

The Model of Community Stigma During the Covid-19 Pandemic Period in East Java Indonesia

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Abstract - Background: East Java Area is the epicentre of COVID-19 transmission with the largest number of cases and the highest death rate in Indonesia. This pandemic has created a stigma that can lessen the quality of life. This study was conducted to find a model of predictor factors that affect the stigma of society during the COVID-19 pandemic. Method: This study involved 322 respondents in East Java, Indonesia and used multivariate analysis with the PLS (Partial Least Square) method to determine the relationship between several variables. The studied variables were demographics (age, gender, educational level, and occupation), attitudes, knowledge, behaviour, stigma and acceptance. Result: Stigma since the COVID-19 pandemic outbreak was influenced by demographic, knowledge and behaviour factors, while the attitude variable in this study did not affect the occurrence of stigma. Knowledge aspect had a positive relationship with stigma. The higher the knowledge of the respondents in this study, the higher the tendency to produce stigma. Likewise for demographic variables. Meanwhile, behaviour aspect indicated a negative relationship. Conclusion: The factors that influence stigma, starting from the most powerful are behaviour, knowledge and demographics. This model is a recommendation for the government to improve the quality of life of the people and reduce the spread of COVID-19.

Keyword: stigma; Covid-19; demographic; knowledge; behaviour

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Introduction

Coronavirus diseases 2019 or known as COVID-19 is an infectious disease caused by the new type of coronavirus SARS Coronavirus 2 (SARS-Cov-2) which is first discovered in the Wuhan area of China in Decem-

ber 2019. This virus causes infections in the human respiratory system such as MERS and SARS. The common symptoms that appear in infected sufferers include disorders of the respiratory system such as dry cough, fever and feeling tired. The other symptoms that can be found in sufferers include nasal congestion, sore throat, aches and pains, diarrhoea, decreased sense of smell, and rashes. The condition of sufferers with COVID-19 will get worse if they have the health history which is accompanied by comorbidities such as high

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blood pressure, diabetes, cardio disease, lung disease, and cancer [1].

The transmission of COVID-19 can occur through direct or indirect contact with sufferers. Direct contact transmission can occur within a distance of 1 meter when a person is exposed to secretions from saliva, respiratory secretions of the sufferer or droplets released by the patient when coughing, sneezing, or speaking. Transmission can indirectly occur through contaminated objects or surfaces. A number of recent studies have shown that COVID-19 can spread through the air. SARS-CoV-2 can survive in the air, especially in closed rooms, dense crowds, with poor ventilation and can transmit infection [2]. The spread of the COVID-19 virus has occurred so fast that it has spread to other countries around the world. In March 2020 the WHO declared that Covid 19 was categorized as a global pandemic. As of July 2020, it was known that 215 countries, regions or territories have been affected by COVID-19 with more than 11 million cases. The death rate was 4.6% of confirmed cases [3].

The first COVID-19 case in Indonesia was discovered in March 2020. Since then, the coronavirus has continued to spread to various regions in Indonesia. The highest number of cases was in East Java Province with more than 15 thousand cases with a death rate due to COVID-19 of 7.4% (as of 11 July 2020). Since the end of June 2020, the number of COVID-19 cases in East Java Province has continued to increase gradually. Although various policies have been implemented to reduce the incidence of COVID-19, such as the implementation of "Large-Scale Social Restrictions" with three stages, the addition of new cases has continued to occur every day with a total of more than 100 cases per day [4,5].

The burden of this disease and death rate has an unprecedented impact on health services, system economy, and the nation's financial system from countries which have low, middle, and high-income. The life of People have been disrupted and have been negatively affected by COVID-19 related to lockdowns at the com-

munity and household levels [6]. Through media reports, the people were well informed about the physical effects of the coronavirus and what they should do if the symptoms appear. However, the effects of a pandemic on a person's mental health have not been studied and are not yet known. As all efforts were focused on understanding the clinical, epidemiological, transmission patterns and management of the spread of COVID-19, very little concern has been expressed over the effects on a person's mental health and on strategies to prevent stigmatization [7].

Individual behaviour during the COVID-19 outbreak greatly influences pandemic dynamics by changing the severity, transmission, flow of disease and morbidity and death rates around the world. The current situation requires increased awareness among the public which can help to deal with an unprecedented situation [8].

A Pandemic is not just medical phenomena, they can affect individuals and society, and cause anxiety disorders, stress, stigma and xenophobia [7]. The rapid transmission of SARS-CoV-2 from human to other human resulted in the enforcement of regional lockdowns to stem further spread of the disease [9].

Isolation, social distancing, the closure of educational institutions, workplaces, places of worship, and places of entertainment restrict people from staying in their homes to help stop the chain of transmission. However, these restrictive measures have undoubtedly affected the social and mental health of individuals [10].

Stigma occurs when a person negatively associates an infectious disease such as COVID-19 with a specific population. In the case of COVID-19, the stigma affects people who come from the infected area. Currently, stigma is present in the form of labelling, stereotyping, segregation, disenfranchisement, and discrimination against people connected to COVID-19 [11].

The various studies have shown that stigma was related to decreasing one's health status. Because of the stigma, someone who had a

risk or a symptom of COVID-19 would hide the symptoms that appeared, delayed getting checked out and taking care from the start for fear of the stigma that occurred in society. Some people did not even practice healthy living behaviours. As a result, the person would remain in the community undetected and further the spread of the infection would spread [12].

WHO has provided information to prevent stigmatization of a disease. In addition, the various appeals and the latest information related to COVID-19 were continuously updated by WHO so that there was no misinformation in the community. The central and local governments have also issued a number of appeals not to stigmatize the community. Delivering information which complete and accurate regarding COVID-19 can avoid misinformation [13]. In particular, research related to the stigmatization of COVID-19 in Indonesia has not been widely carried out, so it is necessary to conduct further studies regarding the stigma that occurs in society related to COVID-19.

This research focuses on modelling the factors that affect the stigma against COVID-19 in the people of the East Java region. This modelling is used to find out how much these factors can form the stigma of COVID-19 in society. The region of East Java Province was chosen as the research area because this region is one of the epicentres related COVID-19 transmission, with the largest number of cases and the highest death rate in Indonesia. The purpose of this study is to find a model of predictor factors that affect the stigma of society in East Java during the COVID-19 pandemic.

Subjects and Methods

This type of research is a descriptive-analytic study using a cross-sectional design. The research was conducted in May 2020 and involved 322 respondents in East Java, Indonesia. This research was conducted online using the Google form application which was linked to a spreadsheet. The asked variables were demographics (age, gender, educational level, and occu-

pation), attitudes, knowledge, behaviour, stigma and acceptance. Data analysis used a multivariate analysis with the PLS (Partial Least Square) method to determine the relationship between several variables.

Results

The demographic analysis of respondents serves to provide an overview toward the characteristics of respondents in the study based on age, gender, level of education, occupation, sources of information from respondents, and frequency of respondents accessing information sources within one week.

The number of respondents in this study was 322 people. The average age of the respondents in this study was 27.2 years with a standard deviation of 8.9 years. Table 1 delineates information that there were 224 respondents or about 69.6% of respondents in this

Table 1. Sociodemographic characteristics of respondents

Indicator	N	%
Age:		
10-29	209	64,91
30-49	103	31,88
50-79	10	3,10
Gender:		
Male	98	30,4
Women	224	69,6
Level of education:		
No school	1	0,3
Elementary School	0	0
Junior High School	3	0,9
Senior High school	53	16,5
Diploma	25	7,8
Bachelor	193	59,9
Masters	42	13
Doctorate	5	1,6
Occupation:		
No Job	144	44,7
Private	103	32
Entrepreneur	29	9
Civil servants	46	14,3

study were women and the rest, namely 98 respondents were male.

The level of education having by the respondents in this study varied from not attending school to doctoral education. The greatest proportion of the respondents' education level was undergraduate level with a frequency of 193 people or about 59.9%. In this study also found 1 respondent who did not go to school.

The occupations of the respondents in this study consisted of civil servants, private, unemployed, and self-employed. The respondents in this study were mostly unemployed with a frequency of 144 respondents.

The information Sources obtained by respondents came from the Internet, or internet combined with other information from health workers, family, print and electronic media, family, and friends. From 274 respondents or about 85.1% got information from a combination of many sources: the internet, health workers, family, print and electronic media, family, and friends. Meanwhile, in this study, there were 67 respondents who sought information about Covid-19 more than 6 times a week. In addition, those who were looking for information about Covid-19 with a frequency

of 1-2 times a week, there were 118 respondents.

The Model of the Stigma Predictor Factors

The analysis at the next stage is to analyse the variable acceptance. The acceptance variable is a latent variable composed of several indicators. The latent variables are influenced by stigma variables. The stigma variable is influenced by latent variables such as demographics, knowledge, attitudes, and behaviour. The statistical analysis to determine the relationship among latent variables is the Partial Least Square Structural Equation Model (PLS-SEM). The selection of this analysis is based on the scale used in the indicators of different latent variable constituents.

The structural model of the relationship between latent variables and the results of the PLS-SEM analysis is presented in Figure 1. PLS-SEM analysis using software R with the *plspm* package.

Figure 1 explains the results of the PLS-SEM analysis using R software and the standardized coefficient of the analysis results. The red arrows indicate the direction of the negative relationship. The significance of the

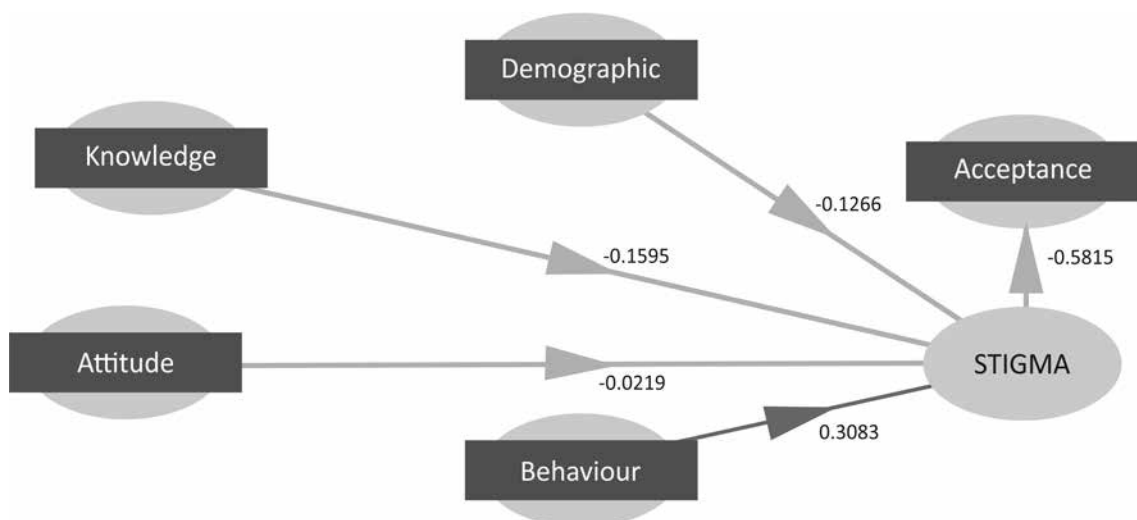


Figure 1. The PLS-SEM analysis results of the COVID-19 acceptance model

Table 2. The significance among latent variables

	Estimate	t value	Pr(> t)
Intercept	4.765e-17	9.190e-16	1.000e+00
Demographics	-1.266e-01	-2.427e+00	1.579e-02*
Knowledge	-1.595e-01	-3.009e+00	2.831e-03*
Attitude	-2.186e-02	-4.059e-01	6.850e-01
Behaviour	3.083e-01	5.637e+00	3.838e-08*
Acceptance			
Intercept	7.964e-17	1.751e-15	1.000e+00
Stigma	-5.815e-01	-1.279e+01	1.587e-30*

* Significant findings

relationship between latent variables is presented in Table 2.

Based on the information in Table 2, it is known that the conclusion is that stigma has a significant effect on acceptance. The coefficient among the latent variable stigma against acceptance is negative. It means that the lower the stigma of the respondent, the higher the respondent's acceptance of COVID-19.

Table 2 also illustrates the analysis results for latent variables that affect the stigma variable. The results of the analysis indicated in the conclusion that demographic, knowledge, and behaviour variables had a significant effect on community stigma. The variable that has the greatest influence on society's stigma about COVID-19 is behaviour variable because the result of the significance value is the smallest compared to other latent variables.

The model suitability test in PLS-SEM is carried out by looking at several indicators such as R^2 , AVE, Cronbach alpha, and the value of Goodness of fit index (gof). The R^2 values are presented in Table 3:

Based on Table 3, it is known that the R^2 value for the stigma variable is 0.148. This value means that the behavioural, knowledge and demographic variables explain about 14.8% of the diversity of data on Stigma. The R^2 value for acceptance is 0.338. This value explains that the stigma latent variable is able to explain

about 33.8% of the diversity of data on acceptance.

The Cronbach alpha value shows the homogeneity of the indicators in arranging latent variables. The variable will meet the homogeneous criteria based on the Cronbach alpha value if the value is greater than 0.7. Based on the Cronbach alpha value in Table 3 above, it is known that the latent variables of attitude, behaviour, stigma, and acceptance have values above 0.7. Meanwhile, the demographic and knowledge variables, the Cronbach alpha value indicates below 0.7.

Table 3. Coefficient of determination (R^2) value

	R^2
Latent Variabel	
Stigma	0,148
Acceptance	0,338
Cronbach alpha	
Demographic	0,000 (AVE: 0,229)
Knowledge	0,598 (AVE: 0,181)
Attitude	0,877 (AVE: 0,886)
Behaviour	0,822 (AVE: 0,577)
Stigma	0,858 (AVE: 0,321)
Acceptance	0,817 (AVE: 0,51)

The AVE (Average Variance Extracted) value is an indicator that can be used to measure convergent validity if the AVE value is greater than 0.5. Based on the given information in Table 6, the attitude, behaviour, and acceptance variables meet the convergent validity criteria based on the AVE value.

Figure 2 shows the factor loading value of indicators in compiling latent variables. This value can be used to see the contribution of each indicator to the latent variable. The behavior is composed of 6-question indicators. The indicator that has the lowest contribution at value 0.233 is question number 5, that is, “I spend my own time at home to watch movies or play games until midnight”. This result indicates that question number 5 can be considered not to be used to measure respondent behavior variable.

Discussion

According to the described data, it was found that stigma is influenced by demograph-

ic, knowledge, and behaviour variables. The factors that influence stigma, starting from the most powerful one are behaviour, knowledge and demographics. While the attitude variable in this study did not affect the occurrence of stigma.

Preventive behaviours against COVID-19 are the most powerful factor affecting the occurrence of stigma. There are some significant indicators of health behaviours related to COVID-19, namely avoiding going to crowded places, immediately washing clothes worn for travelling, washing hands after returning from travelling, wearing masks every time meeting people, and immediately showering after returning from travelling. This information shows several new behaviours that have been forced to form as an adaptation of the increasingly widespread development of COVID-19 [14,15]. These new behaviours are inseparable from the new health protocol regarding COVID-19 released by the government [16]. The

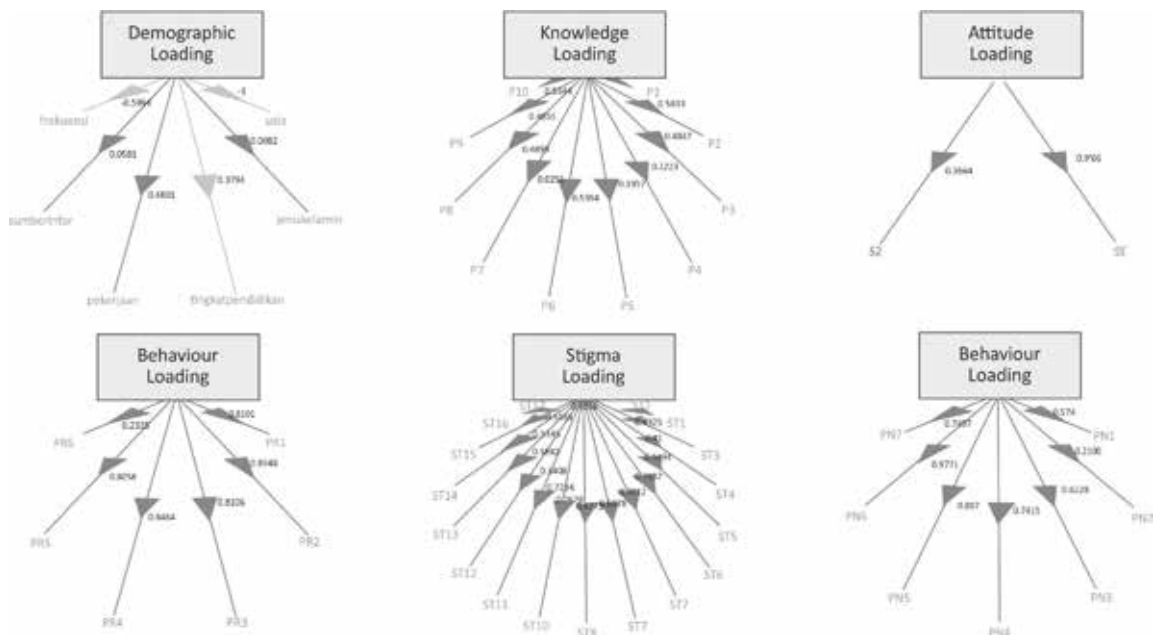


Figure 2. Factor loading in the arrangement of latent variables

behaviours that are formed to support this health protocol can reduce the stigma that builds up in society.

The result of this study is directly proportional to research on 634 undergraduate students from Monash University Australia who examined the stigma against obesity. The result showed that students who behaved healthier by maintaining their diet would be more protected from psychological disorders and obesity stigma from their peers [17] including disordered eating, but the psychological mechanisms underlying these associations are not well understood. The present study tested whether the association between weight stigma experiences and disordered eating behaviors (emotional eating, uncontrolled eating, and loss-of-control eating).

The second factor that affects the stigma in this study is knowledge. The analysis found that three questions significantly answered knowledge variable about COVID-19. The three questions were the symptoms of COVID-19, which were fever (body temperature > 38 °C), cough and shortness of breath; COVID-19 could only be transmitted by people who had just returned from abroad and the COVID-19 virus could live in the air. Knowledge can create beliefs so that someone will behave according to what he believes. The higher the knowledge and understanding, the less irrational fear that can trigger stigma [18]. However, in this study, it was found that the higher the knowledge, the higher the occurrence of stigma. This condition cannot be separated from the information circulating along with the development of COVID-19, especially on social media. The dynamical development of information about COVID-19 cannot be separated from the role and involvement of the community in disseminating this information [19]. The massive amount of information about COVID-19 in circulation does not all contain the correct information, most of the information is a hoax. This misinformation has helped shape and strengthens the stigma about COVID-19. Even though

the Indonesian government has made efforts to eradicate this hoax information, the swiftness of information on social media from the community itself is difficult to inevitable [20].

The stigma along with the spread of COVID-19 is getting stronger as hoaxes about conspiracy theories circulate in social media [21]. This misleading information is not only circulating among ordinary people. This wild information is increasingly global with the participation of community leaders and the leaders of superpower-country who share heretical views, and it adds to the confusion of information about COVID-19 [22]. Furthermore, the appeared stigma about COVID-19 based on misinformation has reportedly added to the potential for anxiety felt by the public [23-25]. The unclear information about the distribution and risk factors in circulation could lead to depression, especially in people who work at high risk. Workers who must remain outside the house in carrying out their work, including frontline medical staff [26,27].

The result of this study is consistent with the research conducted by Firman on 83 HIV/AIDS patients in Boro-Boro Village, Ranomeeto District, Konawe Selatan Regency. The result showed that there was a negative relationship between knowledge of HIV/AIDS and the stigmatization of HIV/AIDS sufferers. The higher a person's knowledge, the higher the tendency to stigmatize [28].

The third factor is demographics which in this study consisted of age, gender, level of education and type of work. The younger people are more prone to fear and tend to discriminate more easily [29]. Women also give more stigma because it is easier to feel anxious and afraid [30]. Someone who does not work or has a lower income will usually be more easily stressed and feel pressured by the necessities of life. Therefore, it is easier for them to feel scared and carry out stigma [31]. In addition, the level of education also affects stigma. A person with a higher level of education has more access to health information and has a better understanding of that information [32]. However, in this study, most respondents were

undergraduate graduates but they were prone to have a high stigma. This could be because COVID-19 was a new disease that caused excessive worry which resulted in stigma against sufferers or people close to sufferers of COVID-19. The result of this study delineates similarities to a study which was conducted by Lambert on 335 people who received outpatient HIV care in Alabama, Maryland, North Carolina and Washington, the United States. It was found that demographic characteristics were one of the predictors of stigma [33].

This stigma is closely related to social acceptance. People who are stigmatized because they have an infectious disease or are around people who have the disease tend to accept negative stereotypes and make them socially unacceptable [34]. If this is neglected, it will cause a decrease in the quality of life [35]. The result of this study is along with the above statement that a stigma affects acceptance. People who get stigma related to COVID-19 will be shunned and ostracized by society. The stigma about COVID-19 does not only apply to sufferers who are infected. The previous studies in Nepal reported that the stigma circulating in society also applied to medical staff as frontlines in dealing with COVID-19 [36]. The stigma faced by medical staff was not only from the community but also from their

own colleagues, medical staff who did not deal directly with COVID-19 patients [37].

The formation of modelling on the factors that create the stigma of COVID-19 in East Java can help the government to prevent and overcome the further consequences of the stigma against COVID-19. Moreover, the East Java Province is one of the epicentres of COVID-19 transmission, with the largest number of cases and the highest death rate in Indonesia. The stigma during the spread of COVID-19 in East Java, Indonesia is influenced by several factors such as behaviour, knowledge and demographics. The stigma predictor model is a recommendation for the government to make a program in reducing the bad stigma that targets all levels of society. Along with this program, it is hoped that the quality of life of the community will improve and reduce the spread of the COVID-19 disease.

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Conflict of interest

None to declare.

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Model stigme zajednice tijekom Covid-19 pandemijskog razdoblja u istočnoj Javi u Indoneziji

Sažetak - Pozadina: Područje istočne Jave epicentar je prijenosa COVID-19 s najvećim brojem slučajeva i najvećom stopom smrtnosti u Indoneziji. Ova pandemija stvorila je stigmatu koja može umanjiti kvalitetu života. Ova studija je provedena kako bi se pronašao model prediktorskih čimbenika koji utječu na stigmatu društva tijekom pandemije COVID-19. Metoda: Ovo istraživanje uključivalo je 322 ispitanika u istočnoj Javi u Indoneziji i koristilo se multivarijantnom analizom s metodom PLS (Partial Least Square) za utvrđivanje odnosa između nekoliko varijabli. Proučavane varijable bile su demografija (dob, spol, razina obrazovanja i zanimanje), stavovi, znanje, ponašanje, stigma i prihvaćanje. Rezultat: Stigma od izbijanja pandemije COVID-19 bila je pod utjecajem demografskih čimbenika, znanja i ponašanja, dok varijabla stava u ovoj studiji nije utjecala na pojavu stigme. Aspekt znanja imao je pozitivan odnos sa stigmom. Što je veće znanje ispitanika u ovoj studiji, to je veća sklonost stvaranju stigme. Isto tako je i za demografske varijable. U međuvremenu, aspekt ponašanja ukazivao je na negativan odnos sa stigmom. Zaključak: Čimbenici koji utječu na stigmatu, počevši od najjačih, su ponašanje, znanje i demografija. Ovaj model je preporuka Vladi za poboljšanje kvalitete života ljudi i smanjenje širenja COVID-19.

Ključne riječi: stigma; Covid19; demografija; znanje; ponašanje