

Relationship of Knowledge with Implementation Personal Hygiene at Food Traders in Pasir Gombang Bekasi Regency

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ABSTRACT

Food handlers such as food traders have an important role in food processing because they can transmit disease through food. Food vendors provide personal hygiene such as using mouth coverings, aprons, and coverings in preparing food can trigger events such as diarrhea, poisoning, etc. The purpose of this study was to determine the relationship with the implementation of personal hygiene, such as mouth coverings, use of aprons, food tongs and head coverings in food processing. The type of research used is observational analytic with a cross sectional study approach. The population in this study were food traders in the Pasir Gombang area with a total sample of 64 people selected based on the Lemeshow formula using simple random sampling technique. Data analysis used is chi-square. The results of this study indicate that there is a significant relationship between knowledge and personal hygiene using mouth coverings (p-value 0.005) and aprons (p-value 0.032) and no significant relationship between knowledge and the use of food tongs and head coverings with their p-value 0.111.

Keywords : Knowledge, personal hygiene, food traders

INTRODUCTION

According to the results of the annual report of the Food and Drug Supervisory Agency (2021), there are production facilities for processed food containing hazardous materials, namely in the areas of Bogor and Depok, West Java. The impact of use of hazardous food ingredients can cause serious health problems. West Java is in 6th position regarding cases of food poisoning caused by microbiology as many as 29 incidents, consisting of 24 (48.00%) suspected and 5 (10.00%) confirmed, namely due to contamination of *Bacillus cereus*, *Salmonella*, *Vibrio parahaemolyticus*, *Staphylococcus aureus*, and *Escherichia coli*. In addition, there were poisonings caused by chemicals, as many as 7 incidents and consisting of 5 (10.00%) suspected and 2 (4.00%) confirmed, namely due to natural toxins and histamine. The rest, as many as 14 events (28%) had no known causative agent. Based on these cases, it was noted that the most common cause of food poisoning was household cooking, food produced by catering services, snacks and food produced by restaurants. In the last 3 years, household cooking continues to be the highest source of food poisoning, which is 52.00% (2021), 49% (2020) and 40.3% (2019). The

high Extraordinary Events of Food Poisoning from food produced in households, one of which is at the food stall trader level, indicates that the community needs to improve their understanding of the application of good food processing and presentation methods so that food is safe from the time it is produced, served until it is consumed.¹

In Indonesia, 90% of food poisoning cases are caused by microbial contamination. Approximately 10-20% of cases are caused by pathogenic microbes including *Escherichia coli*, *Salmonella* sp., *Campylobacter*, and *Vibrio cholera* which can cause health problems and even death.^{2,3}

According to Agustina, one of the main sources of food contamination comes from workers or food processors, equipment, garbage, insects, rats, and environmental factors such as air and water. Of all the sources of food contamination, workers are the most affected by contamination. The health and hygiene of food processors have a significant influence on the quality of the products they produce, so they need serious attention. A food worker/security guard is someone who carries out activities every day in the process of making food, for example, a food trader.^{4,5}

Food handlers are one of the main factors causing food poisoning, which is related to poor personal hygiene, how to select food ingredients, improper storage of food ingredients and the lack of cleanliness of the cooking utensils used. The results of research conducted by Permatasari, et al. (2021) stated that the impact of food vendors who ignore food sanitation hygiene can trigger many occurrences of food-borne diseases.⁶ Unhygienic practices during food processing create conditions for the possible proliferation and transmission of disease-causing organisms such as bacteria, viruses and foodborne pathogens. In addition, many reported cases of food-borne viral diseases have been associated with virus-infected food handlers.⁷ The presence of germs on cutlery is caused by the behavior of handlers who are not good while touching food, which is still visible, such as sneezing and coughing, touching the nose, not covering open skin wounds/scratches, not washing hands before washing cutlery.⁸

According to regulations Kepmenkes No. 942/Menkes/SK/VII/2003 some requirements must be met for food handlers/someone who will process food such as food traders when preparing food, namely not suffering from easily transmitted diseases, for example: coughs, colds, influenza, diarrhea, similar stomach ailments, Covering wounds (open wounds/ulcers or other wounds), keeping hands, hair, nails, and clothing clean, Wearing aprons and headgear, Washing hands every time you want to handle food, touching food must use tools/equipment, or with mat hands, Not while smoking, scratching limbs (ears, nose, mouth, or other parts, and Not coughing or sneezing in front of the snacks served and/or without covering your mouth or nose.⁹ This regulation is supported by the Decree of the Minister of Health of the Republic of Indonesia Number 1098/Menkes /SK/VII/2003 namely all food processing activities must be carried out in a manner protected from direct contact with the body, protection n direct contact with food is carried out with: plastic gloves, food tongs, cutlery and the like, every food processor worker when working must wear an apron and hair cover, every food handler while working must not eat or chew small food/candy, don't wear rings, don't talk, always wash hands before work and after leaving the restroom, don't grow nails, and always wear clean clothes.¹⁰ This must be considered for someone who will do food processing such as catering food handlers, food traders and home food processing. Some things that can be a source of bacterial contamination in the food processing process are: When a food handler

experiences certain illnesses or coughs, flu or sneezes can spread bacteria. In addition, food traders/food handlers who do not wash their hands before handling food can trigger cross-contamination that causes disease.¹¹ Someone who doesn't wash their hands thoroughly and doesn't cut their nails can become a source of salmonella bacteria contaminants in food.¹²

Based on a preliminary study in the Pasir Gombong area, Bekasi Regency, there were food traders who did not use mouth coverings, aprons and head coverings when selling during the pandemic. This can be a means of transmitting the virus both directly and through food if not paid attention to. This also contradicts Bekasi Regent Decree No. 440/Kep.274-Dinkes/2020s regarding regulations that food traders must comply with when selling during a pandemic to prevent the spread of Covid-19, namely the obligation to wear mouth coverings, maintain distance, use aprons, etc. In addition, there is currently no research in the Pasir Gombong area of Bekasi regency regarding the knowledge of food traders regarding the application of personal hygiene, namely the use of mouth coverings, aprons, food tongs and head coverings during a pandemic.¹³ This is interesting to study because the Pasir Gombong area is one of the areas where there is a university and a Covid referral hospital in Bekasi Regency. The implementation of personal hygiene related to the use of mouth coverings in accordance with the application of the covid protocol regarding the use of masks is important especially in the area around the covid referral hospital to prevent the spread of the covid virus and certain bacteria through droplets or touching food. Because of this, the researchers wanted to see the relationship between knowledge and the application of personal hygiene such as using mouth coverings, aprons, food tongs and head coverings for food traders in this new normal era in the Pasir Gombong area.

METHOD

This type of observational research with a cross-sectional study approach. The number of population in this study is not known with certainty so that the technique for calculating the number of samples uses the Lemeshow formula (I). The total sample in this study was 64 food traders who took part in September - November 2021 in the Pasir Gombong area, Bekasi Regency. The research sampling technique used simple random sampling. The research location is the Pasir Gombong area, North Cikarang District, Bekasi Regency. The type of research used is observational analytic with a relationship approach between the

dependent variable and independent variable. The dependent variable in this study is personal hygiene which includes the use of masks, aprons, food tongs and head covering which is assessed from the results of observations with the categorization of complying with using mouth coverings, aprons, food tongs and head coverings and not complying with using it while the independent variable in this study is knowledge. Knowledge in this study uses good and poor categories. Knowledge is good if the amount of knowledge above means while it is poor if it means below.

Data analysis in this study used univariate and bivariate analysis. The data source for this research is the results of interviews and observations of food traders using a questionnaire. Univariate analysis was carried out to see the frequency distribution of each studied and then presented in the form of tables and narratives. In this study, the variables analyzed by univariate were age, gender, ethnicity, religion, marital status, education, type of merchandise, and purchases while bivariate analysis was conducted to see the relationship between the independent variables and the dependent variable. The statistical test used is the chi-square test. The result of this statistical test is the relationship

between values based on the resulting p-value, namely: if the p-value > 0.05 then the results of the statistical test are declared not significant or have no relationship between the variables tested. If the p-value < 0.05, the results of the statistical test are said to be significant or it is said that there is a careful relationship between the variables.

$$n = \frac{\{Z_{1-\alpha/2}\sqrt{2P(1-P)} + Z_{1-\beta}\sqrt{P_1(1-P_1) + P_2(1-P_2)}\}^2}{(P_1 - P_2)^2} \quad (1)$$

RESULT AND DISCUSSION

Characteristics of Respondents

Table 1 shows the characteristics of respondents in the study consisting of gender, age, education level and years of service. Based on the results of the univariate test, it shows that the total sample of this study amounted to 64 shows that the majority of respondents in this study were women as many as 33 people (51.6%) and most food traders aged > 26 years, as many as 57 people (89.1%). In this study, the average respondent had a low education, namely junior high school with a sales period of < 3 years. This study also shows that most of the food vendors have good knowledge as many as 45 people (70.3%).

Table 1. Analysis of Sample Characteristics

Variable	Category	Frequency	Percentage
Sex	Male	31	48.4
	Female	33	51.6
Age	Young (≤ 25 years)	7	10.9
	Adulth (> 26 years)	57	89.1
Education	High	31	48.4
	Low	33	51.6
Years Of Service	< 3 years (new)	47	73.4
	≥ 3 years (long)	17	26.6
Knowledge	Good	45	70.3
	Poor	19	29.7

Source: Primary data, 2021

Overview of Personal Hygiene

Table 2 shows that the majority of traders in preparing food (preparing food) use mouth coverings, namely 43 people (67.2%), using food tongs when preparing food as many as 55

people (85.9%). However, in the application of the use of aprons while working, a large number of traders do not use aprons and headcovering, as many as 34 people (53.1%).

Table 2. Overview of Personal Hygiene

Hygiene	Category	Frequency	Percentage
Mouth cover	Yes	43	67.2
	No	21	32.8
Food Tongs	Yes	55	85.9
	No	9	14.1
Apron	Yes	30	46.9
	No	34	53.1
Head covering	Yes	30	46.1
	No	34	53.1

Source: Primary data, 2021

Relationship of knowledge with implementation personal hygiene about use mouth covering, apron, food tongs and haid covering.

Table 3. Overview of Personal Hygiene

Knowledge	Use Mouth covering		p-value	OR
	Yes	No		
Good	35	10	0.005	4.813 (1.523-15.204)
Poor	8	11		

Source: Primary data, 2021

Table 3 show that the majority of food traders who have good knowledge apply the use of mouth coverings when serving food, namely 35 people. Knowledge and use of mouth coverings have a significant relationship with p-

value 0.005 and OR 4.813 (95% CI 1.523 – 15.204). Someone who has good knowledge has a 4.8 times chance of applying the use of a mouth cover when handling food.

Table 4. Overview of Personal Hygiene

Knowledge	Apron		p-value	OR
	Yes	No		
Good	25	20	0.032	3.500 (1.077-11.371)
Poor	5	14		

Source: Primary data, 2021

Table 4 explains that 25 food traders who have good knowledge apply the use of aprons when processing food. This also explains that there is a significant relationship between knowledge and the use of an apron with a p-

value of 0.032 and an OR of 3,500 (95% CI 1,077 – 11,371). Good knowledge has the opportunity to apply the use of an apron 3.5 times compared to those who have poor knowledge.

Table 5. Overview of Personal Hygiene

Knowledge	Food Tongs		p-value	OR
	Yes	No		
Good	41	4	0.111	3.661 (0.860-15.575)
Poor	14	5		

source: Primary data, 2021

Table 5 explains that there are 41 food traders who have good knowledge and use tongs/gloves when handling food. The results of this study explain that there is no significant

relationship between knowledge and the use of food tongs/gloves when handling food with a p-value of 0.111.

Table 6. Overview of Personal Hygiene

Knowledge	Head covering		p-value	OR
	Yes	No		
Good	24	21	0.111	2.476 (0.799-7.672)
Poor	6	13		

Source: Primary data, 2021

Table 6 explains that food traders who have good knowledge apply more head covering than those with low knowledge, namely 24 people and there is no significant relationship between knowledge and the use of head covering with a p-value of 0.111.

coughing, sneezing and splashing of saliva. Bad behavior such as scratching limbs, keeping long nails, not using work equipment and chewing food while working can increase the risk of bacterial contamination in food, one of which is E.coli bacteria. The impact of food contaminated with bacteria can cause diarrhea, abdominal pain, weakness, fatigue, lethargy and even food poisoning.

Knowledge with Implementation Mouth Covering

In general this research shows that knowledge has a significant relationship with personal hygiene about use mouth covering and apron in food preparation. Humans are one of the agents causing the entry of contaminants or biological, chemical or physical substances which become harmful to humans if intentionally or unintentionally enter into food. Lack of personal hygiene and knowledge can have a negative impact on the food served, the habits of food handlers such as scratching the skin, hair, nose and other organs, sneezing while working can spread harmful microbes into food. The application of high personal hygiene can determine the final result of processed food, determine whether the food is safe or suitable for consumption (free from things that can be harmful, harmful and free from damage), This study shows a significant relationship between knowledge and the use of mouth coverings in food processing. This research is in line with the theory which explains that food traders who do not implementation personal hygiene such as wearing a mask when processing food can cause food contamination. This is because the limbs are a source of contamination such as hair, mouth, nose, ears,

Implementation a mouth covering when preparing food helps prevent germs from the mouth that can be transferred to the food. The health status of the mouth, teeth, gums and lips is also important in the personal hygiene of food traders Teeth and mouth are important parts that must be kept clean, because through these organs various germs can enter. In addition to these things, complete oral hygiene gives a person a sense of health so they can work productively.

The use of masks is important because the mouth, nose and throat areas of normal humans are full of microbes of various types. Some of the microbes that exist, one of which is the Staphylococcus aureus microbe which is in the respiratory tract of humans. Masks that have been used are replaced and cannot be used repeatedly, because they can cause an unpleasant odor, besides that, microbes that have been released during breathing stick to the mask, and can cause respiratory diseases again.

This is in line with research conducted by Husaini et al. 2021 which states that there is a positive and significant relationship between the variables of knowledge about food

management sanitation on food handlers in the Taman Snacks culinary area.¹⁴ Research that supports this research was also carried out by Sikakulya (2021), who found a relationship between knowledge and the use of masks (mouth covering).¹⁵ The better the knowledge, the better the community can enforce the use of masks.¹⁶ Another similar study was conducted by kahyasi 2019 which stated that there was a relationship between knowledge and attitudes about sanitation hygiene with the behavior of street food vendors in elementary schools, Banguntapan sub-district, Bantul, Yogyakarta.¹⁷

Good knowledge related to sanitation in food administration will increase a person's compliance to apply sanitation hygiene. The impact of food traders who ignore food sanitation hygiene can trigger many occurrences of food-borne diseases.⁶ Good sanitation hygiene can improve food quality.¹⁸ According to research conducted by Najiyah 2019 that good sanitation hygiene in traders will tend to increase consumer attitudes towards purchasing their food products.^{19,20} This research is in line with research conducted by Firdani which states that there is a significant relationship between knowledge and food sanitation practices as a whole. Food handlers have more knowledge, attitudes and practices, but some aspects of personal hygiene such as the use of masks, gloves and aprons when processing and preparing food need to be improved.²¹

Knowledge with Implementation Apron

In addition to the use of masks (mouth covering) when working to prepare food, the use of aprons and headgear is also important in food preparation. The apron serves to protect clothes from sparks or cooking ingredients, while the headgear serves to prevent hair from falling out and falling on the food served. In this study, there was a significant relationship between knowledge and the use of an apron at work. Someone who has good knowledge tends to wear an apron. This research is in line with Purbasari's 2022 research which states that there is a significant relationship between knowledge and behavior related to maintaining hand hygiene, hair, nails, wearing aprons, headgear, not wearing jewelry except for unadorned wedding rings, not smoking, not eating or chewing. while working at the elementary school canteen manager in South Kuta District.²² Wearing aprons and head coverings can prevent food handlers from scratching their hair during food preparation and serving. The lack of attitude of food handlers in maintaining cleanliness and hygiene when managing food, makes the disease has

the opportunity to be transmitted to consumers.¹⁴ Another similar study was conducted by Hidayanti (2022) which stated that there was a significant relationship between knowledge and sanitation hygiene behavior, one of which was related to the use of aprons / aprons with a p-value = 0.010.²³ The use of an apron/apron when serving food is one of the efforts to prevent the transmission of COVID-19 and bacteria to food. Poor personal hygiene can cause E. coli contamination in food.²⁴

The use of clothes and aprons for food handlers/food traders must consider the material of the aprons used. Clothing, especially those made of absorbent materials (eg wool), can harbor microorganisms and food materials. Aprons are primarily brightly colored to make it easier to conduct if certain microorganisms are present which could cause contamination.²⁰ In addition, changing and washing clothes periodically reduces the risk of contamination. Another thing that should be attention to food guarantee/food traders is to wear large-sized clothes that are definitely not too big. Clothing sizes that are too large can be dangerous because the waving is uncontrolled so that it acts as a carrier for dirt that causes contamination.²⁵

Knowledge with Implementation Food Tongs

This study shows that most food vendors use tongs/gloves when handling and serving food. However, there is no significant relationship with the p-value of 0.111. In theory, implementation of tongs or gloves is mandatory for food traders/food handlers to prevent cross-contamination of bacteria, germs or viruses into food. Hands have the potential to become a source of contaminants if food vendors are not actively washing their hands with soap regularly. So one effort to prevent bacterial contamination is through the use of food tongs or gloves.

Research conducted by Erris 2014 stated that 85% of respondents did not meet the requirements because they did not use aprons, did not take food with tools & had a smoking habit. Another research in line was conducted by Rosida 2017 which stated that the hygiene of handlers was still poor because they did not use aprons, head coverings and clean clothes.^{26,27}

According to research conducted by Trigunarjo 2020 concerning Sanitation Hygiene and Food Handler Behavior with Germ Numbers in Snack Foods, it explains that there is a significant relationship between sanitation hygiene (p-value=0.0001) and food handler

behavior (p -value=0.004) with germ numbers on snacks. The hands of food handlers are proven to be vectors for the spread of foodborne diseases. Human hands are the main source of microorganisms, if there is direct contact with hands during production, processing and serving then there is a transfer of microbes from hands to food. Hands and long nails can also be a breeding ground for pathogenic bacteria, especially mesophilic groups such as *Bacillus*, *Clostridium*, *Pseudomonas*, *Micrococcus* and *Proteus*. Where these bacteria will certainly be able to contaminate snack food when processing is carried out by traders so that it can result in a high number of germs in food. This is greatly reinforced if personal hygiene is not clean and does not behave properly in processing food, it can cause contamination of food.²⁸

This is in line with the Regulation of the Minister of Health of the Republic of Indonesia Number 1096 of 2011 concerning *Jasaboga Sanitation Hygiene* that food handlers must wash their hands before working, not talk while working, wear closed and waterproof shoes, wear mouth coverings when working and use plastic gloves. disposable and use equipment according to its function.

Knowledge with Implementation Hair Covering

In this study, food traders who have good knowledge tend to use head coverings in their food processing, but there are also traders who do not use head coverings. According to Trigunarso's 2020 research, currently there are still traders' sanitation hygiene behavior that is not good enough, such as not wearing hair coverings. Some dealers leave their hair loose or left open. This can result in cross-contamination if the hair is left in the cooking process. Head coverings help prevent hair from getting into food, help absorb sweat on the forehead, prevent *staphylococci bacterial* contamination, and keep hair free of dirt. In addition, food traders should pay attention to the clothes they use, which must always be clean, the clothes they should wear should be clothes with sleeves that cover the shoulders and armpits of workers.²⁸ According to Sanusi (2017) show that apron and also head covering or hairnet is necessary used when processing food because this apron works for protect clothes from dirt and also provides protection covered part. Head covering or this hairnet also works for protect the food from being there fallen hair or hair debris on food.²⁹

Prevention must start from maintaining personal hygiene before activities or before preparing food to improving food sanitation.

Therefore it is hoped that traders can improve sanitary hygiene, such as keeping nails and hands clean, washing hands before and after handling food using soap and running water, wearing head coverings and tying hair, and it is also hoped that traders can improve their food storage areas. such as providing a proper cover that can protect food from insects/animals as well as dust and vehicle fumes. and always change the water in the sink to reduce food contamination.

CONCLUSION

The conclusion of this study is that there is a significant relationship between knowledge and the application of personal hygiene related to covering the mouth and using an apron. However, there is no significant relationship between knowledge and the use of food and head coverings. The results of this study are expected to be the basis for further research related to the analysis of nutritional content or the content of food additives in the implementation of snack foods or street food.

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