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Identification of Covid 19 Chain Disconnection Based On Health Belief Model

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Abstract. Covid 19 disease is one of the infectious diseases caused by the coronavirus. The disease has caused 1.8 million people (currently in writing) to die. Sharing this way, the Indonesian government seeks to break the chain of the spread of the coronavirus through health programs through a mass tightening of activities and the use of health protocols. The purpose of this study is to identify covid-19 transmission based on the health belief model. Analytical design, cross-sectional approach, community research sample in Surabaya as many as 101 respondents through random sampling. The variables of this study are Vulnerability Perception, Severity Perception, Health protocols Benefit Perception, Health protocols Resistance Perception, Self-Efficacy Health protocols, Cues to Action, and Health protocols. The data was collected with questionnaires circulating through google-form on a what-aps group of colleagues, friends, and friends. Analysis with linear regression. Covid 19 transmission has a positive relationship with the perception of susceptibility (p< 0.01), self-efficacy (p0.05), and cues for transmission of covid 19 action (p < 0.01). There is a negative relationship between the transmission of covid 19 and perception of Preventive Behavior (p < 0.01). Linear regression models show that independent variables contributed all to 84.5% of covid-19 transmission. Identification results based on the health belief model include severity, vulnerability, cues to take action, and perceived benefits for identifying the spread of Covid 19, but barriers unrelated to Covid 19 prevention efforts in the region. Further research prioritizes willingness and awareness of breaking the chain of transmission of covid

INTRODUCTION

Coronavirus began to spread globally so that it became an international problem, various efforts of each country in breaking the chain of transmission and spread of the coronavirus have not provided maximum results [1, 2]. The international community strives through sharing policies that improve clean and healthy living behaviors through mass tightening of activities breaking the chain of spread and transmission of Covid 19 is the main key in efforts to reduce the number of pain and death rates due to Covid 19 [3]. Various Southeast Asian countries, one of which is Indonesia ranked second in the increase of cases per day, amounting to 4,891 cases as of May 10, 2021, with a total of 6,333 cases. In Indonesia, covid 19 cases are dominated by the age group of 31-45 years, namely 80% [4]. Community behavior that is very supportive in efforts to break the chain of transmission and spread of covid 19 is the behavior of individuals [5]. Individual behavior based on the concept of the health belief model includes confidence in accepting new conditions and environment, age, gender, and level of education [6, 7].

Meanwhile, the condition of Indonesian society is very diverse in understanding the spread of the coronavirus that is increasingly and maneuvering [8]. People who have the age of over 45 years become more vulnerable to the target of coronavirus transmission. However, people aged 18-24 years are more active in following government programs such as hand washing and using masks than the elderly community [9]. On gender variables, women are more likely to take preventive measures than men. In Hong Kong and Singapore, women tend to take precautions, such as hand washing, wearing masks, and other hygiene measures [10]. This is due to the perception of women who think that they are more susceptible to the disease [11].

In addition to demographic variables, in the same study [12]. there are findings that state that anxiety and confidence in a condition affect a person to make preventive efforts. Preventive behavior in question is a behavior that

encourages to make termination and prevention of transmission of covid 19, in the form of washing hands, wearing masks, washing cutlery, and regulating the coughing [7]. In addition, in accordance with the health belief model, a person does the following: perceived susceptibility and perceived severity affect an individual's tendency to perform health and transmission measures during the covid pandemic. If the perceived susceptibility and perceived severity of the individual is high, then the tendency of individuals to take precautions and break the chain against covid 19 disease will also be higher. Individual perception of the susceptibility and severity of a disease can make individuals fear the disease, so individuals are more encouraged to take precautions to prevent transmission and disconnection of the covid 19 chain. Perceived susceptibility and perceived severity are components of the health belief model, a model for understanding the factors that influence individuals in healthy behavior [7, 13].

The purpose of this study is to identify the disconnection of the covid 19 transmission chain based on the health belief model with perceived severity, perceived susceptibility, perceived benefits, and perceived barriers.

METHOD

Research Design

Quantitative design, with this type of analytical survey research. The research uses this type to explain the identification of the disconnection of the chain of the spread of covid 19 through all four main dimensions of the health belief model.

Participants

Study participants were aged 20-57 years, through purposive sampling to get subjects according to the criteria, therefore the number of populations is specifically unknown. The author succeeded in recruiting 101 participants (M_{age}=38.83; SD_{age}=10.679; 61.4 percent female) who met the criteria, with the majority of the subjects in Surabaya (98.3%), with 45% of all subjects from the city of Surabaya.

Measurement

The study used online surveys containing self-report questionnaires. The survey was conducted through a digital platform, Google Forms, which contains informed consent, biodata-related information including participant demographics, as well as Likert scale stuffing that measures the variables measured. The system of the filling is taken from the HBM-COVID scale for independent variables, as well as the Clean and Contain scale adapted over the language. The survey was disseminated by reaching participants through social media and short message applications, including a link to the survey.

Measurement of health belief model variables using the HBM-COVID scale made by researchers, consisting of 54 items, with 4 answer options (1 = "strongly disagree", 4 = "strongly agree"). Reliability calculation is done with *Cronbach's alpha* analysis techniques for all four HBM subscales, namely perceived susceptibility, perceived severity, perceived benefits, and perceived barriers are .792, .765, .785, and .830, separately. To measure the prevalence variable, researchers used a Clean and Contain Scale adapted from [14], as many as 9 items with a fairly good reliability coefficient (α =.645). From the results of data retrieval, the total scores of each HBM-COVID and Clean and Contain *Scale* subscales are summed up to be used as analytical materials in hypothesis testing. In testing normality, researchers used the Kolmogorov-Smirnov analysis technique, with a coefficient of p of (p>.05), meaning normal. Data analysis uses logistic regression analysis.

RESEARCH RESULTS

TABLE 1. Characteristics of Respondents

Characteristic	N	%
Age 20 – 57-year N= 101 mean = 38.83 medians= 41 SD (min-max) = 10.679 (20-57)		
Gender		
Man	39	38,6
Woman	61	61.4

Characteristic	N	%
Level of Education		
Non-Bachelor	48	47.5
Bachelor	54	52.5
Staffing Status:		
Permanent officer	48	46.5
Contract Officer	29	28.7
Substitute leave	25	24.8
Length of Working (Year):		
1-5	19	18.8
6-10	37	35.7
11-15	46	45.5

TABLE 2. Results of Double Linear Regression Analysis

Dependent Variables	OR	Cl 95 %		P
		Lower Bound	Upper Bound	
Constant	1.70	1.54	1.85	< 0.001
Perception of Vulnerability	0.97	0.87	1.06	< 0.001
Perception of severity	-0.01	-0.02	0.01	0.349
Perception of health protocol benefits	-0.01	-0.04	0.03	0.763
Perception of health protocol benefits	-0.13	-0.18	-0.09	< 0.001
Self-efficacy of health protocols	0.02	0.00	0.05	0.023
Cues to action protocol health	0.16	0.08	0.23	<0.001
N Observation = 101				
Adjusted R^2 = 84,5 %				
P < 0.001				

DISCUSSION

The subjects of this study were early adult individuals, ages $20 – 57$. The study aims to see if the dimensions of the health belief model can explain the preventive health behavior of covid 19 transmission during a pandemic. Subjects numbered 150, but the majority of subjects were in the age range of 31-35 years, which amounted to 78.2% of subjects. At presentation women are higher than men. In addition, employees still have a high presentation to carry out preventive health behavior transmission of covid 19 then contract employees and leave replacements have the lowest presentation.

Perception of vulnerability of covid 19 transmission

The results showed that the perception of vulnerability has a significant and very close relationship with the transmission of covid 19 (p:0,000). As for the value of the vulnerability perception coefficient of 0.97, it means that the vulnerability perception variable has a positive effect on preventive health behavior. If there is a decrease in the perception of vulnerability, there will also be a decrease in covid 19 transmission by 0.97. This result is reinforced by the theory put forward by [13], that in HBM which states that the more at risk a person is to a disease then the better precautions taken. These results are in accordance with the results of research that the lower the perception of a person's vulnerability, the lower the disease prevention efforts. [13] argues that the more at risk a person is at risk of a disease, the better the precautions. If prevention efforts are low, it will increase the risk of transmission of covid 19.

Perception of the severity of transmission of covid 19

The perception of severity does not affect preventive behavior of health and transmission of covid 19. The results contradict [10], an opinion in the theory of motivational protection which states that perceived severity will affect a person's intentions in performing an action or behaving because a person's actions to seek treatment and prevention of the disease are driven by the threat of the disease.

Perception of benefits of covid 19 transmission

The results showed no significant influence between the perception of preventive behavioral benefits and the review of covid 19. These results are not in accordance with the results [15], that the higher the perception of preventive benefits to health preventive behavior, and preventive health behaviors the better the practice in the prevention of covid 19 transmission [16]. Perceived benefits are perceptions of benefits that have a positive relationship with healthy behaviors [17].

Perception of barriers to transmission of covid 19

The perception of preventive health behavior barriers has a significant influence on preventive health behavior judging from the value of $p < 0.05$ and known coefficient values of -0.13, this means that the variable benefits of prevention of covid 19 transmission negatively affect the prevention of covid 19 transmission. If there is an increase in the perception of health preventive behavior benefits, there will be a decrease in covid 19 transmission by 0.13. According to [11], the relationship of barrier perception with healthy behavior is negative, if the perception of barriers to healthy behavior is high then healthy behavior will not be done.

Self-efficacy of covid 19 transmission

Variable self-efficacy of preventive health behavior positively affects the prevention of covid 19 transmission. If there is an increase in the efficacy of preventive health behavior by 1 point, there will be an increase of 0.02 times the prevention behavior of covid 19 transmission. According [13], self-efficacy can affect any level of personal change, both when the individual considers changes in health-related habits. A person will feel confident in his ability because of the presence of experiences related to behavior or he feels confident based on observations made in others.

Cues to Action transmission of covid 19

Variable cues to action preventive health behaviors positively affect preventive health behavior. If there is an increase in cues to action preventive health behavior by 1 point, then there will be an increase of 0.16 termination and spread of covid 19. The results of this study are in accordance with the results of [12], that the activeness of seeking information through friends, health workers, counseling, print, and electronic media affects how to preventive health through; washing hands with soap or hand sanitizer, social distancing, wear masks, keep a distance of 1 meter, avoid crowds. The triggering factors of a person to act on health protocols in an effort to break the chain of transmission of covid 19 come from internal factors and external factors, among others, from schools, magazines, newspapers, television, internet, seminars, training, experiences of others, peer meetings, health workers, and hospitals [18].

The results of the multivariate study of multiple linear regression showed that the values p:0.000, Adjusted R2 = 84.5%, CI 95% 1.54-1.85. This means that the equation obtained is only able to explain preventive health behavior by 84.5%, and only 15.5% explained by other variables not studied in this study. This explains that the perception of health protocol benefits, perception of health protocol barriers, self-efficacy of health protocols, and cues to action protocol health almost completely change the behavior towards the spread and termination of the eye. It is because only the remaining 15.5% are described by other variables beyond the variables mentioned.

Perception in health belief models is believed to determine the likelihood of individuals performing health behaviors [12]. Specific actions taken are determined by the evaluation of available alternatives, the focus on the benefits of healthy behaviors, and the perceived costs or barriers to behavior [19]. Therefore individuals are most likely to follow certain health measures if they believe themselves are susceptible to certain conditions and they also consider that the circumstances experienced can be serious and believe that the benefits outweigh the costs of the actions taken to counter health threats [20]. According to the health belief theory model, the likelihood of individuals taking preventive measures depends directly on the outcome of two beliefs or health beliefs, namely the perceived threat of injury or illness and consideration of benefits and losses [7].

CONCLUSION

There is a positive and statistically significant relationship between preventive behavior of covid 19 transmission with 4 independent variables studied including vulnerability perception, barrier perception, self-efficacy, and cues to action preventive behavior of covid 19 transmission.

REFERENCE

1. G. B. Cunningham and L. T. Wigfall. PLoS One. **15**, 1–14 (2020).
2. WHO, *WHO GUIDELINES ON HAND HYGIENE IN HEALTH CARE (ADVANCED DRAFT)*. 2017.
3. J. J. V. Bavel *et al.*, Nat. Hum. Behav. 4, 460–471 (2020).
4. Covid-19, "Peta Sebaran Covid-19," *Gugus Tugas Percepatan Penanganan Covid-19*. pp. 1–7, 2021.
5. WHO, "Practical Guidelines for Infection Control in Health Care Facilities Practical Guidelines for Infection Control in Health Care Facilities," *World Heal. Organ.* **41**, 110 (2004).
6. B. Allegranzi, World Heal. Organ. 34, (2011).
7. M. S. Hagger, S. R. Smith, J. J. Keech, S. A. Moyers, and K. Hamilton, Ann. Behav. Med. **54**, 713–727 (2020).
8. C. C. Id, J. Garuccio, A. Le, and J. Pinkston, PLoS One. **16**, 1–19 (2021).
9. H. Prime, M. Wade, and D. T. Browne, Am. Psychol. **75**, 631–643 (2020).
10. X. Yu *et al.*, Front. Psychol. **11**, 1–7 (2020).
11. L. Simione and C. Gnagnarella, Front. Psychol. **11**, (2020).
12. R. N. Rimal and K. Real, Hum. Commun. Res. **29**, 370–399 (2003).
13. I. M. Rosenstock, Heal. Educ. Behav. **2**, 354–386 (1977).
14. L. Atkins *et al.*, Implement. Sci. **12**, 1–18 (2017).
15. M. Landa-Blanco, A. Landa-Blanco, C. J. Mejía-Suazo, and C. A. Martínez-Martínez, Front. Psychol. **12**, 1–13 (2021).
16. A. Goolsbee and C. Syverson, J. Public Econ. **193**, 104311 (2021).
17. C. A. Figueroa and A. Aguilera, Front. Psychiatry. **11**, 1–5 (2020).
18. E. G. Price-Haywood, J. Burton, D. Fort, and L. Seoane. N. Engl. J. Med. **382**, 2534–2543 (2020).
19. P. Hartnett, Kathleen *et al.*, Morb. Mortal. Wkly. Rep. **69**, 699–704 (2020).
20. E. J. Raker, M. Zacher, and S. R. Lowe, Proc. Natl. Acad. Sci. U. S. A. **117**, 12595–12597 (2020).