

# Artikel Revisi 2

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## Knowledge, Attitudes and Practices of Hygiene and Sanitation Implementation on Food Handlers

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### ABSTRAK

**Latar belakang:** Makanan yang dikonsumsi selain sehat, bersih, bergizi juga harus aman. Penjamah makanan memiliki peran penting dalam memastikan keamanan makanan untuk mencegah terjadinya keracunan makanan. Penelitian ini bertujuan untuk mengetahui pengetahuan, sikap, dan praktik (KAP) tentang higiene dan sanitasi makanan pada penjamah makanan yang bekerja di kantin Universitas Andalas, Padang, Indonesia.

**Metode:** Desain penelitian ini adalah kuantitatif dengan menggunakan cross sectional study. Pengumpulan data pada tahun 2020 melibatkan 52 penjamah makanan. Data dikumpulkan dengan menggunakan kuesioner. Data dianalisis secara univariat dan bivariat dengan uji chi square CI 95% ( $\alpha=0,05$ ).

**Hasil:** Hasil penelitian menunjukkan 65,4% penjamah memiliki pengetahuan baik, 53,8% memiliki sikap baik dan 52% memiliki praktik baik tentang higiene dan sanitasi makanan. Ada hubungan yang signifikan antara tingkat pendidikan, pelatihan higiene dan sanitasi makanan ( $p=0,05$ ), pengetahuan ( $p=0,005$ ), dan sikap ( $p=0,006$ ) dengan praktik higiene sanitasi makanan.

**Simpulan:** Penjamah makanan lebih banyak yang memiliki pengetahuan, sikap dan praktik yang baik, namun beberapa aspek tindakan personal hygiene seperti penggunaan masker, sarung tangan dan celemek pada saat pengolahan dan penyajian makanan perlu ditingkatkan.

**Kata kunci:** Higiene, Sanitasi, KAP, Penjamah Makanan

### ABSTRACT

**Title:** Knowledge, Attitudes and Practices of Hygiene and Sanitation Implementation on Food Handlers

**Background:** The food consumed in addition to being healthy, clean and nutritious must be safe. Food handlers are crucial in guaranteeing food safety and preventing food illness. The purpose of this study was to compare food handlers' knowledge, attitude, and behaviors (KAP) on food hygiene and sanitation at Andalas University in Padang, Indonesia.

**Method:** This study's design was quantitative, with a cross-sectional approach. Data were collected in 2020 involving 52 food handlers was assessed using a questionnaire. The data were examined in univariate and bivariate mode using the chi square test with a 95 percent confidence interval ( $=0,05$ ).

**Result:** 65,4 percent of food handlers have adequate knowledge, 53,8 percent have a positive attitude, and 52 percent adopt appropriate food hygiene and sanitation methods. There is a significant relationship between education level ( $p=0,003$ ), food hygiene and sanitation training ( $p=0,05$ ), knowledge ( $p=0,005$ ), and attitude ( $p=0,006$ ) and food hygiene and sanitation behaviors.

**Conclusion:** Even though the results show that there are more food handlers who have good KAP levels, some aspects on personal hygiene measures like use of masks, gloves and aprons during food processing and serving need to be improved.

(1 spasi, 10 pt)

**Keywords:** Hygiene, sanitation, KAP, food handlers.

## INTRODUCTION

Hygiene and sanitation are critical to be applied in public places. Sanitation of public areas must be a priority in handling because general classes have the potential to spread disease. To not cause health problems, specific management is needed in public places including restaurants.<sup>1,2</sup>

The application of hygiene and sanitation is carried out to prevent food contamination from disease-transmitting microorganisms. Personal hygiene of food handlers influences food quality because it can be a risk factor in the spread of disease. The role of food handlers in any food processing process is enormous, so personal hygiene for the people involved in it needs special attention because it can be one of the links in the spread of diseases, especially those caused by microorganisms.<sup>3</sup>

Pathogenic microbes including *Escherichia coli*, *Salmonella* sp., *Campylobacter*, and *Vibrio cholera* are responsible for 10-20% of foodborne illnesses which can cause health problems and even death. In Indonesia, 90% of food poisoning cases are caused by microbial contamination.<sup>4, 5, 6, 7, 8</sup>

The onset of symptoms of diarrhea can be an indication of the beginning of the foodborne illness. Data from Ministry of Health, from 2017 to 2018, revealed that 7,077,299 cases of diarrhea in various regions in Indonesia.<sup>9</sup> In West Sumatra Province until 2018, there were 143,680 cases and 7,800 cases of diarrhea in Padang City caused by a decrease in food sanitation hygiene and environmental influences.<sup>10</sup>

Foodborne diseases can also occur due to mishandling during food preparation, lack of knowledge of food handlers or consumers, and lack of concern for safe food management.<sup>11</sup> Foodborne illness outbreaks can be influenced by the amount of food handlers' understanding about the need of protecting their own health and the health of the environment throughout the food processing process. Food sellers' knowledge of food processing sanitation and hygiene will have a substantial impact on the quality of food offered to consumers. To prevent disease transmission through food handlers is necessary to pay attention to personal hygiene and knowledge about food sanitation hygiene.<sup>12</sup>

The attitude of food handlers can also pose a health risk. A bad attitude will impact the hygiene of the food served. A good attitude of food handlers in processing food can prevent food from contamination, contamination, and poisoning. Food sold in public places is vulnerable to disease transmission if food handlers do not know and ignore food hygiene and sanitation.

Andalas University has canteens spread across each faculty, in lecture buildings, and student dormitories. Food in the canteen can potentially contaminate food with pathogenic microorganisms if the food handlers do not pay attention to personal hygiene and cleanliness of equipment and the environment when processing food. The purpose of this study is to ascertain the level of knowledge, attitudes, and practices or behavior of food handlers who work in the canteen of Andalas University in Padang, Indonesia, regarding food hygiene and sanitation.

## MATERIAL AND METHOD

This is a quantitative study conducted by a cross-sectional survey in 2020 with a sample of 52 food handlers. Questionnaires and observations were used to assess food handlers' knowledge, attitudes, and practices regarding hygiene and sanitation implementation. Knowledge, attitudes and practices are categorized as bad if the measuring results are small from the average value and good is large from the average value. After the data is collected, data processing is editing, coding, entry, and cleaning. Univariate and bivariate analysis were used to analyze the data. The frequency distribution of each variable is shown using univariate analysis. The chi-square test with a 95 percent confidence interval ( $\alpha = 0.05$ ) was used to examine the link between age, sex, education, food handler training, knowledge, and attitudes towards hygiene and sanitation procedures among food handlers.

## RESULT AND DISCUSSION

### Characteristics of Food Handlers, Knowledge, Attitudes, and Practices of Food Handlers

Based on table 1, the description of the characteristics of food handlers from 52 respondents 34 people (65.4%) women, 35 people (67.3%) over the age of 35 years, 36 people (69.2%) have a higher education, and 40 people (80.8) never participated in food handler training. From the study results, that less than half of the 25 food handlers (48.1%) had terrible actions in carrying out sanitary hygiene practices/behaviors in food processing.

Result research by Rahmat and Adriyani, (2017) found that 54.3% of food handlers had lousy practices in implementing food hygiene. Hygiene and sanitation practices are critical to ensure safe food production for consumers. If the proper food management compliance is not appropriate, then the risk of bacterial contamination is also very

vulnerable.<sup>13</sup> The study results by Sani and Siow (2014) showed that 84.6% of respondents stated that they always wash their hands using water and soap,

but based on observations, most of them do not do that in actual practice.<sup>14</sup>

Table 1 Characteristics of Food Handlers and Frequency Distribution of Knowledge, Attitudes, and Practices of Food Handlers

Variable	n (%)
Gender	
Male	18 (34,6)
Female	34 (65,4)
Age	
≤ 35 years old	17 (32,7)
> 35 years old	35 (67,3)
Education	
< 12 years	16 (30,8)
≥ 12 years	36 (69,2)
Food Handler Training	
Ever	10 (19,2)
No	42 (80,8)
Knowledge	
Bad	18 (34,6)
Good	34 (65,4)
Attitudes	
Bad	24 (46,2)
Good	28 (53,8)
Practices	
Bad	25 (48,1)
Good	27 (51,9)

Indicators of hygiene and sanitation practices from the study results in table 2 showed the lousy behavior of food handlers related to handlers who did not wash their hands with soap (61.5%). The food handler's nails were not clean and long (65.4%), used cosmetics such as eyeshadow, powder, and nail polish (63.5%). The food handlers use jewelry such as rings, bracelets, and necklaces (59.6%). Food handlers that do not use an apron as much as 88.5%, and do not wear head coverings as much as 38.5%. During food preparation or serving, the handler does not wear a mask that covers his or her mouth and nose (88.5 percent). The handler does not use gloves when carrying out food processing activities (94.2%).

This result was supported by the observational study of Green et al. (2006) where the prevalence of handwashing practices for food handlers is not implemented according to the procedure. Meanwhile, hand washing practices are essential because transmission of pathogens from food handlers is a significant contributor to foodborne disease outbreaks, in the research of Ismail et al. (2016) to determine the hygiene awareness of food managers in food hygiene practices. The food hygiene behavior can be determined by the level of knowledge which is the most influencing factor. Knowledge is an awareness of the importance of understanding food safety and personal hygiene practices to prevent outbreaks and

spread diseases transmitted through cross-contamination.<sup>15,16</sup>

During contact with food, a food handler must wear unique work clothes for processing food, always keep food from direct contact with the body, and use an apron and other personal protective equipment. A food handler may not chat while preparing food and may not smoke. Cooked food must be stored in a closed condition.<sup>17</sup>

Based on the study results, there were more food handlers with good knowledge, namely 34 food handlers (65.4%) compared to 18 handlers with poor knowledge (34.6%). Lack of knowledge among food handlers regarding cross-contamination is the primary cause of food poisoning (46.2 percent); wearing plastic gloves while performing food processing activities can help reduce the risk of transmitting the infection to consumers and staff (25%); storing different types of food in the same container can help reduce the risk of cross-contamination (19.2%); and wearing masks and head coverings can help reduce the risk of food contamination (19.2%).

The study results by Sani and Siow (2014) explain that lack of information will result in cross-contamination and increased proliferation of hazardous microorganisms in food. Also in the study of Sani and Siow (2014) consider their findings that there is a positive association between respondents' levels of knowledge, attitudes, and practices.

However, observation reveals that many of them do not always use the information they have gained during actual food handling procedures. It is necessary to carry out food safety training regularly and continuously by food handlers.<sup>16</sup>

Of the 52 respondents studied, less than half of the 24 food handlers (46.2%) had bad attitude in responding to the importance of food hygiene and sanitation. Regarding food handlers' attitudes which are still not related to not going to do food processing activities without gloves, 30.8% said they disagreed, which means doing food processing without gloves. Would not wash my hands before doing food processing activities, 28.8% said agree, which means it's okay not to wash your hands before processing food.

Afzan, Aziz and Dahan (2013) explain that attitudes and compliance correlated with safe food handling. Small workspace, inappropriate kitchen

utensils, and unavailability of food handling instructions are also significant indicators. However, it becomes an obstacle for respondents in handling safe food in their research, guidelines on food handling, and practices that can influence food handling behavior.<sup>19</sup>

Attitude is a behavioral predisposition, and if the food handler is positive, it will have the potential to act positively on the application of hygiene and sanitation when processing food. Attitudes are influenced by knowledge, environment, experience, and habits.<sup>20, 21</sup> A person's attitude towards the application of food hygiene and sanitation is a feeling, belief, and tendency to act in food processing that pays attention to aspects of health, nutrition, and food safety to produce safe food for consumption.<sup>22,23</sup>

Table 2 Practices of Food Handlers in Applying Hygiene and Sanitation

Statement	Yes (%)	No (%)
When food handlers have infectious disorders including skin diseases, ulcers, open wounds, or upper respiratory infections, they are not allowed to work in the food processing industry	100	0
Hand washing handlers (before work or after from the toilet)	100	0
Handwashing handlers using soap	61,5	38,5
Handler washes hands in running water	92,3	7,7
Cleaning the work area before starting work	94,2	5,8
Clean and short nails	65,4	34,6
Food handlers do not use cosmetics (such as: eyeshadow, powder, and nail polish)	63,5	36,5
Food handlers do not use jewelry (such as: rings, bracelets and necklaces)	40,4	59,6
Using separate kitchen utensils to prepare raw and cooked food	98,1	1,9
Food handlers using apron	11,5	88,5
Not touching food that is not wrapped with open arms	90,4	9,6
The handler wears footwear	98,1	1,9
Bath food handler at least 2 times a day	100	0
The handler brushes his teeth at least 2 times a day	96,2	3,8
Hair hygiene	98,1	1,9
The handler uses a head covering	61,5	38,5
Food handlers do not perform sweat-wiping behavior during the production or serving of food	78,8	21,2
The handler does not perform ear-scraping behavior during the production or serving of food	100	0
The handler does not perform nose-scraping behavior during the production or serving of food	92,3	7,7
The handler does not cough and sneeze towards food when carrying out food processing activities	100	0
The handler does not smoke during the production or serving of food	82,7	17,3
The translator uses a mask covering the mouth and nose during the production or serving of food	11,5	88,5
Handlers use plastic gloves when carrying out food processing activities	5,8	94,2



### Relationship of Gender, Age, Education, Training, Knowledge, Attitude with Hygiene and Sanitation Practices of Food Handler

Based on the study results in table 2, food handlers with bad hygiene and sanitation behavior in food handlers are male (53%) and female (47.1%). Based on statistical tests obtained p-value 0.840. It can conclude that there is no relationship between gender and food hygiene and sanitation behavior. It is different from research by Sani and Siow (2014), female respondents had a much higher level of practice than male respondents. Based on the research results, there are more female food handlers than men, and the hygiene behavior is almost the same between men and women. For this reason, all handlers are expected to improve hygiene and sanitation practices in food processing.<sup>14</sup>

Food handlers with greater education are less likely than food handlers with lower education to exhibit inadequate hygiene and sanitation practices. A p-value of 0.003 was found by statistical analysis. A correlation between food hygiene and sanitation and educational attainment can be drawn. Because the study found that higher-educated food handlers should serve as role models and encourage other food processors to adhere to hygiene and sanitation standards, it is advised that they do so.

Food handlers above the age of 35 are more likely to exhibit poor hygiene and sanitation standards. P-value of 0.253 was determined using statistical testing. Food handlers of all ages appear to exhibit the same level of hygiene and sanitation behavior. Abdul-Mutalib *et al.* (2012) also showed no significant relationship between the age of food handlers and hygiene and sanitation practices. For this reason, it is recommended for all age groups of respondents to improve hygiene and sanitation practices in food processing.<sup>24</sup>

There are fewer food handlers with bad hygiene and sanitation practices who have attended training (20%) than food handlers who have never attended training (54.8%). A p-value of less than 0.05 was achieved by statistical testing. A correlation between hygiene and sanitation training and food hygiene and sanitation behavior may be drawn, according to this study. One of the greatest ways to avoid foodborne disease is to educate food workers on food safety. It is possible to increase the quality and safety of food hygiene in the campus canteen by teaching food handlers using materials that emphasize food safety. Because of this, it is imperative that food handlers receive frequent training and that it be done on a regular basis.

However, training alone is sometimes not enough, as in the research of Zanin *et al.* (2017), Pacholewicz *et al.* (2016), while some food handlers have a thorough understanding of their food safety obligations, they may not consistently apply this information to their activities and attitudes. Another survey discovered that 62% of food handlers admitted to occasionally not following all food safety protocols on all occasions, and 6% admitted to doing so often.<sup>25,26</sup>

Based on the study results, food handlers with bad hygiene and sanitation behavior were more food handlers with less knowledge (77.8%) than food handlers with good knowledge (32.4%). Statistical testing yielded a p-value of 0.05 ( $p = 0.005$ ). It is possible to conclude that there is a link between knowledge, food hygiene, and sanitation behavior. This study found that food handlers' understanding of hygiene and sanitation impacts their practice of handling food properly. From the results of observations, although food handlers have good knowledge about food safety, some have not been applied to implement food processing.

Food handlers with bad hygiene and sanitation behavior were fewer in food handlers with good attitudes (28.6%) than food handlers with bad attitudes (70.8%). Statistical testing yielded a p-value of 0.05 ( $p = 0.006$ ). It may be concluded that there is a link between mindset and food hygiene, as well as sanitation behavior. Because it is the primary link between knowledge and practice, attitude is an important aspect in food handling. Workers with greater knowledge are more likely to put their information into practice if they have a positive attitude, and vice versa. Workers frequently have enough understanding of food safety concepts, but they choose not to use them. As a result, it is more a question of attitude than of information.<sup>25</sup>

A positive attitude is an essential factor for turning knowledge into actual practice. It highlights the need of attitude-focused training as well as theoretical and practical knowledge in order to ensure that theoretical ideas are implemented effectively.<sup>25</sup> For this reason, it is better to map all food management places in the campus environment, make priority categories for food handler training and improvements in facilities and infrastructure, determine the feasibility of operating food management areas and carry out monitoring and integrated development and make pilot canteens.

Table 3 Relationship of Gender, Age, Education, Training, Knowledge, Attitudes with Hygiene and Sanitation Practices in Food Handlers

Variable	Hygiene and Sanitation Practices		n (%)	p-value
	Bad	Good		
Gender				
Male	9 (50)	9 (50)	18 (34,6)	0,84
Female	16 (47,1)	18 (52,9)	34 (65,4)	
Age				
≤ 35 years old	6 (35,3)	11 (64,7)	17 (32,7)	0,253
> 35 years old	19 (54,3)	16 (45,7)	35 (67,3)	
Education				
< 12 years	14 (87,5)	2 (12,5)	16 (30,8)	0,003*
≥ 12 years	11(30,6)	25 (69,4)	36 (69,2)	
Food Handler Training				
Ever	2 (20)	8 (80)	10 (19,2)	0,05*
No	23 (54,8)	19 (45,2)	42 (80,8)	
Knowledge				
Bad	14 (77,8)	4 (22,2)	18 (34,6)	0,005*
Good	11 (32,4)	23 (67,6)	34 (65,4)	
Attitudes				
Bad	17 (70,8)	7 (29,2)	24 (46,2)	0,006*
Good	8 (28,6)	20 (71,4)	28 (53,8)	

Note : \* (significant)

## CONCLUSION

Appropriate knowledge, a positive attitude and good food hygiene and sanitation practices were found to be more prevalent among the food handlers who participated in the study. Hygiene and sanitation methods are influenced by food handlers' education, training, knowledge, and attitudes about food hygiene. It is expected that the canteen manager conducts periodic hygiene and sanitation training to increase the knowledge of hygiene and sanitation from food handlers and make guidelines on how to manage food properly. Food handlers are expected to use personal protective equipment, namely aprons, gloves, masks, and headgear during food processing.

## BIBLIOGRAPHY

- Mukono. Higiene sanitasi Hotel dan Restoran. Surabaya: Airlangga University Press; 2004.
- Mukono. Prinsip Dasar Kesehatan Lingkungan. Surabaya: Airlangga University Press; 2008.
- CDC. Incidence and Trends of Infection with Pathogens Transmitted Common- ly Through Food – Foodborne Diseases Active Surveillance Network, 10 U.S. Sites, 2006–2013. 2014. Report No.: 63(15): 328-332.
- Osimani A, Aquilanti L, Tavoletti S, Clementi F. Evaluation of the HACCP System in a University Canteen: Microbiological Monitoring and Internal Auditing as Verification Tools. 2013;1572–85.
- Nauta M, Peterz M. Relevance of microbial finished product testing in food safety management. 2016;60:31–43.
- WHO. WHO estimates of the global burden of foodborne diseases. Who. 2015;1–255.
- Hoelzer K, Moreno Switt AI, Wiedmann M, Boor KJ. Emerging needs and opportunities in foodborne disease detection and prevention: From tools to people. Food Microbiol. 2017;1–7.
- Sumantri A. Kesehatan Lingkungan. 4th ed. Kencana; 2017.
- Kementrian Kesehatan RI. Profil Kesehatan Indonesia Tahun 2017. Jakarta; 2017.
- Dinas Kesehatan Kota Padang. Laporan Tahunan Dinas Kesehatan Kota Padang Tahun 2017. Padang; 2017.
- Chusna F. Faktor Yang Mempengaruhi Kualitas Sarana Sanitasi Kantin. 2014;3(3):1–10.
- Budiyono, Junaedi H, Isnawati, Wahyuningsih T. Tingkat Pengetahuan Dan Praktik Penjamah Makanan Tentang Hygiene Dan Sanitasi Makanan Pada Warung Makan Di Tembalang Kota Semarang Tahun 2008. J Promosi Kesehat Indones. 2009;4(1):50-60–60.
- Rahmat AA, Adriyani R. Relationship Behavior Food Handlers with Implementation of Food Hygiene and Sanitation on Restaurant in the Working Office of Health Port Class II Padang. 2017;2(11):1–4.
- Sani NA, Siow ON. Knowledge , attitudes and practices of food handlers on food safety in food service operations at the Universiti Kebangsaan Malaysia. Food Control. 2014;37:210–7.

15. Green LR, Selman C a, Radke V, Ripley D, Mack JC, Reimann DW, et al. Food worker hand washing practices: an observation study. *J Food Prot.* 2006;69(10):2417–23.
16. Ismail FH, Chik CT, Muhammad R, Yusoff NM. Food Safety Knowledge and Personal Hygiene Practices amongst Mobile Food Handlers in Shah Alam, Selangor. *Procedia - Soc Behav Sci.* 2016;222:290–8.
17. Menteri Kesehatan Republik Indonesia. Keputusan Menteri Kesehatan Republik Indonesia No. 1098/MENKES/SK/VII/2003 Tentang Persyaratan Higiene dan Sanitasi Rumah Makan dan Restoran. Jakarta; 2003.
18. Afzan S, Aziz A, Dahan HM. Food School Canteens. *Procedia - Soc Behav Sci.* 2013;105:220–8.
19. Aziz SAA, Dahan HM. Food Handlers' Attitude towards Safe Food Handling in School Canteens. *Procedia - Soc Behav Sci.* 2013;105:220–8.
20. WHO. Penyakit Bawaan Makanan (Fokus Pendidikan Kesehatan). Jakarta: Penerbi Buku Kedokteran EGC; 2006.
21. Notoatmodjo S. Kesehatan Masyarakat Ilmu dan Seni. Jakarta: Rineka Cipta; 2007.
22. Notoatmodjo S. Ilmu Perilaku Kesehatan. Jakarta: Rineka Cipta; 2010.
23. Totelesi H. Tinjauan Pengetahuan, Sikap dan Praktik Penjamah Makanan tentang Keamanan Pangan dan Sanitasi di Rumah Makan Sekitar Kampus IPB Darmaga. Bogor; 2011.
24. Abdul-Mutalib NA, Abdul-Rashid MF, Mustafa S, Amin-Nordin S, Hamat RA, Osman M. Knowledge, attitude and practices regarding food hygiene and sanitation of food handlers in Kuala Pilah, Malaysia. *Food Control.* 2012;27(2):289–93.
25. Zanin LM, Cunha DT, Rosso VV, Dias Capriles V, Stedefeldt E. Knowledge, attitudes and practices of food handlers in food safety: An integrative review. *Food Res Int.* 2017;100(1):53–62.
26. Pacholewicz E, Barus SAS, Swart A, Havelaar A, J.A.Lipman L, Luning PA. **35** uence of food handlers' compliance with procedures of poultry carcasses contamination: A case study concerning evisceration in broiler slaughterhouses. *Food Control.* 2016;68:367–78.



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