*Original Research*

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# Risk of Covid-19 Transmission During the Second Wave Outbreak in Sumbawa Island, Indonesia

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**Abstract**

**Introduction***:* Some countries reported second wave outbreaks of coronavirus. **Objectives:** To explore how dangerous the risk of COVID-19 transmission during the second wave outbreak in Sumbawa Island, Indonesia. **Methods:** A descriptive normative survey method to describe an object and behaviour in accordance with existing reality in Sumbawa Island. The number of respondents was 201 people who were given questionnaires by researchers. **Results**: Most of the respondents held the status of a State Civil Apparatus that is equal to 61.69%. In the second place, some respondents had the status of self-employed totalling 7.46%. Based on the type of work they did, the respondents had fairly high mobility at 89.55%. In addition, 89.05% of respondents have a habit of touching money or items that are touched by other people and this is exacerbated by the behaviour of not using hand sanitisers to clean their hands totalling 72.14% of respondents. Moreover, 86.57% of the respondents do not have the habit of sunbathing for 15 minutes per day and do not do sports for 30 minutes per day totalling 61.19% of respondents. **Recommendation:** High mobility, infrequent exercises, infrequent handwashing, and improper implementation of social distancing can increase the risk of COVID-19 infection. The government should conduct a campaign to spread the information in order to break the chain of risk of transmission

**Keywords:** coronavirus disease 2019, second wave outbreak, transmission, dangerous

## INTRODUCTION

According to Jhon Hopkins University (2021), the cumulative worldwide COVID-19 deaths surpassed 3 million on 16 April 2021. The number of COVID-19 deaths has increased dramatically, 2 times within last 4 months which is identified as a second wave outbreaks (1).

Recently, some countries reported the second wave outbreaks of coronavirus particularly India which reported that more than 100.000 deaths within last 4 months (WHO,2021). In addition, some Asian countries such as Singapore, Malaysia, and Taiwan move back toward lockdown as the rising of Coronavirus disease 2019 (COVID-19) new cases.

Some experts wonder that Indonesia could be face the same condition as India, due to highly mobility of citizen during the Eid Mubarak. Some studies revealed that massive gathering, low vaccination rates as well as new variants of COVID-19 would be highly increasing a number of new confirmed cases (2,3). Prediction, there will be several new cluster can happened in Indonesia (1).

Indonesian government has completed several regulations in responding to the risk of second wave outbreak of COVID-19. However, the report of how large threat of COVID-19 spreading in each region required to identify. Sumbawa island is one of the large islands with a majority Muslim population that has undergone the Eid celebration where the residents have a highly mobilities from one city to another city. As a result, the massive gathering is inevitable. Hence, we consider that the study about threat of COVID-19 transmission throughout the second wave outbreak in Sumbawa island could be important. However, no exploratory studies explored how dangerous the risk of COVID-19 transmission in the second wave outbreak on Sumbawa Island. The result of this study will show how much the risk of COVID-19 transmission in one particular area (Sumbawa). Therefore, the government can use this study to make a right regulation and polices to face a risk of second wave outbreak.

## OBJECTIVE

The purpose of this study was to discover how dangerous the risk of COVID-19 transmission throughout the second wave outbreak in Sumbawa Island, Indonesia.

## METHODS

### Design

This paper examined how dangerous the menace of COVID-19 transmission during the second wave outbreak in Sumbawa Island by descriptive normative survey method. These method was a type of method for describing an object and behavior by existing reality (4,5). Sumbawa Island was chosen as the research location to represent how dangerous the risk of COVID-19 transmission throughout the second wave outbreak. 198 people were the number of respondents who were given questionnaires by researchers.

### Sample, sample size & sampling technique

The purposive sampling technique used in determining the informants. Purposive Sampling is a deliberate determination of informants, where there are several parties who are considered important who are directly involved in the research (6,7). Previously, participants had been given an explanation and signed the inform concern as a form of their willingness to become participants in this study. The number of participants in this study 201 participants.

### Data collection process

The researcher collected the data using the parallel technique. The data collection technique used quantitative descriptive methods which were obtained directly from respondents by questionnaire conducted by research team. All respondents were required to complete the questionnaire.

### Data analysis

Data analysis was performed using univariate analysis and presented in the form of a table that describes the amount and percentage.

### Ethical approval

Before participating in this study, All respondents have filled out informed consent to participate in this study. This study was successfully accepted by hospital with IRB number 149/UN.19.5.1.4.9/UEPKK/2021.

## RESULTS

### Characteristic of respondents

Table 1 showed the characteristic of respondents. The findings showed that more than half of respondents were 31-40 years old (55.22%). Some of respondents were female (58.21%) with profession as assistant (61.69%). Regarding the comorbidities, most of respondents have Erythematosus (87.56%)

**Table 1: Characteristic of respondents**

| Characteristics | n | % |
|---|---|---|
| **Age** | | |
| 20-30 | 48 | 23.88 |
| 31-40 | 111 | 55.22 |
| 41-50 | 30 | 14.93 |
| 51-60 | 8 | 3.98 |
| >60 | 4 | 1.99 |
| **Gender** | | |
| Male | 84 | 41.79 |
| Female | 117 | 58.21 |
| **Professions** | | |
| Household | 1 | 0.50 |
| Assistant | 124 | 61.69 |
| Civil Servant | 8 | 3.98 |
| National Government | | |
| Company | 2 | 1.00 |
| Lecturer | 6 | 2.99 |
| Teacher | 6 | 2.99 |
| Housewife | 15 | 7.46 |
| Self-employed | 4 | 1.99 |
| Student | 6 | 2.99 |
| Seller | 5 | 2.49 |
| Contract | 3 | 1.49 |
| Employee | 1 | 0.50 |
| Seller | 9 | 4.58 |
| retired | 8 | 3.98 |
| Nurse | 1 | 0.5 |
| Farmer | 2 | 1.00 |
| Military | | |
| Freelance | | |
| **Comorbidities** | | |
| Arthritis Gout | 3 | 1.49 |
| Asthma | 4 | 1.99 |
| Chronic | 1 | 0.50 |
| Cephalgia | 1 | 0.50 |
| Diabetes Meletus | 1 | 0.50 |
| Pharyngitis | 10 | 4.98 |
| Hypertension | 2 | 1.00 |
| Gastric Pain | 1 | 0.50 |
| Heart disease | 1 | 0.50 |
| Sinusitis | 1 | 0.50 |
| Systemic Lupus Erythematosus | | |
| None | 176 | 87.56 |
| **Total** | 201 | 100.0 |

### Risk of Covid-19 transmission

**Table 2: Risk factor of COVID-19 transmission**

| No | Supporting data | n | % |
|---|---|---|---|
| 1 | Outdoor activity regularly | | |
| | No | 21 | 10.45 |
| | Yes | 180 | 89.55 |
| 2 | Using public transport regularly (Online transport, bus, taxi, train, plane) | | |
| | No | 182 | 90.55 |
| | Yes | 19 | 9.45 |
| 3 | Public gathering without using a mask | | |
| | No | 186 | 92.54 |
| | Yes | 15 | 7.46 |
| 4 | Handshakes | | |
| | No | 120 | 59.70 |
| | Yes | 81 | 40.30 |
| 5 | Using hand sanitizer and disinfecting wipes to the car or motorcycle | | |
| | No | 145 | 72.14 |
| | Yes | 56 | 27.86 |
| 6 | Touching object or money that other people touched | | |
| | No | 22 | 10.95 |
| | Yes | 179 | 89.05 |
| 7 | Maintain 1,5 meters distance from other people when shopping, working, studying, worshiping | | |
| | No | 114 | 56.72 |
| | Yes | 87 | 43.28 |
| 8 | Eating out regularly | | |
| | No | 125 | 62.19 |
| | Yes | 76 | 37.81 |
| 9 | Drinking warm water and washing your hands with soap after arriving at the destinations | | |

| | | | |
|---|---|---|---|
| | No | 78 | 38.81 |
| | Yes | 123 | 61.19 |
| 10 | Being in the place when people is getting infected | | |
| | No | 145 | 72.14 |
| | Yes | 56 | 27.86 |
| 11 | Providing hand sanitizer in the front of entrance, to clean the hands before holding the door handle | | |
| | No | 106 | 52.74 |
| | Yes | 95 | 47.26 |
| 12 | Washing the hands with soap when getting home | | |
| | No | 166 | 82.59 |
| | Yes | 35 | 17.41 |
| 13 | Provide hand sanitizer or tissue, mask, antiseptic soap for families at home | | |
| | No | 175 | 87.06 |
| | Yes | 26 | 12.94 |
| 14 | Soaking clothes and pants with hot water/soap immediately after getting home | | |
| | No | 94 | 46.77 |
| | Yes | 107 | 53.23 |
| 15 | Take a shower immediately after getting home | | |
| | No | 96 | 47.76 |
| | Yes | 105 | 52.24 |
| 16 | Socialize the personal risk assessment check list to family members routinely | | |
| | No | 113 | 56.22 |
| | Yes | 88 | 43.78 |
| 17 | Sun exposure for at leas 15 minutes a day | | |
| | No | 174 | 86.57 |
| | Yes | 27 | 13.43 |
| 18 | Jogging and taking a regular exercise for at leas 30 minutes a day | | |
| | No | 123 | 61.19 |
| | Yes | 78 | 38.81 |
| 19 | Rarely Taking vitamins C, E and lack of sleep | | |
| | No | 136 | 67.66 |
| | Yes | 65 | 32.34 |
| 20 | Age above 60 years old | | |
| | No | 198 | 98.51 |
| | Yes | 3 | 1.49 |
| 21 | Having Comorbid (Heart diseases, diabetes, hypertension) | | |
| | No | 176 | 87,56 |
| | Yes | 25 | 12,44 |
| **Total** | | **201** | **100** |

## DISCUSSION

Since it first appeared at the end of 2019 in the city of Wuhan, China, COVID-19 has become a very serious problem in all countries in the world, including Indonesia. The nature of this virus that can spread easily through droplets makes this disease spread quickly throughout the world (8–10).

Mortality and fatality rates of COVID-19 per 100.000 population in Sumbawa Regency based on case reports as of 7 February 2021, have a tendency to increase in the last 1-2 weeks (11). To be able to make the right policies in handling COVID-19 cases in Sumbawa, it is necessary to know how threatening the risk of transmission is in Sumbawa Regency. The results of this research which was conducted on 201 samples consisting of 117 women and 84 men in Sumbawa Regency showed that the compliance in implementing health protocols, mobility, and history of comorbidities are the main factors of the transmission of the COVID-19 in Sumbawa.

The age among respondents in this study was in the productive age (31-40 years) which was 55.22%. Most of the respondents held the status of a State Civil Apparatus that is equal to 61.69%.

In the second place, some respondents had the status of self-employed totaling 7.46%. Based on the type of work they did, the respondents had a fairly high mobility at 89.55%. Restrictions on mobility are important in defiance the manacle of transmission of COVID-19 (12). The government closed the city of Wuhan on January 23, 2020, all outdoor

activities and the use of public facilities were restricted. This policy has succeeded in reducing COVID-19 cases in China gradually (13). It evidences that limiting outdoor activities can lessen the spread of COVID-19 cases.

One of the most important factors that can diminish the transmission rate of COVID-19 is to comply with health protocols. It can be seen that 56.72% respondents did not comply with physical distancing. Physical distancing of at least 1 meter can reduce the risk of transmission (14). Moreover, 2 meters is thought to be more effective in protecting from corona virus transmission (15).

Good personal hygiene is very important in preventing the transmission of COVID-19. Based on the data of this research, as many as 89.05% of respondents have a habit of touching money or items that are touched by other people and this is exacerbated by the behavior of not using hand sanitizers to clean their hands totaling 72.14% of respondents. In addition, the hand washing behavior of the respondents in this study was mostly still not good, namely as many as 83.08% of respondents who did not wash their hands using soap after arriving home. This can clearly increase the chance of being infected with the COVID-19 virus. 5 steps to clean hands according to WHO guidelines are effective in preventing the transmission of COVID-19 infection (16).

Increasing immunity is the best treatment for handling COVID-19 because there has been no cure for this virus (17). Increasing immunity can be done by doing physical activities and taking vitamins. Vitamin D, besides maintaining bone homeostasis, can also function for increasing the immune system. Ultraviolet light is very important for the synthesis of vitamin D. So, sunbathing is a good method to boost the immune system (18). The results of this study indicate that about 86.57% of the respondents do not have the habit of sunbathing for 15 minutes per day and do not do sports for 30 minutes per day totaling 61.19% of respondents. Routine physical activities can reduce mortality and incidence rates of influenza and pneumonia. Regular physical exercise can help strengthen and prepare the immune system for COVID-19 (19). Physical activity, in addition to helping the immune response to COVID-19, can also increase the vaccination response (20).

Although the majority of the respondents in this study did not have a chronic disease, but high mobility, infrequent exercises, infrequent handwashing, and improper of social distancing might be triggers a risk of COVID-19 infection in the future. The government should conduct a campaign to spread the information through health workers in the region to interrupt the manacle of COVID-19 transmission.

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