



Factors Associated With Personal Hygiene and Sanitation Behavior of Food Handlers

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<p>Track Record Article</p> <p>Accepted: 26 October 2023 Revised: 08 November 2023 Published: 25 December 2023</p> <p>How to cite : Priyambodho, Hageng, O., & Astuti, D. (2023). Factors Associated With Personal Hygiene and Sanitation Behavior of Food Handlers. <i>Contagion: Scientific Periodical Journal of Public Health and Coastal Health</i>, 5(4), 1395–1405</p>	<p style="text-align: center;">Abstract</p> <p><i>Food and drink are the most important necessities of life and can potentially be contaminated with pathogenic bacteria. One factor that influences food quality is the behaviour of food handlers in implementing personal hygiene and food sanitation. Several food handlers in Pengging Boyolali Square do not use aprons or need to wash their hands when processing food ingredients. Vegetables, fish, shrimp and other food ingredients that will be cooked are not washed in running water, and there are still places to eat with poor hygiene and sanitation conditions. This research aims to determine the factors related to food handlers' personal hygiene and sanitation behaviour. This research is an analytical survey research using a cross-sectional study. This research will be conducted at Pengging Boyolali Field from September to October 2023. The population of this research is 100 food handlers with 80 samples. The research instrument uses a questionnaire through interviews and observations. Data analysis used bivariate analysis with the Chi-Square test. The results of the study showed that there was a significant relationship between knowledge and the personal hygiene and sanitation behaviour of food handlers (p-value=0.000; OR=7.792; 95%CI=2.403 – 25.777), there was a significant relationship between attitude towards personal hygiene and sanitation behaviour of food handlers (p-value=0.001; OR=6.548; 95%CI=2.098–20.431), and there is a significant relationship between work experience and personal hygiene and sanitation behaviour of food handlers (p-value=0.042; OR=2.886; 95%CI= 1,081–8,175). It is recommended that food handlers wear aprons and footwear when serving food and when processing food.</i></p> <p>Keywords: <i>Attitude, Knowledge, Personal hygiene, Sanitation, Work period</i></p>
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INTRODUCTION

Food and beverage sanitation hygiene is a very complex problem and is not a new problem. Based on the World Health Organization (WHO), it is estimated that 70% of the approximately 1.5 billion diseases are transmitted through food or foodborne diseases. Around 70% of food poisoning cases in the world are caused by ready-to-eat food, namely food that has been processed, especially by catering businesses, restaurants, canteens and snack foods (WHO, 2020).

In Indonesia itself, the problem of food and drink hygiene is a long-standing and recurring problem that threatens millions of people. In 2019 the number of poisoning cases in Indonesia was 45.29% and in 2020 it increased to 46.62%. One of the food poisoning incidents was caused by snacks, with 9 incidents of poisoning, an increase compared to 2020, only 4 incidents (BPOM RI, 2021).

Food handlers with a good level of knowledge regarding sanitary hygiene will also lead to good sanitary hygiene practice steps. Apart from the level of knowledge, the attitude of food handlers is also an important factor that can influence food safety practices, which can reduce the occurrence of foodborne illnesses and other health hazards caused by bacterial cross-contamination due to poor hygiene and sanitation practices (Hartini, 2022).

Knowledge and attitudes of food handlers regarding food hygiene and sanitation can influence the application of hygiene and sanitation in the food administration process. Poor hygiene and sanitation in food administration can affect the quality of food produced (Aldiani, 2018). Based on research Brutu (2021) stated that there is a relationship between the attitude of food handlers and the implementation of food sanitation hygiene in restaurants in Sukasari Village (p-value=0.041). Research by Sajdah et al., (2022) states a relationship exists between food handlers' knowledge and hygiene practices in the Wonorejo health centre working area (p-value=0,000).

Length of work can also factor in the need for hygiene practices among food handlers when processing and serving food apart from the level of knowledge. This is due to their work period, some of which are less than 6 years. This is supported by the theory that length of work influences the hygiene practices of food handlers. The length of service will influence the level of knowledge and behaviour of food handlers. The longer a food handler works, the knowledge of the handler himself will increase throughout the work carried out (Purwaningsih et al., 2019).

Hygiene behavior that does not meet the requirements in making snacks by street vendors who usually pay little attention to quality, food storage methods that are not carried out properly, resulting in contamination from bacteria and viruses that cause various diseases, not covering and leaving food open so that flies and insects contaminate it, and pests are one of the habits often carried out by street vendors. This of course will not only cause disease but also consideration of aesthetic values (Permatasari et al., 2021).

From initial observations carried out, it was found that of the 29 snack vendors and food stalls in Pengging Boyolali Square, during food processing, several food handlers did not wear aprons and did not wash their hands when processing food ingredients. Vegetables, fish, shrimp, and other food ingredients that will be cooked are not washed in flowing air, and there are still places to eat in poor hygienic and sanitary conditions.

Interviews conducted showed that of the 5 food handlers who were interviewed, none of them knew how to manage food properly and the hygiene requirements for food sanitation in food handling places which are by the Decree of the Minister of Health of the Republic of

Indonesia number 1098/Menkes/SK/VII/2003 concerning Hygiene Sanitation Requirements for food stalls eating and snacks.

Apart from that, there are still several food stalls with poor sanitation facilities, such as the unavailability of hand washing facilities and poor wastewater disposal facilities. The object of this research was taken at Pengging Square because many culinary places pamper the taste buds at relatively low prices and are close to bathing pennants and places to play and relax with the family.

Based on the background described above, researchers are interested in researching the relationship between knowledge, attitudes, personal hygiene, and sanitation behavior towards aspects of food handling in the Pengging Boyolali Square culinary complex.

This research aims to determine the relationship between knowledge, attitudes and personal hygiene sanitation behaviour towards aspects of food handlers in the Pengging Boyolali Square culinary complex.

METHOD

This research is an analytical survey research with a cross-sectional design. This research was carried out at Pengging Boyolali Square. Data collection was carried out from September to October 2023.

The population of this study was a group of food salespeople in the Pengging Boyolali square with 100 food handlers. The sampling technique in this study used a total sampling technique. The research sample is individuals or subjects selected to be involved or participate in the research. The sample for this research is 80 samples, which is also the research population.

The independent variables in this research are the knowledge, attitudes and years of work of food handlers at the Pengging Boyolali square. Meanwhile, the dependent variable in this research is the Personal Hygiene Sanitation of food handlers in Pengging Boyolali Square.

The data collection technique in this research uses a questionnaire instrument in the form of an interview and an observation sheet using a checklist table to determine the personal hygiene of food handlers.

30 respondents tested the validity of this research instrument,, so the R table value was 0.3610. Based on the results of the validity test, it is known that the calculated r value for each question is greater than the table r value, so all questions in this research instrument are declared valid. The reliability test in this research is by looking at the r value in Cronbach's alpha

column. Based on the validity test results, it is known that Cronbach's alpha value is greater than the r table value (0.3610), so the instrument is declared reliable.

Data analysis in this study was done using bivariate analysis using the Chi-Square test to analyze the relationship between the independent and dependent variables. The odds ratio (OR) value is calculated to determine the relationship's closeness between variables. Data analysis using Statistical Package for the Social Sciences (SPSS) version 20 software. The research conducted has gone through an ethical review procedure and received approval from the research ethics committee of Dr. Soedjono Magelang Number. 160/EC/IX/2023.

RESULT

Distribution and Frequency of Knowledge, Attitudes, and Years of Work Regarding Personal Hygiene and Sanitation Behavior of Food Handlers at the Pengging Square Culinary Complex can be seen in Table 1. Below:

Table 1. Distribusi dan Frekuensi Pengetahuan, Sikap, dan Masa Kerja Terhadap Perilaku Personal Hygiene And Sanitation Penjamah Makanan di Kompleks Kuliner Alun-Alun Pengging

Category	Frequency	%
Knowledge		
Bad	17	21,25
Good	63	78,75
Attitude		
Bad	18	22,50
Good	62	77,50
Period of Service		
≤ 5 Years	22	27,50
> 5 Years	58	72,50
Behaviour		
Bad	23	28,75
Good	57	71,25

Based on Table 1, it was found that most of the research respondents had a good level of knowledge of 63 people (78.75%), most had a good attitude of 62 people (77.50%), the working period of respondents was mostly > 5 years of 58 people (72.50%), and most of them behaved in the good category of personal hygiene and sanitation by 57 people (71.25%).

The relationship between knowledge, attitudes and years of service on the personal hygiene and sanitation behaviour of food handlers at the Pengging Square Culinary Complex can be seen in the table below:

Table 2. Knowledge Relationship to Personal Hygiene and Sanitation Behavior of Food Handlers

Knowledge	Behaviour				Total		χ^2_{hitung}	Sig.	OR	CI value 95%
	Bad		Good		n	%				
	n	%	n	%						
Bad	11	64,71	6	35,29	17	21,25	13,624	0,000	7,792	2,403 – 25,777
Good	12	19,05	51	80,95	63	78,75				
Total	23	28,75	57	71,25	80	100				

Based on Table 2, a chi-square or χ^2 count of 13.624 was obtained with a significance value of 0.000, so it can be concluded that there is a significant relationship between knowledge of personal hygiene and the sanitation behaviour of food handlers. The Odds Ratio (OR) of 7.792 shows that food handlers with poor knowledge have a 7.792 times chance of misbehaving compared to those who behave well, with a CI value of 95% between 2.403 – 25.777.

Table 3. Relationship between Attitudes and Personal Hygiene and Sanitation Behavior of Food Handlers

Attitude	Behaviour				Total		χ^2_{hitung}	Sig.	OR	CI value 95%
	Bad		Good		n	%				
	n	%	n	%						
Bad	11	61,11	7	38,89	18	22,50	11,874	0,001	6,548	2,098 – 20,431
Good	12	19,35	51	80,65	62	77,50				
Total	23	28,75	57	71,25	80	100				

Based on Table 3, a chi-square value or χ^2 counts of 11.874 was obtained with a significance value of 0.001, so it can be concluded that there is a significant relationship between the attitude towards personal hygiene and sanitation behaviour of food handlers. The Odds Ratio (OR) of 6.548 shows that food handlers with bad attitudes have a 6.548 times chance of misbehaving compared to those who behave well, with a CI value of 95% between 2.098 – 20.431.

Table 4. The Relationship of Working Period to the Personal Hygiene and Sanitation Behavior of Food Handlers

Working Period	Behaviour				Total		χ^2_{hitung}	Sig.	OR	CI value 95%
	Bad		Good		n	%				
	n	%	n	%						
≤ 5 year	10	45,45	12	38,89	22	27,50	4,134	0,042	2,886	1,081 – 8,175
> 5 year	13	22,41	45	77,59	58	72,50				
Total	23	28,75	57	71,25	80	100				

Based on Table 4, a chi-square value or χ^2 counts of 4.134 was obtained with a significance value of 0.042, so it can be concluded that there is a significant relationship between working time the personal hygiene and sanitation behavior of food handlers. The Odds Ratio (OR) of 2.885 shows that food handlers with a service life of < 5 years have a 2.886 times chance of misbehaving compared to well-behaved, with a 95% CI value between 1.018 – 8.175.

DISCUSSION

Knowledge Relationship to Personal Hygiene and Sanitation Behavior of Food Handlers in Culinary Complex Pengging Square Boyolali

Formal education factors influence knowledge. Knowledge is very closely related to education, where it is expected that with higher education, the person will be more knowledgeable. However, it should be emphasized that it does not mean that someone who is poorly educated is low in knowledge. This is because increased knowledge is not obtained from formal education alone but can be obtained through non-formal education. A person's knowledge of an object contains two positive and negative aspects. These two aspects will determine a person's attitude, the more positive aspects and objects that are known, the more positive attitudes towards certain objects will cause a more positive attitude (Wawan et al., 2010).

Based on the research results it shows that there is a significant relationship between knowledge and personal hygiene and sanitation behaviour of food handlers, p -value = 0.000. Food handlers with bad knowledge have a 7.792 chance of bad behaviour compared to those with good behaviour, with a 95% CI value between 2.403 – 25.777.

The results of this research are strengthened by research conducted at Senggol Batubulan Market, Sukawati District, Gianyar Regency, which shows that there is a relationship between the level of knowledge and the application of personal hygiene to food handlers (p -value=0,006) (Aprivia et al., 2021). This research is also in line with research conducted at restaurants in Kuwait, which shows a relationship between knowledge and the practices of food handlers (Al-Kandari et al., 2019).

This research aligns with Miranti et al. (2018), which states that food handlers with bad knowledge are 7.792 times more likely to behave badly than those who behave well. Food handlers' hygiene behaviour must be distinct from knowledge about food hygiene and sanitation. The knowledge of food handlers is very important in handling food so that the food produced is protected from contamination. Knowledge is important in implementing food sanitation hygiene, namely, to reduce the risk of food poisoning due to contamination (Maulana et al., 2020).

The results of this study support Firdani (2022) research, which found that food hygiene and sanitation practices in food handlers working at Andalas University Canteen, Padang, West Sumatra, Indonesia are significantly related to the knowledge of food handlers. This is in line with research Perdanawati (2019) conducted by Perdanawati regarding the relationship between knowledge of hygienic sanitation and attitudes towards choosing snacks, which showed the results that there was a positive and significant relationship between knowledge of

hygienic sanitation and attitudes towards choosing snacks. The higher the sanitation and hygiene knowledge level, the higher the attitude value towards choosing snack foods.

Based on the research results, the knowledge level of food handlers is still low; this is because food handlers still need to understand good personal hygiene, selecting and handling appropriate food ingredients and the lack of cleanliness of the cooking utensils used. Therefore, a food handler's knowledge of sanitation and hygiene will greatly influence the quality of the food served to consumers. Low knowledge of handlers in using footwear when serving food and in food processing. This is because the handlers need to learn how important it is to use footwear in food sanitation, so many handlers ignore it.

Relationship of Attitudes towards Personal Hygiene and Sanitation Behavior of Food Handlers in the Culinary Complex of Pengging Square Boyolali

Attitude shows part of mental readiness, namely a process that occurs within a person, together or coordinated with each individual's experience, directing and determining responses to various objects or situations (Notoatmodjo, 2014). The attitude of food handlers regarding food hygiene and sanitation can influence the application of hygiene and sanitation in the food handling process. Poor hygiene and sanitation in food preparation can affect the food quality (Aldiani, 2018).

The research results show a significant relationship between attitudes towards the personal hygiene and sanitation behaviour of food handlers, $p\text{-value} = 0.001$. Food handlers with a bad attitude are 6.548 times more likely to behave badly than those with a good attitude. This study's results align with research by Astuti et al., (2023), which states that there is a relationship between attitude and personal hygiene behaviour of food handlers ($p\text{-value}=0.009$).

Research Madrdhatillah (2019) stated a significant relationship exists between attitudes and food handlers' sanitary hygiene. Hygiene of food handlers with a negative attitude have a 4.190 times greater risk of not meeting food handler hygiene requirements than respondents with a positive attitude. Therefore, food handlers with good attitudes do not necessarily have good personal hygiene behaviour and vice versa. Providing good information can form a positive attitude among food handlers so that the behaviour shown is the same as their actual attitude.

The results of this research are strengthened by research conducted in the Lahore area, Pakistan, which shows that there is a relationship between attitudes and behavioural practices of food handlers ($p\text{-value} < 0.005$) (Ahmed et al., 2021). This is also in line with research

conducted along Jalan Raya Tajem Maguwoharjo Yogyakarta, showing that there is a relationship between attitudes and food handlers' sanitation hygiene practices (p-value -0.032) (Maghafirah et al., 2018).

There is a tendency towards hygiene attitudes and practices in food handlers, if the attitude of food handlers is positive, then the hygiene practices carried out will be good, but if the attitude of handlers is negative then the hygiene practices carried out will be less (Husaini et al., 2022). According to Sajdah et al., (2022), experience, length of work, level of education, and mass media can also influence attitudes. Then, these factors can shape and influence a person's response to an object, and that response is the basis for shaping a person's attitude.

Based on the results of research conducted, the handlers have a negative attitude towards the sanitary hygiene of food handlers; this is because the handlers have habitual behaviour, where the handlers are not used to processing food properly, such as not washing their hands first before processing food and serving food. Handlers need help applying or carrying out good and healthy food processing methods, so the food served does not meet hygiene and sanitation requirements. Maintaining the cleanliness and safety of food for health so that it is not contaminated, efforts are made in processing and serving food as best as possible to produce healthy food.

The handlers have a negative opinion about using footwear when serving food and processing food. This is because handlers have a negative attitude towards using footwear in food sanitation, so many food handlers need to use aprons and footwear.

The Relationship of Working Period to Personal Hygiene and Sanitation Behavior of Food Handlers in the Culinary Complex of Pengging Square Boyolali

Work period is generally the length of time a person works in the same or different fields of activity, usually measured in time. A long period of work also affects an employee's level of proficiency. Therefore, the period of work that a person undergoes provides work experience, which then influences a person's level of professionalism (Farhansyah, 2022).

Employers will tend to prefer employees who have work experience or, in other words have sufficient working time because an employee who has a lot of work experience or in other words has enough work will be able to quickly adjust to the environment and the work he will do. Likewise, if there is a problem at work, an employee who has enough working time will easily find a solution to solve the problem. The working period is the entirety of the understanding, knowledge, and skills he has gained while working. The amount of employee contribution to the working period can be measured by productivity (Dwi et al., 2017).

The research results show a significant relationship between work experience and personal hygiene and sanitation behaviour of food handlers, p -value = 0.042. Food handlers with less than 5 years of service have a 2.886 times chance of bad behaviour compared to those with good behaviour. Length of work can also be a factor in food handlers' need for hygiene practices when processing and serving food other than the level of knowledge. This is due to their partial service life of less than 6 years and their direct observation from researchers. This is supported by the theory that the length of work influences the hygiene practices of food handlers. The service length will affect the knowledge and behaviour of food handlers. The longer the food handler works, the more knowledge the handler will have throughout the work (Sajdah et al., 2022).

Lack of employee awareness of established hygiene and sanitation behaviour so that they only work according to habits that have been carried out for years. This research is in line with research that concludes that the length of work and knowledge of food handlers only sometimes lead to good hygiene behaviour. Food handlers who have worked for a long time have more experience compared to new employees (Purwaningsih et al., 2019)

The length of the work period is a factor that influences someone to have insight, broad experience and many roles in shaping behaviour compared to people with less work experience. So, the longer you work, the more you can influence the level of knowledge, attitudes, and good hygiene behaviour (Kumbadewi et al., 2021). Food handlers who have worked for 6-15 years are expected to have the experience and skills needed to do their work more optimally. (Suma'mur, 2013). The longer the working period, the more experience related to food sanitation hygiene so that the working period can be a good predictor of productivity at work (Rahmawati et al., 2023).

Based on the research results, it is clear that there are still some who do not meet the requirements for handlers who have a long period of service or a new period of service, this could be due to other factors such as the education level of the majority of respondents being low, the knowledge of the respondents being good but not implementing good food hygiene and sanitation, the habits of food handlers such as not washing hands before and after processing food or when serving customers, not using equipment or using hands directly when picking up fried food, not using an apron when processing food, still wearing jewelry and still talking when processing food, and using a cloth repeatedly to wipe hands and also cutlery.

CONCLUSION

The conclusion from the results of this research is that there is a relationship between knowledge (p-value=0.000), there is attitude relationship (p-value=0.001), and there is a relationship between length of service (p-value=0.042) with personal hygiene and sanitation of food handlers at the Alun culinary complex Pengging Boyolali Square. It is recommended for food sellers to wear clean aprons and wash them every day so that the quality of the food is guaranteed. It is recommended to wear footwear when serving and processing food because, according to researchers' observations, most food handlers still need to wear it fully.

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