, electrical, mechanical and other. . The research results show that the availability of PPE at RSUDX is in the good category. Providing PPE based on risk zones. If the risk zone is high, the PPE provided will be more complex compared to the low risk zone.

Health workers who believe that PPE is incomplete experience high stress. On the other hand, health workers who considered complete PPE had moderate stress. The cross tabulation results showed a significant *Chi Square* of 59.967, so it was concluded that there was a significant influence between the availability of PPE and the stress of health workers at RSUX. The variable availability of PPE was concluded to have a significant negative effect on high stress levels with a test significance value of 0.042 (<0.05). This explains that if the response from health workers regarding the availability of PPE is better, the health workers will experience less stress.

This research is in line with Handayani (2020), Fadli (2020), Irmayanti, (2021), Asriani and Sriningsih (2021), namely that the availability of PPE influences the stress of health workers. Lockhart et al (2020) stated that providing appropriate PPE is very important. The lack of availability of PPE according to WHO protocols tends to trigger health workers to have anxiety disorders compared to appropriate PPE (Irmayanti, 2021). Cheng et al (2020), Maben & Bridges (2020), Lockhart et al., (2020) that nurses experience anxiety that PPE has not been met when carrying out procedures on patients. According to the Ministry of Health (2020), the standard PPE when treating Covid-19 patients is *Surgical Mask* , N95 Respirator Mask (*Equivalent), Examination* Gloves , *Surgical Gloves* , Disposable Gowns, Medical Coveralls (Body Covering Clothes from Feet to Head), *Shoe Covers* with a frequency of use only once, Eye Protection (*Goggles*), Face Shield (*Face Shield*) Heavy Duty Apron, Waterproof Boots (*Waterproff Boots*) only use once or can be reused after disinfection/decontamination. The use of appropriate PPE based on correct procedures from installation to removal must be done correctly. Health workers who work in high risk areas must always be monitored in terms of availability, compliance with use and use of PPE considering that the use of PPE is a common practice when a patient is confirmed as having Covid-19 (Wee Le et al, 2020).

The Influence of the Risk of Covid-19 Transmission, Community Stigma, and Availability of PPE on Health Worker Stress.

Stress is more often associated with the demands and resources a person has (Robbins, 2006). Demands are the responsibilities, pressures and obligations faced by an individual,

while resources are things that are within a person's control. Several factors that influence stress are environmental, organizational and individual factors (Wahjono, 2010).

The results of the simultaneous test with *Chi Square* or G value test obtained a value of 151.833 with a p-value of 0.000 so it can be concluded that together the independent variables used in the model have a significant effect on health workers' stress. The results of the *multinomial logistic* analysis obtained *an R-Square* of 0.828. This means that the risk of Covid-19 transmission, public stigma and the availability of PPE can explain the occurrence of stress in health workers by 82.8%. The risk of transmitting Covid-19 has the greatest influence, followed by public stigma, and the availability of PPE has the lowest influence on health workers' stress.

Factors related to health workers' work stress must be well controlled. Symptoms of stress can be seen physically and emotionally. Physically, these include headaches, digestive disorders, breathing problems and sleep disorders. Emotionally, it is depression, irritability, feelings of unease and even feelings of wanting to commit suicide (Taman and Hardaningtyas, 2017). According to IDI during the Covid-19 pandemic, stress was divided into three, namely mild, moderate and severe stress. People usually feel mild stress like they often forget, while moderate stress is usually characterized by disturbed sleep patterns, muscle tension and even hormonal disorders. Severe stress is characterized by chronic digestive disorders, increased feelings of anxiety and fear, and even causes physical disorders (Racmat, 2021).

Based on research results, the stress of RSUX health workers is in the medium category. This is because health workers are facing new conditions in the Covid-19 pandemic which are different from normal conditions. Stress cannot be eliminated quickly or completely as long as health workers are still dealing with stress triggers. However, it can be reduced by conditioning the body to accept stressors (Kreitner and Kinicki (2005). Efforts to reduce stress are through self-relaxation, *biofeedback* , and cognitive restructuring. Relaxation can be done by regulating breathing, efforts to restore muscle tension. *Biofeedback* is done by rotation workplace. Cognitive restructuring can be done by providing motivation or advice so that someone can accept and be enthusiastic about their work goals.

The novelty of this research is:

1) Research phenomenon: Research was carried out when Covid-19 was starting to decline, while the research referred to was carried out when the pandemic was heating up.
2) Research location: has never been conducted at a private hospital in Ponorogo, with complete health workers consisting of specialist doctors, doctors, nurses and other health workers
3) Covid-19 Hospital: RSUX Ponorogo is the only hospital that provides RT-PCR examinations independently and is a reference for samples from several surrounding hospitals.
4) Research variables: several independent variables studied by previous researchers were carried out separately, whereas in this research they were combined.

CONCLUSION

The conclusions of this research are:

1) The risk of Covid-19 transmission has a negative effect on health workers' stress. This means, if the management of the risk of transmission is good, the stress level of health workers will be low, but conversely, if the risk management is bad, then the stress level of health workers will be high.

2) Community stigma has a positive effect on health workers' stress. This means that increasing bad stigma from society will cause health workers' stress levels to also be high.
3) The availability of PPE has a negative effect on health workers' stress. This means that if complete PPE is available, the stress level of health workers will be lower. On the other hand, the more incomplete the PPE provided, the higher the stress level of health workers tasked with treating Covid-19 patients.
4) The risk of Covid-19 transmission, public stigma and the availability of PPE simultaneously influence the stress of health workers by 82.8%. The most dominant variable in triggering stress is the risk of transmitting Covid-19.

BIBLIOGRAPHY

Anshori, M and Iswati, S (2017) Quantitative Research Methods. Surabaya, Airlangga University Press.

Arikunto, S (2010) Research procedures: A Practical Approach. (Revised Edition). Jakarta, Rineka Cipta.

Asriani D, Sriningsih N (2020) The Relationship between the Level of Anxiety in Using Personal Protective Equipment (PPE) and the Prevention of Covid-19 Transmission among Nurses in the Inpatient Room of the Tangerang Regency General Hospital (RSU).

Castro A , Farmer P (2005) Understanding and Addressing AIDS-Related Stigma: From Anthropological Theory to Clinical Practice in Haiti Am J Public Health Jan. 95(1) 53-9.

Dai N (2020) Community Stigma Against the Covid-19 Pandemic. Proceedings of the National Seminar on Social Problems of the Covid-19 Pandemic. https://ojs.literacyinstitude.org/indez.php/prosiding-covid-19.

Dinah and Rahman (2020) Overview of Nurses' Anxiety Levels During the Covid 19 Pandemic in Developing and Developed Countries: A Literature Review. Health Dynamics Journal of Midwifery and Nursing Vol 11 No. 1 (37-48).

Directorate General of Health Services (2020) Technical Instructions for Personal Protective Equipment (PPE). PPE personal protective equipment Tech instructions. 2020;(April):1–3.

Fadli (2020) Factors that Influence Anxiety in Health Workers in Efforts to Prevent Covid-19. Indonesian journal of nursing education vol.6 no. 1 (57-65).

Handayani (2020) Factors Causing Stress in Health Workers and the Community During the Covid-19 Pandemic. Journal of Mental Nursing Volume 8 No 3, August 2020, Pages 353 – 360.

Hanggoro (2020) Psychological Impact of the Covid-19 Pandemic on Health Workers: A Cross-Sectional Study in Pontianak City. Indonesian Public Health Journal Vol. 15 No. 2 (13-18)

Ivancevich, et al. 2007. Organizational Behavior and Management Volume 1 Seventh Edition. Jakarta : Elangga.

Irmayanti (2021) Factors related to anxiety about being infected with Covid-19 among health workers at the Pontianak City Health Center. Health Information Research Vol. 10 No. 1 (34-42)

Jemarwati, O (2020) Stress and Social Support for Nurses, Doctors and Health Workers during the Covid-19 Pandemic. Periodic Proceedings of Psychology Vo. 2 (292-299)

Indonesian Ministry of Health (2020) Guidelines for the Prevention and Control of Coronavirus Disease (Covid-19). Jakarta: Republic of Indonesia Ministry of Health.

Kreitner, R, Kinicki, A (2005) Organizational Behavior, books 1 and 2, Jakarta : Salemba Empat.

Link BG, Struening EL, Tood SN, Asmussen S, & Phelan, JC (2001) The consequences of stigma for the self-esteem of people with mental illnesses. Psychiatric Services, 52(12), 1621-1626. Downloaded April 11, 2015, from Google Scoolar.

Nasrullah (2020) Psychological Impact of Health Workers in Efforts to Deal with the Corona Virus (Covid-19) Pandemic in Indonesia. Ministry of Research and Technology-National Research and Innovation Agency of the Republic of Indonesia. https://sinta.ristekbrin.go.id/covid/penelitian/detail/245

Occupational Safety and Health Administration (OSHA) (2004) Personal Protective Equipment. US Department of Labor.

Perwitasari (2016) Factors that Influence Stress Levels in Health Workers at Tanjungpura University Hospital Pontianak in 2015. Journal of Cerebellum Vo. 2 No. 3 (553-561)

Pinggian (2021) Psychological impact of health workers during the Covid-19 pandemic. Biomedical Journal Vol 13 No. 2 (144-151)

Prihatiningsih & Sugiyanto (2010) The influence of safety climate and personal experience on compliance with construction worker safety regulations. Journal of Psychology Vol 37, No.1, June 2010: 82-93

Rivai, Veithzal, Sagala EJ (2009) Human Resource Management for Companies. Jakarta: Rajagrafindo Persada.

Robbins, SP (2006) Organizational Behavior. Tenth edition. Jakarta, PT Gramedia Group Index.

Saleha (2020) Social support and spiritual intelligence as factors influencing nurses' stress during the Covid-19 pandemic. Journal of Nursing Research and Scientific Thought Vol 6 No. 2 (57-65)

Wahjono SI (2010) Organizational Behavior. Science House. Yogyakarta

Wee LE, Xiang J, Sim Y, Conceicao EP, Aung MK, Ng IM (2020) Personal Protective Equipment Protecting Healthcare Workers in the Chinese Epicenter of Covid-19 Clin Microbiol Infect [Internet]. 2020;26(12):1719–21.

Yunere F, Yaslina Y (2020) The Relationship between Stigma and Anxiety in Facing the Covid-19 Pandemic. Proceedings of the E-ISSN Pioneer Health Seminar: 2622-2256 Vol.3 No. 1 of 2020.