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Prevention behavior of community for spreading COVID-19 in West Kalimantan Province, Indonesia

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ABSTRACT

The COVID-19 pandemic caused huge impacts on human being worldwide. The accumulated infected cases are 156,778,078 with 3,272,054 death cases on May 7, 2021. Importantly, not many people practice the prevention behavior of COVID-19 pandemic. This study measured the prevention behavior of COVID-19 in West Kalimantan Province, Indonesia by socio-demographic factors and protection motivations from the community. This study used a cross-sectional design which was carried out for two weeks from the end of July to early August. The study involved 385 respondents from 972,635 people in Municipality Pontianak, Municipality Singkawang, and Ketapang Regency, Indonesia. The result showed the majority of the respondent were female (74.3%), in adult age group (61.3%), graduated from university (51.2%), and have a job (64.9%). Multiple logistic regression showed that respondents had no occupation (Adj. OR=1.87, 95% C.I=1.04-3.37), low perception of self-efficacy (Adj. OR=3.44, 95% C.I=1.98-5.95), and low the evaluated cost response (Adj. OR=1.94, 95% C.I=1.20-3.14) were statistically significant having correlation with poor preventionbehavior of spreading COVID-19. The results can be utilized for the promotion of protocol of prevention COVID-19, for instance, provide personal protective equipment (PPE) for people with high-risk occupation including health personal, promote the importance of practice prevention behavior, and control the price of basic PPE including mask and ensure all people have an access to have the mask.

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1. INTRODUCTION

Declaration of the COVID-19 pandemic by World Health Organization on March 11, 2020 still a serious problem until in the world [1]. Up to November 19th, 2020 the global confirmed cases of COVID-19 is 55,326,907 and the deaths are 1,333,742 (mortality rate is 2,4%) [2]. The prevention way introduced by Ministry of Health Republic Indonesia is including hand washing; do not touch eyes, nose, and mouth; ethics once cough; use the mask; and physical distancing within one meter [3], [4]. Study conducted in United Kingdom and United States found that 86.0% and 92.6%, respectively know the prevention way to avoid the

COVID-19 [5]. The spreading of COVID-19 in the community is based on the existing knowledge of the virus and its effect to the quality of life and economy [6]. Ethiopian people showed how knowledge of COVID-19 is significantly influenced by age, educational status, and marital status [7]. The study in China found that age, gender, and religion affected to have the good knowledge for preventing the COVID-19 [8]. The prevention behavior related to knowledge is also showed from the study in United States, Ethiopia, China, and Vietnam [9]–[13]. The prevention practices had the barriers such as the insufficient knowledge and negative attitude based on the study in Vietnam [14].

In order to understand the knowledge, access to official COVID-19 information and education sources was important to increase the implementation of prevention behavior of COVID-19 [8], [15], [16]. Some prevention practices like using the face mask did not show effectively prevent the spreading of COVID-19 [17]. The role of the National Government to encourage people to practice the prevention way is very important [18]. The low implementation of prevention behavior among Nigerians mostly was influencedby low economic status [19]. Other factors such as age, gender, education level, and occupation revealed not significant related to prevention practice of COVID-19. The data on November 19th, 2020 from the Department of Health, West Kalimantan Province, Indonesia reported 2,187 confirmed cases which referred it to be red zone. The prevention was already introduced by the provincial government to prevent the spreading of COVID-19 at any level. Although previous research shows that many do not believe ingovernment policies, most Indonesians have taken preventive behavior for COVID-19 [19]. The COVID-19 pandemic is spreading unpredictably, due to many influencing factors. It continues to cause morbidity, mortality, normal life disturbance, and also a burden on health systems. Assessing the prevention behavior related to COVID-19 among the community in West Kalimantan Province, Indonesia would benefit governments or involved organizations in performing any intervention according to the obtained results. Moreover, recommendations from the community would be important information to strengthen the COVID-19 response. This study aimed to examine the factors related to the implementation of prevention behavior of COVID-19 in West Kalimantan Province, Indonesia.

2. RESEARCH METHOD

2.1. Study design

A community based cross-sectional study was carried out in West Kalimantan Province. The data collection was conducted from July to August 2020 after getting approval from the office of the committee for research ethic (KEPK), Faculty of Public Health, Universitas Muhammadiyah Semarang Institutional review board (Certificate of approval No. 373/KEPK-FKM/UNIMUS/2020).

2.2. Target population, sample size and sampling technique

The target population consisted of the entire community aged 15-64 years living in Municipality Pontianak, Municipality Singkawang, and Ketapang District in West Kalimantan Province. The number of populations is of 972,635 people. From fourteen districts, only chosen three regions were classified in the local transmission category in this study. About 385 selected respondents volunteered to fill out the google form that we had distributed. This study has used a combination of purposive and snowball techniques to select the respondents to share the link to social media (WhatsApp, Facebook, Instagram, and Telegram) in those three areas.

2.3. Research instrument

Data were collected by means of an online questionnaire (Google Form). Prevention Behavior of COVID-19 of people used four categories; I use a mask, I maintain a distance (social distance) of at least one meter, I wash my hands with soap and running water, I use a hand sanitizer when soap and water are not available. It had answer options: Always '2', Sometimes '1', and Never '0'. The questionnaire consists of two parts; socio-demographic characteristics and the construct of Protection Motivation Theory (PMT). Socio-demographic factors were age, gender, education levels, occupation, field of work, degenerative disease history, and COVID-19 cases all around. The PMT construct was measured through 23 questions. Consisting of nine main constructs; Perceptions of vulnerability, Perception of severity, Perceptions of self-efficacy, Efficacy response, the evaluated cost response, protection intention, protection motivation, information circulating, information circulating, resource of information. These items were measured using a 5 scale from Strongly Agree ‘1’, Agree ‘2’, Uncertain ‘3’, Disagree ‘4’, and Strongly Disagree ‘5’. Then after being analyzed, the category changed to Low (3, 4, 5) and High (1, 2).

2.4. Data analysis

Outcome measurement was prevention behavior of COVID-19 (Yes, No) within two weeks in the last July till to the first week in August. Descriptive statistics were used to determine the frequency and percentage. Chi-square test and multiple logistic regressions were used to examine associations between independent variables and prevention behavior of COVID-19 in West Kalimantan Province, Indonesia.

3. RESULTS AND DISCUSSION

3.1. Result

The frequency distribution of the respondent's socio-demographic characteristics is presented in Table 1. There were 385 respondents involved in this study. Majority respondents were female (74.3%). The 236 respondents were included in the criteria for adults (61.3%), and with the level of education in higher education as many as 197 respondents (51.2%). Occupation status, as many as 250 respondents have a job (64.9%). Meanwhile, to get deeper into the field of workers, 246 respondents worked in the non-health sector(63.9%) and 139 respondents worked in the health sector (36.1%). Based on the history of degenerative disease information, only 22 respondents had it (5.7%). Furthermore, for information on COVID-19 cases around the residence, it is known that 334 respondents answered no or there may be cases of COVID-19 (86.8%).

Table 1. Socio-demographic characteristic of prevention behavior in West Kalimantan Province

Variables	Frequency (n)	Percent (%)
Age		
Youth	149	38.7
Adult	236	61.3
Gender		
Male	99	25.7
Female	286	74.3
Education levels		
Elementary school-middle school	4	1
Senior high school	184	47.8
University	197	51.2
Occupation		
Working/not working yet	135	35.1
Have a job	250	64.9
Field of work		
Non-health sector	246	63.9
Health worker	139	36.1
Degenerative disease history		
No/Perhaps 'Yes'	363	94.3
Yes	22	5.7
COVID-19 cases all around		
No/Perhaps 'Yes'	334	86.8
Yes	51	13.2

The characteristics of the research variables are presented in Table 2. Based on the COVID-19 prevention behavior, it is known that 238 respondents had poor behavior in preventing COVID-19 (61.8%), and 147 respondents had well (38.2%). Meanwhile, 232 respondents had a high perception of vulnerability (60.3%), 197 respondents had a perception of low severity (51.2%) and 218 respondents had a high perception of self-efficacy (56.6%). Regarding the efficacy response, 219 respondents had a high efficacy response (56.9%) and 196 respondents had a low response to the evaluated cost response (50.9%). Based on the intention to protect against COVID-19, as many as 335 respondents had high protection intentions (87.0%), followed by 342 respondents who had high protection motivation (88.8%), and 255 respondents believed the circulating information related to COVID-19 (66.2%) with information sources based on social media according to 226 respondents (58.7%).

Table 3 (see in Appendix) shows the results of the Chi-square test on each of the variables from the socio-demographic factors and protection motivation variables. The results show that occupation, perception of severity; perceptions of self-efficacy, efficacy response, the evaluated cost response, protection intention, protection motivation, information circulating, and resource of information have significant relationships with COVID-19 prevention behavior.

The results of the analysis using multiple logistic regression test in Table 4 show that the occupation variable (Adj. OR=1.87, 95% C.I=1.04- 3.37), perception of self-efficacy (Adj. OR=3.44, 95% C.I=1.98- 5.95), and the evaluated cost response (Adj. OR=1.94, 95% C.I=1.20-3.14) are the most dominant variables influencing COVID-19 prevention behavior in West Kalimantan Province.

Table 2. Protection motivation characteristic of prevention behavior in West Kalimantan Province

Variables	Frequency (n)	Percent (%)
Prevention behavior of COVID-19		
Poor	238	61.8
Good	147	38.2
Perceptions of vulnerability		
Low	232	60.3
High	153	39.7
Perception of severity		
Low	197	51.2
High	188	48.8
Perceptions of self-efficacy		
Low	167	43.4
High	218	56.6
Efficacy response		
Low	166	43.1
High	219	56.9
The evaluated cost response		
Low	196	50.9
High	189	49.1
Protection intention		
Low	50	13.0
High	335	87.0
Protection motivation		
Low	43	11.2
High	342	88.8
Information circulating		
Believe	255	66.2
Unbelieve	130	33.8
Resource of information		
Social media	226	58.7
Health worker	159	41.3

Table 4. Multiple logistic-regression for independent variable and prevention behavior COVID-19

Variable	B	Adj. OR	95% CI	p-value
Age	-0.152	0.859	0.485 – 1.524	0.604
Sex	0.154	1.167	0.667 – 2.041	0.588
Occupation	0.628	1.873	1.041 – 3.370	0.036*
Degenerative disease history	0.355	1.426	0.733 – 2.774	0.296
Perception of severity	0.233	1.262	0.784 – 2.031	0.338
Perceptions of self-efficacy	1.234	3.436	1.983 – 5.953	<0.001*
Efficacy response	0.498	1.646	0.973 – 2.783	0.063
The evaluated cost response	0.665	1.944	1.204 – 3.139	0.007*
Protection intention	0.914	2.494	0.568 – 10.958	0.226
Protection motivation	-1.230	0.292	0.065 – 1.325	0.111
Information circulating	0.281	1.324	0.818 – 2.143	0.253
Resource of information	0.317	1.373	0.861 – 2.190	0.183

Note: * p-value <0.05

3.2. Discussion

The results of this study indicated that age, gender, and the presence of COVID-19 cases around the respondent's residence were not related (p-value >0.05) with COVID-19 prevention behavior in West Kalimantan. Age was related to the knowledge that a person has in acting, behaving and determining attitudes in a mature manner. The maturity age of a person is in the age range of 36-45 years, because at that age a person will have good grasping power, good thinking power so that he can absorb the information obtained ripe and his knowledge will also be better. Previous research shows there is no relationship between age and COVID-19 prevention behavior in the community [20]. In addition, other studies also showed that there is no relationship between sex and COVID-19 prevention behavior [21]. Its influences in considering ways to manage stress in emergency situations and choosing coping strategies, for example in COVID-19 conditions [22], [23]. The existence of COVID-19 cases around the residence in this study had no relationship with COVID-19 prevention behavior. In previous study, there was a trend in society that felt vulnerable to COVID-19 tending to take precautions by complying with health protocols [24]. The people most vulnerable to COVID-19 are people who have close contact with COVID-19 patients, including caring for COVID-19 patients [25].

Additionally, in term s of perceptions of severity, response efficacy, protection intention, motivation for protection, information circulating, and resource of information variables were unrelated to COVID-19

prevention behavior in the community. On the other hand, there are three variables that were significantly related like occupation, perceptions of self-efficacy, and the evaluated cost response.

Based on the results described before, until now (05-12-2020) COVID-19 still exists and it needs a clear understanding regarding the prevention of COVID-19 in the community. Employment status influences COVID-19 prevention behavior in West Kalimantan. In this study, job status is categorized into two, namely respondents who have not or do not work including housewives, students, respondents who work as civil servants, private and self-employed. People who work can develop ideas, but on the other hand work can interfere with other personal roles such as anxiety. The status of unemployed mothers has a low level of anxiety [26]. This study in line with previous research which states that there was a relationship between occupation status having correlation with behavior towards COVID-19 [24].

Therefore, the COVID-19 outbreak not only affect to the physical health, but also effect on various aspects, such as: social, mental, physical, psychological and economic. It takes proper communicationthrough experts who believe it is primarily related to the prevention of COVID-19 in the community [27]. The efficacy response assessed in this study was related to *3M* (using a mask, maintaining a minimum distance of a meter, and washing hands with soap as often as possible) and using a hand sanitizer when soap and water were not available. Showing self-confidence in others can increase one's contribution in the formation of behavior [28]–[30]. The results of this study indicate that someone who has low self-efficacy perception of implementing the COVID-19 health protocol has a 3.436 times chance of not implementing thispreventive behavior. Self-efficacy can be exemplified like in a nurse can produce a results or certain changes.Self-efficacy has been shown to play an important role in various endeavors, if nurses with low self-efficacy will experience difficulties, stress and anxiety can occur [31].

The evaluated cost response variables in this study were related to the convenience of using masks, difficulty in finding a place to wash hands in public places, the price of expensive personal protective equipment (masks, hand sanitizers, and face shields) and the discomfort of keeping a distance from other people. Previous research had suggested the importance of one's intention to behave for the prevention of a disease, that arises from the individual's awareness [32]. The response cost which is evaluated is in line with one's intention, intention is included in the self-concept of a person, and this is dynamic, meaning that it does not escape change. Some aspects will last a certain period of time and some are easy to change according to the situation and conditions experienced [26]. At the beginning of the COVID-19 outbreak, people would have difficulty adapting according to health protocols, especially in finding tools for their own protection. The results of this study showed that someone with a low evaluation cost response in implementing the COVID-19 health protocol have 1.944 time the chance of not implementing COVID-19 prevention behavior. In line with other research that cost response is related to disease prevention behavior in someone [30].

This research has strengh and limitation. Investigation of the prevention behavior of COVID-19 might be the first study in West Kalimantan Province, Indonesia. The data collection via online approach was conducted in two weeks in Pontianak Municipality, Singkawang Municipality, and Ketapang District. The readiness of organizations, people, hardware facilities, and prevention behavior support might be restricted in some areas. However, the results may benefit authorized units to set preventive strategies to control the spread of COVID-19. The limitation of study is the data collected through online survey that potentially bias from the respondents' side.

4. CONCLUSION

In summary, we obtained baseline information of prevention behavior towards COVID-19 in West Kalimantan Province. The finding indicates that people who do not have occupation, low perception of self-efficacy, and low the evaluated cost response have poor prevention behavior COVID-19. Some categories mentioned in this research might benefit the government especially authorized units such as the central government, Ministry of Health and local municipalities. The results can be used as basic information for further intervention for promotion of protocol of prevention COVID-19. The practical recommendation can be: distributed the PPE for the risky occupation, such as health personal and ensure they wear the PPE properly. Additionally, perceptions of self-efficacy need to be increase by promote people to practice health protocol during COVID-19 outbreak by *3M* (using a mask, maintaining a minimum distance of a meter, and washing hands with soap as often as possible). In terms of the evaluated cost response, stakeholder may control the price of basic PPE, for instance mask so all people from low to high income will have the power of purchase.

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APPENDIX

Table 3. Association between each independent variables and prevention behavior COVID-19

Variables	Prevention behavior of COVID-19				p-value	OR (95% CI)
	Poor		Good			
	n	%	n	%		
Age						
Youth	99	41.6	50	34.0	0.138	1.38 (0.90-2.12)
Adult	139	58.4	97	66.0		
Gender						
Male	67	28.2	32	21.8	0.164	1.41 (0.87-2.28)
Female	171	71.8	115	78.2		
Occupation						
Working/not working yet	94	39.5	41	27.9	0.020*	1.69 (1.08-2.63)
Have a job	144	60.5	106	72.1		
Field of work						
Non-health sector	156	65.5	90	61.2	0.391	1.20 (0.79-1.84)
Health worker	82	34.5	57	38.8		
Degenerative disease history						
No/Perhaps 'Yes'	224	94.1	139	94.6	0.857	0.92 (0.38-2.25)
Yes	14	5.9	8	5.40		
COVID-19 cases all around						
No/Perhaps 'Yes'	211	88.7	123	83.7	0.161	1.52 (0.84-2.76)
Yes	27	11.3	24	16.3		
Perceptions of vulnerability						
Low	95	39.9	58	39.5	0.929	0.93 (1.02-0.67)
High	143	60.1	89	60.5		
Perception of severity						
Low	135	56.7	62	42.2	0.006*	1.80 (1.19-2.72)
High	103	43.3	85	57.8		
Perceptions of self-efficacy						
Low	135	56.7	32	21.8	<0.001*	4.71 (2.95-7.52)
High	103	43.3	115	78.2		
Efficacy response						
Low	125	52.5	41	27.9	<0.001*	2.86 (1.84-4.45)
High	113	47.5	106	72.1		
The evaluated cost response						
Low	145	60.9	51	34.7	<0.001*	2.93 (1.91-4.50)
High	93	39.1	96	65.3		
Protection intention						
Low	42	17.6	8	5.40	0.001*	3.72 (1.69-8.17)
High	196	82.4	139	94.6		
Protection motivation						
Low	34	14.3	9	6.10	0.013*	2.55 (1.19-5.49)
High	204	85.7	138	93.9		
Information circulating						
Believe	167	70.2	88	59.9	0.038*	1.57 (1.02-2.43)
Unbelieve	71	29.8	59	40.1		
Resource of information						
Social media	150	63.0	76	51.7	0.028*	1.59 (1.05-2.42)
Health worker	88	37.0	71	48.3		

Note: bold and (*) p-value < 0.05