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Prevention Behavior of Related to COVID-19 Among Food Handlers in Restaurants in Pontianak City, Indonesia

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ABSTRACT

Introduction: The spreading of COVID-19 has been a disadvantage to all countries around the world. The COVID-19 situation in Indonesia based on the date April 26th, 2021 showed that 44,500 people have died, 1,636,194 cases infected, and 1,492,322 positive cases were declared cured. The COVID-19 can be transmitted through food handlers if they do not comply with health protocols. Perceptions about COVID-19 affect food handler compliance with health protocols. This study aimed to examine the correlation between the perception of food handlers in restaurants and the prevention behavior of COVID-19.

Methods: This study adopted a cross-sectional design and was conducted between July-August 2020 in 90 food handlers in restaurants in Pontianak City, and data were collected through random sampling. The univariate and bivariate (Chi-Square) were used to analyze the data. Ethical approval was obtained from Faculty of Public Health, Universitas Muhammadiyah Semarang (Certificate of approval No. 373/KEPK-FKM/UNIMUS/2020).

Results: This study found only three independent variables have significance with prevention behavior of spreading of COVID-19 such as physical activity (p-value 0.011), seeking or getting COVID-19 information (p-value 0.036), and perception of self-efficacy (p-value 0.005). Additionally, the rest of the independent variables have no significance related to prevention behavior of spreading of COVID-19 like sex, education level, economic effect, smoke status, perceived vulnerability, and perception of the hoax information spread.

Conclusion: The strongest independent variable is a perception of self-efficacy which means that the food handlers who had a poor perception of self-efficacy tend to do not practice the prevention behavior of COVID-19. The Future studies should address stakeholder role to educate and train the food handlers to increase their self-efficacy in terms of health problems, including COVID-19.

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INTRODUCTION

The first cases of COVID-19 in Indonesia have been reported in March 2020 and the new cases are available every day till now (1). Firstly, the Indonesian government is still hesitant about issuing policies because of many considerations such as economy, business, and community needs (2). However, efforts to prevent the spread of COVID-19 are still being carried out such as vaccinations, health protocols (using a mask, "social distancing" with a distance of one meter, and washing hands with running water or hand sanitizer) (3,4). The number of people who have been vaccinated against COVID-19 in Indonesia is increasing every day, but there are still quite a lot of rejections (5,6). However, to achieve higher vaccine coverage, it may be necessary to partially subsidize vaccines for the underprivileged and design health promotion materials to increase the perceived risk for COVID-19 in the country (6).

Using face masks by the general public is a potential of high value in mitigating community transmission and the burden of the pandemic (7). The use of surgical masks can also reduce transmission for those infected with COVID-19 (8). The use of masks in children requires the cooperation of parents and schools (9). WHO recommends medical masks as standard masks to prevent spreading COVID-19 however the use of cloth masks can be done in Indonesia due to the lack of stock of medical masks (10). Furthermore, the Indonesian Health Ministry has advised the society to use a double mask to anticipate the risk of COVID-19 transmission. Double masking is believed to cut and reduce the risk of COVID-19 transmission, especially with the new variant which has now been detected (11). Likewise, for food handlers, the use of masks can reduce the risk of transmitting Covid-19. Social distancing is also part of health protocols that are important in preventing Covid-19. It spares lives but inflicts large costs on society due to lessening economic activity (12). For the sake of health together, social distancing must be done because it has shown statistically significant results in reducing the growth of COVID-19 cases (13). On the other hand, social distancing must be accompanied by contact tracing of all suspected cases to mitigate virus transmission (14).

Prevention of COVID-19 transmission requires adequate awareness and willingness of individuals to adhere to preventive practices. The use of the COVID-19 transmission prevention protocol must be implemented in public places such as restaurants (15). Food handlers in restaurants have a potential risk to transmit the diseases, including COVID-19 (16,17). Evidence from previous studies suggests that plastic surfaces could be a source of COVID-19 transmission vectors as the virus can survive for several hours and days on plastic surfaces (18). In addition, plastic-like utensils (e.g., single-use plastic disposables, plastic bags, plastic bottles, and Styrofoam containers for packaging food) used in eating and drinking establishments can be potential physical vectors or fomites of SARS-CoV-2, and this indicates the need for decontamination and disinfection of plastic utensils used or associated with food and beverages (19). As a result, food handlers may become infected and transmit the disease to others. As previously study showed the majority of Indonesian society has well-prevented behavior but some of them do not believe in government policy (20). This condition is very worrying because it can affect the success of controlling the spread of COVID-19, especially in public places such as restaurants which are the center of community interaction and have a high potential to become a transmission cluster if health protocols are not implemented properly (21). This study aims to examine the correlation between the perception of food handlers and the prevention behavior of spreading COVID-19 in the restaurant in the Municipality of Pontianak, Indonesia. This study contributes to providing an overview of the perception and behavior of preventing COVID-19 in food handlers so that it can be used as a basis for preparing a Covid-19 prevention program in public place settings, including restaurants.

METHOD

This study employs a clear and systematic approach to ensure the reliability and validity of the findings. Below are the components of the methodology:

Research Type

A cross-sectional study was conducted in the Pontianak City, West Kalimantan Province. The research population is all registered restaurants in Pontianak City. The data collection was organized in July – August 2021. after getting the certificate from the office of the committee for research ethics (KEPK), Faculty of Public Health, Universitas Muhammadiyah Semarang.

Population and Sample/Informants

The target population in this study consisted of the entire food handlers in the restaurant in the Municipality of Pontianak, West Kalimantan Province. The sampling technique used in this study was random sampling, where respondents were randomly selected from the population of food handlers in registered restaurants in the Municipality of Pontianak. This study found 90 food handlers as respondents in the restaurant after being helped the inclusion criteria of food handlers follow: 1) the restaurant should be registered in the office of the Municipality of Pontianak; 2) the food handlers were available for interview; 3) the food handlers working in the restaurant should be more than one year from the end of June 2020.

Research Location

The study was conducted in Pontianak City.

Instrumentation or Tools

The research group was developed the research instrument and was tested for validity and reliability before use in food handlers at Kuburaya District. In this study we have used the prevention behavior of food handlers that tested for correlation with several independent variables, it is found that physical activity, accessing or getting COVID-19 information, and Perceptions of self-efficacy had significant results. The questionnaires of this study are divided into three parts. Part one is socio-economic factors (10 Questions). Part two is the distribution of prevention behavior of COVID-19 (4 Questions) and some variables about health belief model (HBM) as though perceive vulnerability (2 Questions), perception of severity (2 Questions), perception of self-efficacy (4 Questions), efficacy response (3 Questions), the evaluated cost response (5 Questions), and motivation of protection (1 Question). Part third is five questions about the attitude of food handlers of the hoax information spread in the community (xxx Questions). In part 2, we used five Likert scales Strongly agree (SA), Agree (A), Do not know (DK), Disagree (DA), and Disagree (TD).

Data Collection Procedures

Quantitative data were collected through an online survey platform over a one-month period in March 2024. Respondents were provided a consent form and instructions for completing the questionnaire. For qualitative research, the process could be: "In-depth interviews were conducted face-to-face at participants' homes or schools, lasting approximately 30–60 minutes each." In mixed-method studies, one might write: "Quantitative data collection was completed first, followed by qualitative interviews, which were scheduled based on participants' survey responses."

Data Analysis

Descriptive statistics were employed frequency and percentage. A Chi-square test was used to examine associations between independent variables and prevention behavior of COVID-19 of food handlers in West Kalimantan Province, Indonesia. We used the statistical software SPSS of Mahidol University, licensed Version-18 to analysed data.

Ethical Approval

This study was approved by the office of the committee for research ethics (KEPK), Faculty of Public Health, Universitas Muhammadiyah Semarang (Certificate of approval No. 373/KEPK-FKM/UNIMUS/2020). The confidentiality of all participants was strictly maintained throughout the research process.

RESULTS

In total, we recruited 90 food handlers. Among them are aged 16-69 years old (46.7% aged 26-45th and only 16.7% aged > 45th). It appears that there are more females (52.2%) than males (47.8%) with the majority of them highly educated (82.2%). All respondents claimed they know how to prevent transmission of COVID-19 with information sources from social media (46.7%) and TV (41.1%). Only 2 respondents answered that around their house there were people who were positive for COVID-19. Only 33.3% of respondents do physical activity (30

minutes per day) and 81.1% of them stated they do not smoke. Returning to responding to the spread of COVID-19, the majority of them (78.9%) access information about COVID-19 every day (Table 1).

Table 1. Characteristic of socio-economic

No	Aged	Frequency	%
1	Adolescence (17-25th)	33	36.7
2	Adults (26-45th)	42	46.7
3	Elderly (> 45th)	15	16.7
	Sex		
1	Male	43	47.8
2	Female	47	52.2
	Education level		
1	Low	16	17.8
2	High	74	82.2
	The economic effect of pandemic		
1	Poor (Loss)	87	96.7
2	Good (No effect and Profitable)	3	3.3
	Source of information about health protocol?		
1	Poster	4	4.4
2	TV	37	41.1
3	Health worker	7	7.8
4	Social media	42	46.7
	COVID-19 cases around the restaurant		
1	Yes	2	2.2
2	No	88	97.8
	Did you do physical activity (sports) during the pandemic "every day for at least 30 minutes"?		
2	Yes	30	33.3
3	No	60	66.7
	Did you smoke?		
1	Yes	17	18.9
2	No	73	81.1
	How often do you seek or get information about COVID-19?		
1	Every day	71	78.9
2	Not everyday	19	21.1

Source: Primary Data

In the prevention behavior context majority of food handlers difficult to do social distancing (good 25.6%). 24.4% of food handlers believe not possible infected by COVID-19. The majority of them also believe coronavirus cannot cause death (84.4%). For the self-efficacy variable in each question, no more than 35% had a good answer. All of the respondents have poor efficacy responses for handwashing behavior. They do not believe it can prevent the spreading of COVID-19. Merely 5.6% of food handlers have the motivation to take recommended precautions of prevention behavior (Table 2).

Table 2. Frequency Distribution Based On Respondents' Answers

Variables (n = 90)	Good		Poor	
	%	n	%	n
Prevention behavior of COVID-19				
Use a mask	42.2	38	57.8	52
Maintain a social distance of at least 1 meter	25.6	23	74.5	67
I wash my hands with soap and running water	67.8	61	32.2	29
I use a hand sanitizer when soap and water are not available	37.8	34	62.2	56

Perceived vulnerability				
I cannot possibly be infected with the coronavirus	75.6	68	24.4	22
I feel vulnerable to contracting the coronavirus	66.7	60	33.3	30
Perception of severity				
Coronavirus can cause death	15.6	14	84.4	76
Coronavirus is not dangerous for health	57.8	52	42.2	38
Perceptions of self-efficacy				
I can always use a mask	34.4	30	65.6	60
I can maintain a distance (social distance) of at least 1 meter	25.6	23	74.4	67
I can wash my hands with soap as often as possible	20	18	80	72
I can always use the hand sanitizer if soap and water are not available	27.8	25	72.2	65
Efficacy response				
Using a mask can protect yourself from the transmission of the COVID-19	2.2	2	97.8	88
Maintaining distance can reduce the risk of transmission of the COVID-19	3.3	3	96.7	87
Preventive behavior recommended by the government is not beneficial for the prevention of the COVID-19	28.9	27	71.1	63
The evaluated cost response				
I feel uncomfortable when wearing a mask	50	45	50	45
The price of masks is quite expensive and difficult to obtain	41.1	37	58.9	53
I feel uncomfortable if I keep my distance in a social environment (around my home/office / place of worship, etc.)	51.1	46	48.9	44
I find it difficult to wash my hands in certain places	32.2	29	67.8	61
Hand sanitizer prices are quite expensive and hard to find	51.1	46	48.9	44
Motivation of protection				
I will always take the recommended precautions (using a mask, washing hands with soap, hand sanitizer, and keeping my distance) until the COVID-19 pandemic ends to avoid infection with the virus	5.6	5	94.4	85

Table 3 shows that 21.1% of respondents believe that coronavirus does not exist. Most of the respondents believe that the coronavirus attacks all ages (53,3%). However, 56.7% of them believe that the coronavirus only attacks people who have congenital diseases. Even so, only 23.3% of them believe that coronavirus is a common cold virus and harmless and the good news is only 32.2% of them feel that COVID-19 is beneficial for health workers.

Table 3. Distribution of attitude of the hoax information spread in the community

Variables	Believe		Unbelieve	
	N	%	N	%
The coronavirus does not exist	19	21.1	71	78.9
Those who are vulnerable to coronavirus are only the elderly	48	53.3	42	46.7
The coronavirus only attacks people who have congenital diseases such as hypertension, heart disease, diabetes, and others	51	56.7	39	43.3
Coronavirus is a common cold virus and is not dangerous	21	23.3	69	76.7
Health workers benefit from the COVID-19 pandemic	29	32.2	61	67.8

Based on this study, we found prevention behavior of COVID-19 variable in this study only 21.1% of respondents had a good answer. 88.9% of perception severity also had poor results. Efficacy response and the evaluated cost response were 100% of respondents had result poor behavior. The majority (more than 59%) of respondents had a poor perception of severity, perception of self-efficacy, and Attitude of the hoax information spread (table 4).

Table 4. Level of Prevention behavior, perceived vulnerability, perception of severity, perception of self-efficacy, the evaluated cost response, and Attitude of the hoax information spread variables

Variables	Freq.	Percent
Prevention behavior of COVID-19		
Good	19	21.1
Poor	71	78.9
Perceived Vulnerability		
Good	55	61.1
Poor	35	38.9
Perception of Severity		
Good	10	11.1
Poor	80	88.9
Perceptions of Self-efficacy		
Good	19	21.1
Poor	71	78.9
The attitude of the hoax information spread		
Good	36	40
Poor	54	60

In this correlation the physical activity, seeking or getting COVID-19 information, and perception of self-efficacy. Additionally, the other independent variables that have no significance related to prevention behavior of spreading of COVID-19 were sex, education level, economic effect, smoke status, perceived vulnerability, and perception of the hoax information spread (Table 5).

Table 5. Chi-Square analysis among independent variable and prevention behavior of COVID-19

Variables	Prevention Behavior OR, CI. 95%		p-value
Sex			
Male [ref]			0.320
Female	1.68	0.60-4.66	
Education level			
High [ref]			0.674
Low	1.31	0.37-4.65	
The economic effect of pandemic			
Good (No effect and Profitable) [ref]			0.362
Poor (Loss)	0.78	0.70-0.87	
Physical activity			
Yes [ref]			**0.011**
No	3.76	1.31-10.77	
Smoker status			
No [ref]			0.352
Yes	1.76	0.53-5.80	
Seeking or getting COVID-19 information			
Every day [ref]			**0.036**
Not everyday	0.14	0.02-1.13	
Perceived Vulnerability			
Good [ref]			0.670
Poor	0.80	0.30-2.17	
Perception of Severity			
Good [ref]			0.792
Poor	0.80	0.15-4.10	
Perceptions of self-efficacy			
Good [ref]			**0.005**

Variables	Prevention Behavior		p-value
	OR, CI. 95%		
Poor	4.42	1.48-13.21	
The attitude of the hoax information spread			
Good [ref]			0.073
Poor	2.53	0.90-7.11	

Based on the Table 5, physical activity (p-value = 0.011), seeking or get COVID-19 information (p-value = 0.036), and perceptions of self-efficacy (p-value = 0.005) have significance relation with prevention behavior of COVID-19. However, the other independent variables do not have any relation to the prevention behavior of COVID-19.

DISCUSSION

COVID-19 is considered a new disease, it has sourced devastating effects on human life. The result of this study showed that prevention behavior showed only 21.1% of respondents have good behavior of spreading COVID-19. This study found that there are still many wrong perceptions of restaurant food handlers in Pontianak City. The publication of disease information and its transmission remains limited, so more scientific support is required similar to the study in Bangladesh, Thailand, Malaysia, Vietnam, Philippines, Ethiopia, and other low-income countries (22–27). The more information it will have a beneficial contribution to science.

Firstly, physical activity such as sports is always related to healthy. In this study, it was found that physical activity has a relationship with preventive behavior related to COVID-19. Daily physical activity has the potential reduce after the government released a social distancing policy to prevent the spread of COVID-19. Physical activity can be done anytime and anywhere, such as indoors as well as the outdoor. People who do physical activity will have a stronger immune system (28). Based on research during this pandemic, shows that people who eat excessively have a significant relationship with low physical activity (29). Hence, keep going a regular exercise routine is a key strategy for physical and mental health during coronavirus emergencies (30). Likewise, for food handlers, physical activity can improve the immune system in the body so that it is not easily infected with Covid-19.

Meanwhile, some variables such as gender did not show a significant relationship with food handlers' COVID-19 prevention behavior. This suggests that both male and female food handlers have the same susceptibility to COVID-19, and gender is not a determining factor in prevention behavior (31). Similarly, education level did not show a significant correlation, in contrast to some previous studies, indicating that awareness of COVID-19 prevention may be influenced by other factors such as exposure to information and policies in the workplace rather than formal education (32). The economic effect of the pandemic also did not show a significant relationship with preventive behavior, indicating that despite economic pressures, it does not deter food handlers from implementing health protocols. Smoking behavior also did not correlate with preventive behavior, although some studies show smokers have a higher risk of complications if infected with COVID-19 (33). Perceived Vulnerability and Perception of Severity that did not show a significant relationship are interesting to note, as they differ from health behavior theory, which may be due to high trust in existing protocols or other factors. The attitude towards the hoax information spread also showed no significant correlation with preventive behavior, despite a lot of misinformation circulating during the pandemic(34,35). This indicates that food handlers in the study sites may have more trusted sources of information or follow standardized protocols set by restaurant management without being affected by unverified information (36).

Secondly, seeking or getting COVID-19 information every day also had significantly correlated with the prevention behavior of food handlers. Previous research has shown that seeking behavior in online news has a significant relationship with COVID-19 prevention behavior (37). A barrier to COVID-19 preventive behavior is misinformation on social media (38). However, in the current era of technology, the use of social media is cannot be avoided as this media also improve people's awareness (39). Therefore, in using social media, each of us is fortunate to be wise in choosing, understanding, and behaving towards the information obtained.

Thirdly, a good perception of self-efficacy was strongly significantly associated with the prevention behavior of food handlers. Self-efficacy in food handlers plays an important role in providing confidence so that they would

have the ability to implement COVID-19 prevention behaviors. Self-efficacy is the self-confidence of a person that can affect the behaviors (40). Low self-efficacy could make someone lack the ability to implement certain behaviors (41), such as COVID-19 prevention. Based on study in Turkey showed information about self-efficacy correlated with mental health during the COVID-19 pandemic (42). Self-efficacy also correlates with nurse anxiety at the hospital during the COVID-19 outbreak (43). Several studies have shown a relationship between self-efficacy on the performance of nurses and other health workers. Therefore, the self-efficacy of food handlers in the restaurant can be used as a further source of information.

CONCLUSION

This study found the strongest independent variable is the perception of self-efficacy which means that the food handlers who had a poor perception of self-efficacy tend to have a poor practice of COVID-19 prevention behavior 9. Sex, education level, economic effect, smoke status, perceived vulnerability, perception of severity, and attitude of the hoax information spread were not correlated with prevention behavior because a lot of people in the society still do not believe related to COVID-19 and even some of them deny the seriousness of the disease. Accordingly, the health stakeholder may educate (food security during a pandemic) and train (HACCP during a pandemic) mainly for the food handlers to increase self-efficacy in terms of health problems, including COVID-19. Future research is recommended to develop and test the effectiveness of interventions specifically designed to improve food handlers' self-efficacy, such as competency-based training programs and ongoing mentoring. In addition, it is necessary to further study the factors that influence the formation of self-efficacy in food handlers during health crisis situations, as well as how successful experiences in implementing health protocols can strengthen self-efficacy. Longitudinal studies are also recommended to look at changes in self-efficacy and preventive behavior as the pandemic situation changes, as well as to compare the effectiveness of various risk communication strategies in improving food handlers' self-efficacy in various socio-cultural contexts.

AUTHOR'S CONTRIBUTION STATEMENT

LS was responsible for coming up with the concept and designing the article, collecting and analysing the data, interpreting the results, drafting and revising the article, and giving the final approval for publication. SLV collaborated to develop the article concept, process' the data, critically review the article, and provide final approval for publication. LS and SLV were involved in developing the data analysis and interpretation, and gave final approval for the publication version.

CONFLICTS OF INTEREST

There is no conflict of interest.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

We declare that generative AI and AI-assisted technologies are used in language refinement, and reference organization. All content has been critically reviewed and edited to ensure that it reflects understanding, analysis, and academic integrity.

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