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Fisherman community health behavior in facing COVID 19 pandemic at Port III, Pamekasan Regency

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Abstract

The problem of slum and squatter settlement is caused by improper environmental planning. This study examines socioeconomic determinants of human health by adopting concepts of population morbidity from Mosley and Chen. The purpose of this study was to analyze various conditions behind the low environmental health behavior of fishermen's households in the face of the COVID 19 pandemic. This study used a quantitative approach with a population from fishermen's households. The samples were selected purposively by considering economic and spatial conditions. Primary data collection was carried out through structured and in-depth interviews. The dependent variable in this study was individual disease control, particularly the standard health protocol during the COVID 19 pandemic. Meanwhile, the independent variable of the population health behavior was measured using a Likert scale. Those independent variables consisted of hand hygiene, the use of masks, and maintaining distance. The results showed that as many as 30 percent of fisherman households were classified as the population with good quality health behavior, 43.33 percent of the population presented moderate-quality health behavior, and 26.77 percent of the population had poor quality health behavior. Those behaviors might be caused by their relatively low perception and knowledge on the importance of maintaining health during the COVID 19 pandemic.

Keywords: environmental health behavior; fisherman community; COVID 19

1. Introduction

People's quality of life can be undirectly represented by population health (Zubaedi, 2016). Consequently, the lower death rate illustrates a better socioeconomic condition of a region. Besides, the enhancement of population health is expected to increase the survival rate of children. A previous study suggests that 97% of 0-1 year old children in the developed nations can survive until they reach the age of 5 years old, while in developing nations, only 20-25% of 0-1 year old children can reach the five years old (Mosley & Chen, 1984). The deficient environmental health in the fisherman's household can be induced by numerous factors, such as the availability of health facilities and infrastructure, level of education, and relevant knowledge on environmental health (Rokom, 2019).

In addition, the low environmental health carries direct effects on the demography characteristics and job opportunities. However, the correlation between socioeconomic factors and death cannot be directly investigated since it requires intermediate variables. Mosley and Chen (1984) mention the examples of those intermediate variables, such as maternal factors, environmental pollution, malnutrition, and individual disease control (Haines & Avery, 1982). The same phenomenon is observed in the fisherman neighborhood in Branta Tinggi village. This study examines the most fundamental factors of environmental issues.

This study is bolstered by numerous previous studies, such as a study from Sumunar (2000) on the influencing factors of low environmental health in the fisherman neighborhood. In the location of that research, the limited environmental health facilities and infrastructure, unfavorable demographic situation, and society's low education level and socioeconomic situation were observed. Additionally, the small job opportunities also affected the low environmental health in the fisherman neighborhood and the health of toddlers, as illustrated by the health behavior practiced during the COVID 19 pandemic, consisting of their physical, mental, and social health for each individual and their families.

Another study carried out by Marwasta (2001) revealed that society preferred to use well as their source of drinking water (42%). In relation, the requirements for establishing water well consisted of construction (85.72%), minimum depth (100%), floor (76,19 %), and wellhead (85,72%). Meanwhile, the same study also discovered that people (42%) just gathered their domestic waste instead of placing them in a hole. Meanwhile, for toilet waste, most people used the goose's neck toilet (42%). For water waste disposal, the people commonly used open channels that flowed directly to the trench (57%). These society behaviors were classified as passive, but many of them presented good environmental knowledge (64%) and behavior (60%), but only a small number of them performed excellent environmental practices (32%).

A study carried out by Brotowasisto (2000) reported that health is an essential factor in establishing a prosperous family, so their health maintenance requires some costs. Linearly, the family income affects the amount of fee spent on maintaining an individual's health. People with high income have a greater chance of improving their health than people with lower income, as highlighted in a study conducted on families with low income.

In addition, Gani (1981) discovered that the increasing population's level of education and income, particularly in the urban areas, accelerated the demand for more modern and sophisticated health services. In Ponorogo, Indonesia, the regions with a higher level of education report a shift in health service preference, from the community health center to health institutions offering better services. In contrast, in rural areas, higher education and earnings increase the demand for services in the community health center.

This study aims to investigate the health behavior of the fisherman neighborhood residents during the COVID 19 pandemic in the Branta Tinggi, Tlanakan, Pamekasan Regency, Indonesia. With the specific socio-cultural characteristics of the people, the obtained findings were expected to be a reference for determining the solutions for the COVID 19 pandemic-related issues. The infection of the SARS-CoV-2 virus or COVID 19 is clinically indicated in numerous situations, ranging from asymptomatic to severe pneumonia. Besides, it can also cause acute respiratory distress syndrome, multiorgan disorder, and death (Guan et al., 2020; Yanti, Nugraha, Wisnawa, Agustina, & Diantari, 2020).

The results of the initial survey in the research location revealed numerous influencing factors of low environmental health in the fisherman neighborhood, including the limited environmental health facilities and infrastructure, low level of education, and knowledge related to environmental health. Consequently, those factors also affected the demographic characteristics and accessibility of job opportunities, which indirectly influenced the population's low environmental health (Ramli, 2017). Further, the connection between the

socioeconomic factors and the death rate cannot be directly observed as it requires an intermediate variable.

2. Method

This research used both explanatory as well as research and development methods. This approach was selected to identify the effects of socio-economy and demographic conditions on the environmental health behavior in the fisherman neighborhood of Branta Tinggi Village during the COVID 19 pandemic. The quantitative approach was carried out based on the deductive and inductive theories relying on the obtained scientific data illustrating the environmental health and health behavior of the fisherman population during the COVID 19 pandemic.

The research location and program target were determined based on the health behavior of the fisherman neighborhood in Pamekasan Regency, Indonesia. We conducted this study at port III, a fisherman neighborhood in Pamekasan regency. Therefore, this selection of research locations was carried out purposively, following specific considerations (Efendi, 2005). First, the major primary economic sector of Pamekasan Regency was agriculture and fishery. Second, geographically, this location was in the south part of Madura Island of East Java, and it had a relatively high population density.

The number of research participants was determined using a sampling quota for each village area. A total of 300 respondents came from three areas of the Middle village, Gedungan village, and Planggaran village (Table 1).

Table 1. Number of Respondents from Each Village Area

No	Village	Village Areas	Number of Respondents
1	Branta Tinggi	Middle	100
		Gedungan	100
		Planggaran	100
Total			300

The respondents were selected following these stages: 1) census of the population of the neighborhood on the Port III Branta Tinggi Village, Tlanakan District, Pamekasan regency, 2) determining the number of respondents from each village area, 3) determining the interval by dividing the population in each area by the number of samples, and 4) sample distribution was determined from each interval taken from the respondents, randomly. For instance, if the interval (I) was ten, if the first randomly selected respondent was five, then the research respondents were determined through this following formula:

Respondents: 1 = 5
2 = 5 + 10
3 = 5 + 20
4 = 5 + 30 (and so forth)

If the selected respondent did not fulfill the criteria or had no place, then the respondent was replaced by the closest respondent.

The primary data collection was carried out by filtering the spatial and statistical data related to the conditions of the research location and its society's characteristics. The stages of

primary data collection consisted of: (1) participation and non-participation observation, and (2) structured interviews using a questionnaire. Meanwhile, the secondary data were obtained through: (1) a literature review of the relevant previous studies, and (2) statistic data and publication from the Central Bureau of Statistics.

This study investigated health behavior by adopting the fundamental theories and concepts on the population morbidity rate from Mosley and Chen (1984) concerning the social-economic determinant of health conditions. The dependent variable was individual disease control, considering the standard health protocol during the COVID 19 pandemic. Meanwhile, the independent variables of society's health behavior were measured using the Likert scale. The independent variables consisted of hand hygiene, mask usage, and maintaining distance.

The data processing and analysis were carried out using the quantitative technique using the singular and cross-tabulation. The data processing was completed through a classification of ordinal data following these categories: dependent variables were classified into: (1) good, (2) moderate, and (3) poor. Independent variables were classified into the level of: (1) always, (2) often, (3) sometimes, (4) rarely, and (5) never.

3. Results and Discussion

Along with the worsening COVID 19 transmission in various countries, the government of Indonesia has issued a special health protocol obligated to be implemented in all regions of Indonesia. The implementation of that protocol was guided by the Ministry of Health. This protocol was designed by all of the ministries by involving relevant government institutions, as the Ministry of Health was incapable of establishing it by itself. The establishment of this protocol illustrates the presence of the government during the COVID 19 pandemic.

The health of people in the fisherman neighborhood during the COVID 19 pandemic is illustrated by the practiced health behavior based on the COVID 19 health protocol. The implementation of the COVID 19 health protocol becomes part of individual disease control in the study of population morbidity and mortality. The measurement of health behavior, specifically the implementation of health protocol, was carried out following the provision from the World Health Organization (2020), subsisting of washing hands before going out of the house, using a mask outside the house, maintaining a safe distance in the crowd and meetings (Satgas COVID–19, 2020; World Health Organization, 2020b, 2020c), and do not go outside from the house except for the crucial events, in the last 30 days. Health behavior was classified into three levels, namely, good, moderate, and poor. Table 2 presents the respondents' health behavior during the COVID 19 pandemic.

Table 2. Health Behaviour of Fishermen's Households in Facing the COVID 19 Pandemic

Category	Frequency	Percentage %
Good	90	30.00
Moderate	130	43.33
Poor	80	26.77
Total	300	100.00

Table 2 shows that in the last 30 days, 30% of fisherman households presented excellent health behavior, 43.33% of the population had moderate health behavior, and 26.77% of the population performed poor health behavior. Our results indicate that the low health behavior during the COVID 19 pandemic is caused by the factors of behavior (many people do not have

hand sanitizer, minimum mask usage, social distancing, and not leaving the house) and factors of environmental health, such as sanitation, education, and water quality (Haines & Avery, 1982; Khairani, 2017).

Our findings are linear with the fact that up to when this research was completed, Pamekasan Regency was still classified as a red zone. The data retrieved on 30th June 2020 are illustrated in Figure 1.

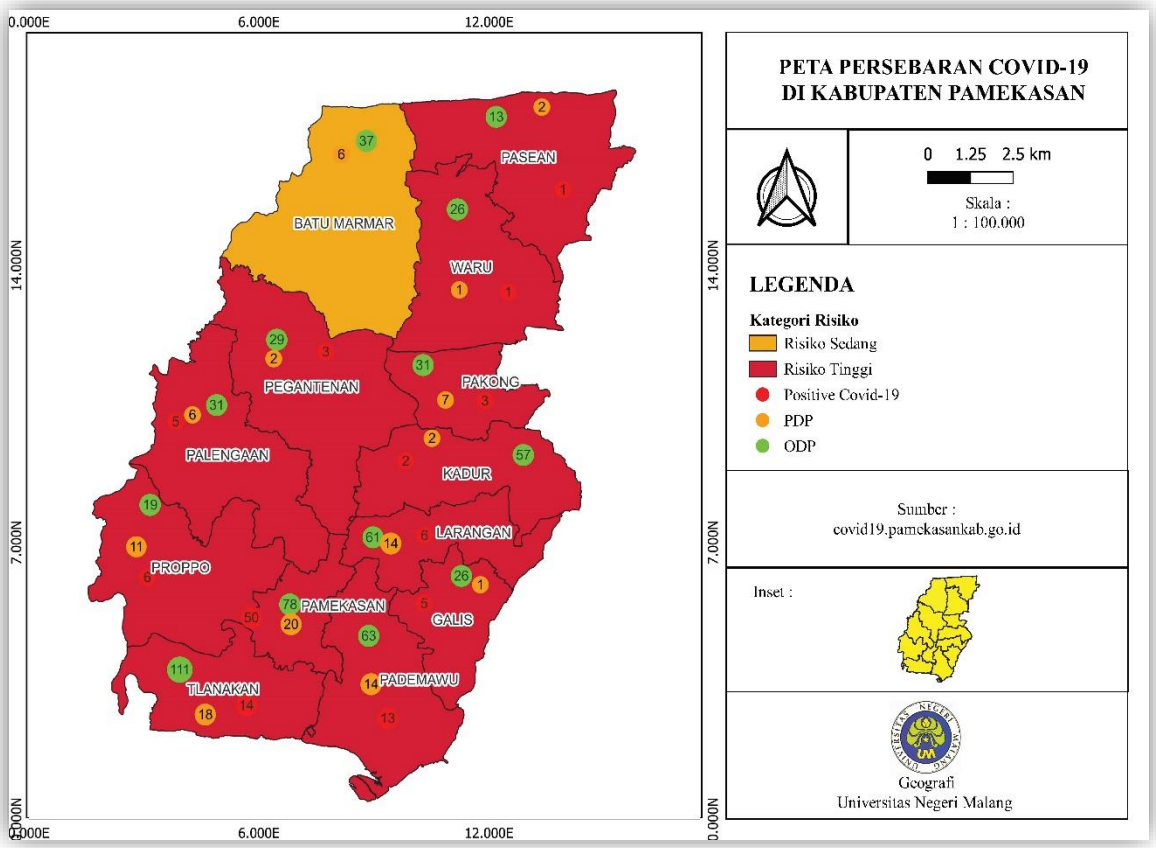

Figure 1. Spread of COVID 19 Cases in Pamekasan Regency
Source: Pemerintah Kabupaten Pamekasan (2020)

Figure 1 illustrates the spread of COVID 19 cases in Pamekasan Regency, Indonesia. As represented by the number of red zone areas, our research location has relatively deficient social-economic conditions and sanitation. Besides, the accessibility to health facilities in this area remains to be minimum. Our research location was in the coastal areas of port III, Pamekasan Regency, Indonesia. The distance to the health facility located in the administrative center of Pamekasan City was 8 km, while the nearest health facility to our research location was the community health center in the Tlanakan District.

The results of our initial observation showed that the minimum accessible environmental health facilities and infrastructures had become the substantial influencing factors for the low environmental health in the research location. In the port area, the areas with relatively low topography are always inundated by seawater. Further, the physical properties of the seawater tend to be stained, smelly, and black. The results of the in-depth

interview admitted that the Department of Hygiene and Environment almost have never visited their areas. The nation is obligated to have proper public facilities, including health facilities (Kristiyanti, 2016). The field examination from the city health office has long become the concern of the Pamekasan Regency government. Our obtained data distribution is presented in Table 3.

Table 3. Summary of Statistics Data

		Hand_Washing	Use_of_Mask	Physical_Distancing
N	Valid	300	300	300
	Missing	0	0	0
Mean		25.12	19.11	29.07
Median		25.00	20.00	28.50
Mode		15	10	21a
Std. Deviation		8.545	7.254	8.092
Skewness		0.573	0.346	0.131
Std. Error of Skewness		0.141	0.141	0.141
Minimum		14	10	14
Maximum		50	37	46

Generally, the mean score of the independent variable is higher than the standard deviation, signifying a relatively low deviation of our data or even data distribution.

3.1. Maintaining Hand Hygiene by Washing Hands or Using Hand Sanitizer

We should wash our hands or use hand sanitizer when: (1) our hands are dirty and (2) our hands are not dirty. We should wash our hands using soap and running water when we feel that our hands are unclean. Especially during the COVID 19 pandemic, we have to follow the COVID 19 standard protocol in washing our hands which includes washing the inner hands, back of the hands, sidelines of fingers, and fingertips. Meanwhile, in the condition of non-hygine hands, we should avoid touching our face, primarily our eyes, nose, and mouth. After we perform activities, our hands certainly contain viruses, so touching our faces with contaminated hands will enable the viruses to enter our bodies (Kementerian Kesehatan Indonesia, 2020a; Unicef, 2020).

Hand sanitizer and disinfectant are capable of cleaning our staff and ensuring that they are not exposed to viruses. As hand sanitizer contains 70% alcohol, we can spray it on our palms and the back of our hands to ensure that the viruses, including COVID 19, do not stick to our hands. Therefore, the availability of hand sanitizer and discipline in maintaining hand hygiene outside the house become the benchmark for the implementation of COVID 19 health protocol. Further, the availability of clean water and hand washing equipment in every household is essential in fighting and avoiding COVID 19 and other viruses. The behavior of maintaining hand hygiene among the fisherman households during the COVID 19 pandemics is presented in Figure 2.

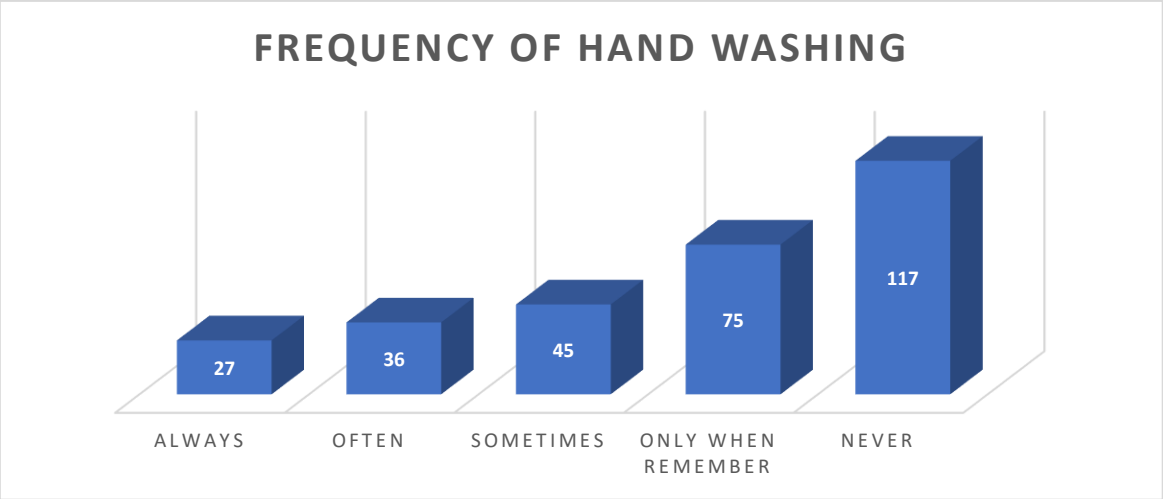

Figure 2. Frequency of Fishermen's Households Hand Hygiene Maintenance in Facing the COVID 19 Pandemic

Figure 2 illustrates that only 27 fisherman household (9%) maintain their hand hygiene, while the other 117 households (39%) have never paid attention to their hand hygiene. This behavior is induced by their relatively low perception and knowledge of the importance of maintaining hand hygiene.

3.2. Using Face Mask and Proper Sneezing or Coughing Etiquette

According to the health protocol, people with medical or non-medical respiratory symptoms are obligated to wear a face mask when they go outside their houses or interact with other people. For the use of a face mask, we are suggested to change it once or several times a day. Additionally, the used face mask should be placed in a closed trash can (CHBP FK UGM, 2020; Litbangkes Pangandaran, 2021; World Health Organization, 2020a).

The implementation of sneezing or coughing etiquette based on the health protocol aims to minimize the transmission of the virus from our bodies. Aside from whether we have or we have not the viruses, the coughing and sneezing etiquette should always be applied. With the sneezing and coughing etiquette, we should cover our mouth and nose using our upper arm, as well as using a face mask. Based on the obtained data, the frequency of mask usage is illustrated in Figure 3.

Figure 3 shows relatively high use of face masks (50.33%) among the fisherman household. However, 3.67% of the respondents admitted that they had never used a face mask when they went outside their houses. Therefore, the fisherman's household presents good awareness that the use of facemasks can obstruct the transmission of viruses. After being used, the face mask (a medical facemask can only be used once and requires immediate replacement) should be thrown in a closed trashcan, while the users should wash their hands. The people who present no symptoms can use the non-medical mask since the number of medical face masks is limited, and it is prioritized for those who need them.

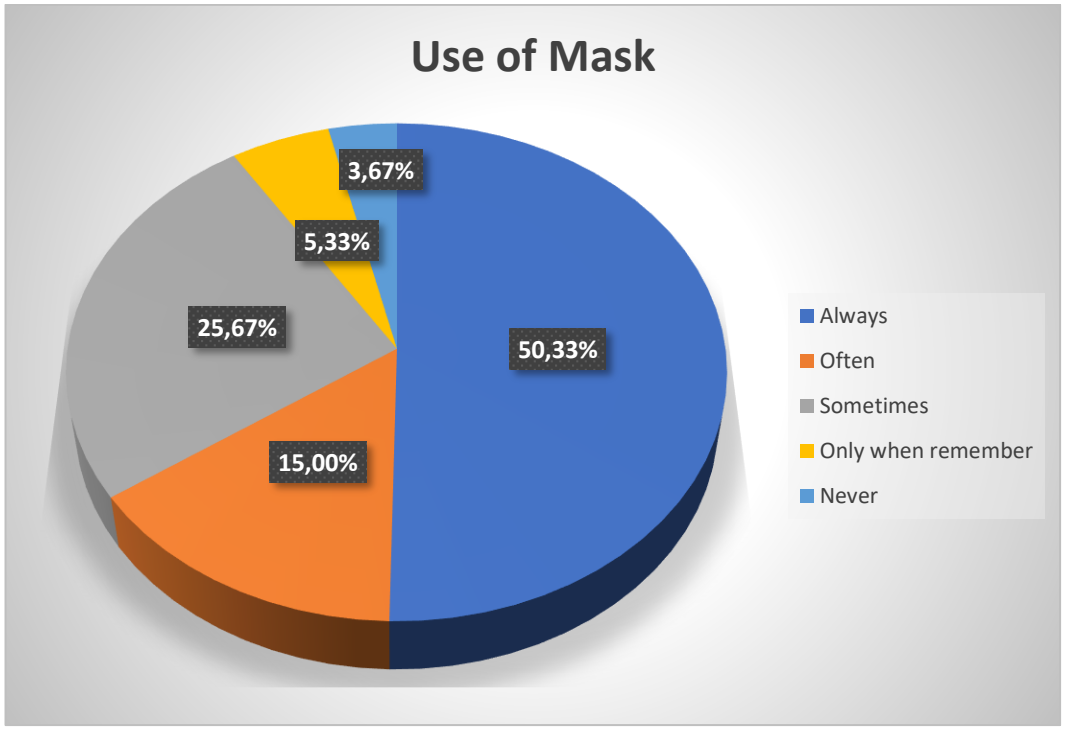

Figure 3. Frequency of Use of Mask among Fishermen's Households during the COVID 19 Pandemic in Port III Pamekasan Regency

3.3. Maintaining Distance

Maintaining distance aims to evade the exposure of viruses to other people. Thus, we have to keep at least one meter of space from other people, particularly if the person shows respiratory symptoms. Maintaining distance is widely known as physical distancing. During the COVID 19 pandemic, we are prohibited from coming to crowded places, should minimize physical contact with other people (Amari, 2021), and should not hold events inviting a vast number of people. Our findings suggest that the members of the fisherman's household always maintain their distance from other people during intentional or unintentional meetings or gathering.

Figure 4 illustrates that some members of the fisherman household (31.67%) always maintain their distance during a gathering, leaving 68.33% of people who are unable of complying to the physical distance regulation. This phenomenon is caused by the people's low awareness of the importance of physical distancing, especially the group of people who work as merchants in the market. Many of our respondents also admitted that they were unable to avoid crowded places and minimize physical contact. The physical distancing regulation is practiced by avoiding crowded places, minimizing physical contact with other people, and do not conduct events that invite a huge number of people (Satgas COVID–19, 2020).

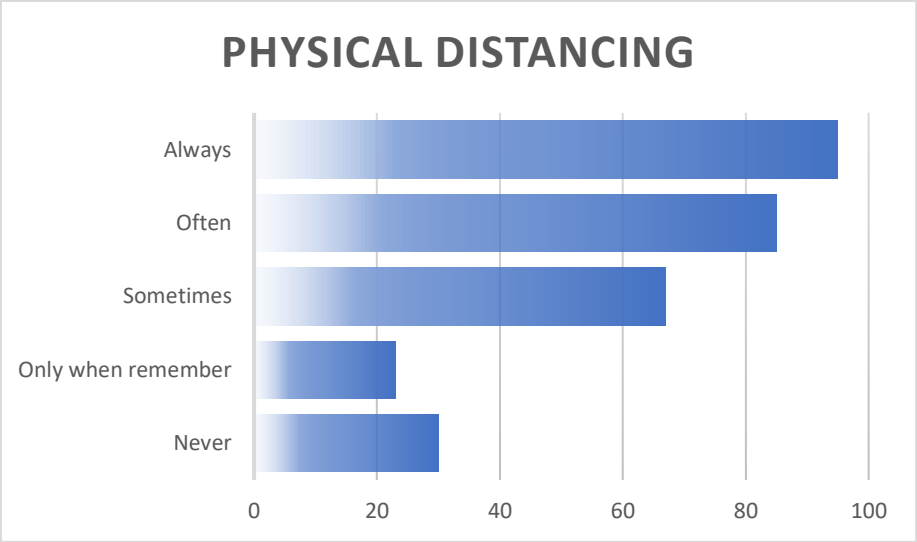

Figure 4. Physical Distancing among Fishermen's Households during the Covid-19 Pandemic

The behaviors and life patterns in maintaining human health outside their houses include preserving physical health by sunbathing for some minutes in the morning, consuming balanced nutritious food, and doing some light exercises (Grehenson, 2020; Kementerian Kesehatan Indonesia, 2020b). Besides, sufficient rest is also essential to keep our health during the COVID 19 pandemic. The people who are not feeling well and experience symptoms like fever, cough, cold, sore throat, breathlessness, and other symptoms are expected to be aware to do self-isolation in their houses voluntarily. Besides, these people are suggested to stay in their homes and avoid going to work, school, or other public spaces as they carry the risks of COVID-19 infection and transmit the viruses to other people (Public Relation Nursing UI, 2020; Resti, 2022)

4. Conclusion

In the last 30 days, 30.00% of the fisherman household present excellent health behavior, while the other 43.33 and 26.7% of them show moderate and poor health behavior. Our findings also suggest that the low health behavior during the COVID 19 pandemic is mostly caused by the behavioral factors, such as having no hand sanitizer, using no face mask, do not maintain distance from other people, and still going out of their houses, as well as the environmental health factors, including the condition of their sanitation, education, and clean water quality.

The health behavior of a population illustrates their level of sensitivity and vigilance toward the danger of COVID 19. Some of the fisherman neighborhoods (30%) in the Port III of Branta Tinggi Village, Tlanakan District, Pamekasan, present excellent health behavior, while the other 43.33 and 26.77% of them have moderate and poor health behavior, respectively. The level of people's health behavior in a particular area, particularly during the COVID 19 pandemic, is caused by a number of factors, such as their behavior in maintaining their hand hygiene, the use of face masks, and the practice of physical distancing. Additionally, their behaviors are also influenced by their relatively minimum perception and knowledge of the importance of maintaining health during the COVID 19 pandemic. This research on health

behavior has a close correlation with the study on the mortality and morbidity of a population, reinforcing the learning of population Geography.

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