

Original research article

The Relationship of Knowledge and Attitudes Towards Behavior of Personal Hygiene among Food Traders

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ABSTRACT

Background: In Indonesia, inadequate hygiene practices often threaten food safety. This research aims to analyze the relationship between knowledge and attitudes of food traders towards their hygiene behavior. **Methods:** This research is an observational quantitative study with a cross-sectional approach conducted in June 2024 at Car Free Day Telanaipura, Jambi City. The research sampling technique used a total sampling method on 100 food traders. Data was collected through a questionnaire that assessed demographic profiles, knowledge, attitudes, and personal hygiene behavior and analyzed using the chi-square test. **Results:** The results show that 60% of respondents have good knowledge, while 42% have a good attitude regarding personal hygiene. Statistical tests show a significant relationship between knowledge of personal hygiene behavior ($p=0.047$) and a significant relationship between attitudes towards the personal hygiene behavior of traders ($p=0.028$). **Conclusion:** Good knowledge and attitudes towards personal hygiene are associated with better hygiene behavior among traders. Therefore, increasing hygiene knowledge and attitudes among food traders needs to be strengthened through ongoing education and outreach to improve food hygiene standards in public areas.

Keywords: Personal Hygiene; Food Traders; Knowledge; Attitudes; Behavior

INTRODUCTION

Food Foodborne disease (FBD) is a disease caused by contamination of food or drink and is the leading cause of illness and death throughout the world, especially

among children in developing countries. The World Health Organization (WHO) report in 2015 shows that every year globally, 600 million cases of FBD are recorded and 420,000 deaths due to

inadequate food safety and hygiene practices.¹⁻⁴

In Indonesia itself, the problem of food and drink hygiene is a long-standing and recurring problem that threatens millions of people. Based on data from the Ministry of Health of the Republic of Indonesia, in 2015, the incidence of FBD in diarrhea in all ages in Indonesia was 270 per 1000 people. Several factors cause diarrhea, such as germs that contaminate food/drinks due to contaminated feces, environmental cleanliness, and/or direct contact with diarrhea sufferers.^{5,6} Water polluted by animal or human waste usually contains pathogenic microorganisms such as *Escherichia coli*. So, this water should not be used for drinking, washing food, or cooking because it can cause gastrointestinal tract disorders such as gastroenteritis and diarrhea if consumed.^{7,8}

Diarrhea continues to be a global problem with high morbidity and mortality rates in various countries. In developing countries, it is also one of the leading causes of death and pain in children around the world.^{9,10,11} This disease can also occur due to the hygiene and sanitation of the eating and drinking utensils.¹² Germs that quickly enter the body while eating can cause disease. Diseases that generally arise from germ hands include diarrhea, cholera, ARI, worms, flu, and Hepatitis A.¹³ Research conducted by Winarno in several cities in Indonesia found that more than 90% of

FBD was caused by microbiological contamination.¹⁴

Based on data released by BPOM RI 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 nine poisoning incidents, an increase compared to 2020, which only had four incidents. The number of Extraordinary Events (KLB) of Food Poisoning in Jambi Province in 2022 will reach 4 times with a total of 280 sufferers.^{15,16}

Food traders with good knowledge and attitudes regarding sanitation hygiene will lead to good sanitation and personal hygiene practice steps and can prevent food contamination. Food traders' poor cleanliness, sanitation, and personal hygiene in organizing, processing, and serving food can affect the food quality.¹⁷⁻²¹ Based on this background, this research aims to determine the relationship between knowledge and attitudes and the personal hygiene behavior of food traders at Car Free Day Telanaipura, Jambi City.

METHODS

This research is a quantitative observational study with a cross-sectional approach. This design is used to make observations for a moment or within a specific period, where each study subject is only observed once. This research aims to analyze the relationship between knowledge and attitudes toward personal

hygiene behavior among food traders in Jambi City.

The research was conducted in Telanaipura, Jambi City, Jambi, during the Car Free Day movement on Sunday in June, the third week of 2024. The target population was food traders who sold in Telanaipura, Jambi City, Jambi. The affordable population is food traders who sell in Telanaipura, Jambi City, during Car Free Day in the third week of June. The research sampling technique used a total sampling method on 100 food traders who met the inclusion criteria: respondents at CFD, willing to be respondents, in good health, and respondents aged 18-60 years.

Data was collected through a questionnaire that assessed demographic profiles, knowledge, attitudes, and personal hygiene behavior. Data processing begins with editing, coding, data entry into computer software, and data cleaning. Data were analyzed univariately and bivariately. Univariate analysis was conducted to see food traders' demographic profiles, knowledge levels, attitudes, and personal hygiene behavior. Data is presented descriptively analytically

in the form of percentages or proportions. Bivariate analysis was used to determine the relationship between knowledge and food traders' attitudes toward personal hygiene behavior using the chi-square statistical test.

RESULTS

The results of this study describe various characteristics of food traders in Car Free Day Telanaipura, Jambi City, which is the research subject. **Table 1** shows that most respondents were female (65%) and 35 were male (35%). Based on age, the majority of respondents were in the 20-29 year range, with 45 respondents (45%), 23 respondents with an age range of 30-39 years (23%), 19 respondents with an age range of 40-49 years (19%), and 13 respondents with age range > 50 years (13%). Based on the results of the respondents' religious data, it shows that 81 respondents are Muslim (81%), 7 respondents are Protestant (7%), 5 respondents are Catholic (5%), 1 respondent is Hindu (1%), 3 respondents are Buddhist (3%), and 3 respondents were Confucian (3%).

Table 1. Respondent Characteristics

Variable	Frequency
Gender	
Woman	65
Man	35

Variable	Frequency
Age	
20-29	45
30-39	23
40-49	19
>50	13
Religion	
Muslim	81
Protestant	7
Catholic	5
Hindu	1
Buddhist	3
Confucian	3
Last Education	
Elementary School and equivalent	5
Middle School and equivalent	13
High School and equivalent	39
College	43
Long time selling	
<1 Year	49
1-2 Year	24
>2 Year	27
Total	100

Five respondents had an elementary school education (5%), 13 respondents who had a junior high school education (13%), 39 respondents who had a high school education (39%), and 43 respondents who had a tertiary education

(43%). Based on the data on the length of time they have been selling, there were 49 respondents with a selling time of <1 year (49%), 24 respondents with a selling time of 1-2 years (24%), and 27 respondents with a selling time of >2 years (27%).

Table 2. Distribution of Respondents' Knowledge, Attitude, and Behavioral Characteristics

Variable	Frequency
Knowledge	
Good	60
Poor	40
Attitude	
Good	42
Poor	58
Behavioral	
Good	42
Poor	58

Based on **Table 2**, it was found that there were more respondents with knowledge results with good scores than respondents with Poor scores, namely 60 respondents (60%). It was found that there were more respondents with poor attitude

results than respondents with good scores, namely 58 respondents (58%). It was found that there were more respondents with behavioral results with less than good scores compared to respondents with good scores, namely 58 respondents (58%).

Table 3. Analysis of Knowledge and Behavior of Personal Hygiene among Food Traders

Knowledge	Behavioral		Total f	p-value	PR (95% CI)
	Poor f	Good f			
Poor	28	12	40	0.047	1.400
Good	30	30	60		(1.012-1.936)
Total	58	42	100		

Regarding the relationship between knowledge and behavior of personal hygiene, as shown in **Table 3**, poor knowledge of 28 respondents (28%) and poor knowledge of good behavior of 12 respondents (12%) was obtained. Good knowledge with poor behavior was 30 respondents (30%), and good knowledge

with good behavior was 30 respondents (30%).

Based on a statistical chi-square test analysis, the p-value was 0.047, the prevalence ratio (PR) 1.400, and the 95% confidence interval (CI) 1.012-1.936. A p-value > 0.05 indicates a statistically significant influence between the knowledge and behavior of personal

hygiene food traders. The Prevalence Ratio (PR) value for respondents with good knowledge and poor knowledge is 1.4, indicating that traders with good knowledge

of personal hygiene had 1.4 times greater odds of exhibiting the behavior hygiene of those with good knowledge compared to those with Poor knowledge.

Table 4. Analysis of Attitudes Towards Behavior of Personal Hygiene among Food Traders

Attitude	Behavioral		Total f	p-value	PR (95% CI)
	Poor f	Good f			
Poor	39	19	58	0.028	1.50
Good	19	23	42		(1.018-2.169)
Total	58	42	100		

The relationship between attitudes and behavior of personal hygiene in **Table 4** shows that the results obtained were unfavorable attitudes with 39 respondents (39%) unfavorable attitudes with good behavior of 19 respondents (19%). There were 19 respondents (19%), and good attitudes with good behavior were 23 respondents (23%).

Based on a statistical chi-square test analysis, the p-value was 0.028, the prevalence ratio (PR) 1.500, and the 95% confidence interval (CI) 1.018-2.169. The p-value <0.05 indicates a statistically significant influence between attitudes and behavior of personal hygiene food traders. The Prevalence Ratio (PR) value for respondents with good attitudes and unfavorable attitudes is 1.5, indicating that traders with good attitudes towards personal hygiene have a 1.5 times greater chance of exhibiting the behavior hygiene of those with a good attitude than those with a Poor attitude.

DISCUSSION

The Relationship of Knowledge and Behavior of Personal Hygiene

The level of knowledge is one factor that influences someone's behavior and personal hygiene.²² Knowledge of food traders in Car Free Day Telanaipura Jambi City against personal hygiene is already high, with the knowledge (60%) having good knowledge. Based on the bivariate analysis results, a significant relationship was found between knowledge and behavior of personal hygiene based on a p-value of 0.047.

This research is in line with research by Putri and Fayasari (2023) in Depok, which found a significant relationship between knowledge and behavior of personal hygiene ($p < 0.05$; PR 2.87), that knowledge stimulate behavior of personal hygiene in those who have good knowledge with a prevalence ratio of 2.87 than those who have less knowledge.²³

Contrary to the research of Elinda-Patra et al. (2020) in Jakarta shows a significant influence between knowledge on attitudes and food safety behavior, attitudes do not significantly influence behavior. This is supported by research by Nur Afni Maftukhah (2024), which found no significant relationship between knowledge and behavior toward personal hygiene. This is influenced by environmental factors and a person's habits. Foodborne illnesses may increase due to unhealthy eating habits, poor sanitation practices, and poor food security.²⁴ Unfavorable environmental conditions can contribute to various diseases that disrupt public health.²⁵ A person's level of knowledge can be influenced by several knowledge factors such as age, gender, education level, and length of work.^{26,27}

The Relationship between Attitudes and Behavior of Personal Hygiene

Food traders in Car Free Day Telanaipura, Jambi City, have more unfavorable attitudes (58%) than food traders who have good attitudes (42%). Based on the results of the bivariate analysis, it was found that there was a significant influence between attitudes and behavior of personal hygiene based on the p-value of 0.028.

This research aligns with the results of Fea Firdani (2022) on food traders in the

Andalas University canteen, showing a significant relationship between the level of education and training. Hygiene and food sanitation, knowledge, and attitudes with practice hygiene food sanitation.²⁸

Another research conducted by Hamed Adetunji. et al. (2018) show that food handlers with high knowledge scores must not practice hygiene. It was expected that food handlers with high attitude scores should also have good practices, but this was not the case. This result shows that the knowledge gained from courses and health promotion campaigns about personal hygiene does not automatically change food handlers' attitudes and practices. Other factors can influence attitudes and practices. For example, food handlers' carelessness may play a role because they rarely apply their knowledge when handling or distributing food.²⁹

CONCLUSION

There is a significant relationship between knowledge and behavior of personal hygiene among food traders, with results $P= 0.047$, PR (95% CI)= 1.400 (1.012-1.936). A significant relationship exists between attitude and behavior of personal hygiene among food traders with results $P=0.028$, PR (95% CI)= 1.50 (1.018-2.169).

REFERENCES

1. Kirk MD, Pires SM, Black RE, et al. The Epidemiological Investigation and Intelligent Analytical System for foodborne disease. *Food Control*. 2010;21(11):1466-1471. doi:<https://doi.org/10.1016/j.foodcont.2010.04.015>
2. Sherrer L, Nyaku B, Adams JH, et al. The global burden of foodborne parasitic diseases: an update. *Trends Parasitol*. 2014;30(1):i. doi:10.1016/s1471-4922(13)00205-5
3. Kirk MD, Pires SM, Black RE, et al. World Health Organization Estimates of the Global and Regional Disease Burden of 22 Foodborne Bacterial, Protozoal, and Viral Diseases, 2010: A Data Synthesis. *PLoS Med*. 2015;12(12):e1001921. doi:10.1371/journal.pmed.1001921
4. Mehlhorn H. Foodborne Disease Burden Epidemiology Reference Group. *Encycl Parasitol*. Published online 2016:1068-1069. doi:10.1007/978-3-662-43978-4_3884
5. Kharisma MD, Kusdiyah E, Suzan R. Hubungan Tingkat Pengetahuan Ibu terhadap Kejadian Diare pada Balita di Puskesmas Putri Ayu Kota Jambi Tahun 2022. *Joms*. 2023;3:104-112.
6. Darmawan, A., Maria, I., Aurora, W. I. D., Kusdiyah, E., & Nuriyah N. Jamban Sehat Dan Penyakit Berbasis Lingkungan Di Muara Kumpe. *Jambi Medical Journal. J Kedokt Dan Kesehatan*. 2023;11(1):26-31.
7. Lipinwati, Darmawan A, Kusdiyah E, Karolina ME. Uji Kualitas Air Minum Isi Ulang Di Kota Jambi. *Jember Med J*. 2016;4(2):203-210.
8. Putra IA, Syauqy A. Hubungan Pola Kuman Saluran Cerna Anak Autis terhadap Tumbuh Kembang di Kota Jambi. *J JMJ*. 2014;2(2):141-166. <https://media.neliti.com>
9. Fitriani N, Darmawan A, Puspasari A. Analisis Faktor Risiko Terjadinya Diare Pada Balita Di Wilayah Kerja Puskesmas Pakuan Baru Kota Jambi. *Med Dedication J Pengabd Kpd Masy FKIK UNJA*. 2021;4(1):154-164. doi:10.22437/medicaldedication.v4i1.13472
10. Sufa F, Darmawan A, Shafira NNA, ... Gambaran Peresepan Obat Pada Pasien Diare Di Puskesmas Jambi Kecil Tahun 2020. *J Med Published online 2021:23-30*.
11. Fadli M, Hanina, Halim R, Sari Wulandari P, Ekaputri Hz TW. IDENTIFIKASI GENUS BAKTERI KLEBSIELLA DAN CITROBACTER HASIL ISOLASI DARI AIR MINUM ISI ULANG KOTA JAMBI. *Jambi Med J*. 2020;8(1):1-110. [https://repository.unja.ac.id/40480/1/Jurnal Penelitian Coliform 2021.pdf](https://repository.unja.ac.id/40480/1/Jurnal%20Penelitian%20Coliform%202021.pdf)
12. Darmawan A, Kusdiyah E. Kontribusi Higienitas Botol Susu Dan Sumber Air Terhadap Kejadian Diare Pada Balita 6-24 Bulan Di Puskesmas Kenali Besar Kota Jambi. *Jambi Med Journal, Spec Issues, JAMHESIC*. Published online 2021:274-290. <https://mail.online-journal.unja.ac.id/kedokteran/article/view/19241>
13. Putri NA, Sugiati R, Kusdiyah E, Darmawan A. Gambaran Tingkat Pengetahuan Dan Pelaksanaan Praktek Cuci Tangan Pakai Sabun Pada Siswa Kelas 12 Pesantren Aliyah As'ad Kota Jambi. *E-SEHAD*. 2024;5(1):5-8.
14. Pengendalian PDAN. *Standar Operasional Prosedur.*; 2009.
15. BPOM RI. Laporan Tahunan 2021 Pooran Pengawas Obat dan Makanan Republik Indonesia. *Lap Tah BPOM TA 2021*. Published online 2021:1-179. [https://www.pom.go.id/new/files/2022/LAPORAN TAHUNAN 2021/0. BPOM/LAPTAH BPOM 2021.pdf](https://www.pom.go.id/new/files/2022/LAPORAN%20TAHUNAN%2021/0.BPOM/LAPTAH%20BPOM%2021.pdf)
16. Dinkes Provinsi Jambi. *Profil Kesehatan Provinsi Jambi. Profil Kesehat Provinsi Jambi*. Published online 2022:192.
17. Chen XXXX, Tsai MY, Wolynes PG, et al. No 主観的健康感を中心とした在宅高齢者における健康関連指標に関する共分散構造分析Title. *Nucleic Acids Res*. 2018;6(1):1-7. <http://dx.doi.org/10.1016/j.gde.2016.09.008><http://dx.doi.org/10.1007/s00412-015-0543-8><http://dx.doi.org/10.1038/nature08473><http://dx.doi.org/10.1016/j.jmb.2009.01.007><http://dx.doi.org/10.1016/j.jmb.2012.10.008><http://dx.doi.org/10.1038/s4159>
18. Kim J, Cho Y. Convergence Evaluating Food Safety Knowledge, Attitude, and Practice regarding Food handler. *J Korea Converg Soc*. 2019;10(6):73-78. <https://doi.org/10.15207/JKCS.2019.10.6.073>

19. Hartini S. HUBUNGAN TINGKAT PENGETAHUAN HYGIENE SANITASI DAN SIKAP PENJAMAH MAKANAN DENGAN PRAKTIK HYGIENE SANITASI (Studi pada PT. Ryan Katering, Jakarta). *Nutr Nutr Res Dev J.* 2022;2(2):16-26. doi:10.15294/nutrizione.v2i2.58466
20. Dun-dery EJ, Addo HO. Food Hygiene Awareness , Processing and Practice among Street Food Vendors in Ghana. *J Food Public Heal.* 2016;6(3):65-74. doi:10.5923/j.fph.20160603.02
21. Tefera T, Mebrie G. Prevalence and predictors of intestinal parasites among food handlers in Yebu Town, Southwest Ethiopia. *PLoS One.* 2014;9(10):1-5. doi:10.1371/journal.pone.0110621
22. Fauziah R, Kalsum U. Attitude and Sanitation of Canteen Related to Application of Food Hygiene Sanitation on Food Handlers in High School Canteen of Jambi City. Published online 2016.
23. Putri RM, Fayasari A. Hubungan Pengetahuan Dan Sikap Hygiene Sanitasi Dengan Perilaku Personal Hygiene Pada Penjamah Makanan Kaki Lima Di Kecamatan Tapos Kota Depok. *J Nutr Coll.* 2023;12(3):238-245. doi:10.14710/jnc.v12i3.36845
24. Aurora WID. Kualitas Sanitasi di Sekolah dan Dampaknya terhadap Kesehatan dan Gizi Anak: Systematic Literature Review. *Electron J Sci Environ Heal Dis.* 2023;4(2):92-98.
25. Darmawan A, Indah Dewi Aurora W, Maria I, Kusdiyah E, Nuriyah N, Guspianto G. Analisis Pemetaan dan Determinant Penyakit Berbasis Lingkungan di Kabupaten Muaro Jambi tahun 2020. *Jambi Med J.* 2021;Jamhesic(Special Issue):428-436.
26. Ellinda-Patra MW, Dewanti-Hariyadi R, Nurtama B. Modeling of food safety knowledge, attitude, and behavior characteristics. *Food Res.* 2020;4(4):1045-1052. doi:10.26656/fr.2017.4(4).375
27. Nurafni Maftukhah. Hubungan Pengetahuan, Sikap dan Perilaku Terhadap Personal Hygiene Penjamah Makanan (Food Handler) Di Pasar Retail Jakabaring Palembang. *J Heal Appl Sci Technol.* 2024;2(1):20-26. doi:10.52523/jhast.v2i1.35
28. Firdani F. Knowledge, Attitudes and Practices of Hygiene and Sanitation Implementation on Food Handlers. *J Kesehat Lingkung Indones.* 2022;21(2):131-136. doi:10.14710/jkli.21.2.131-136
29. Adetunji H, Baothman M, Alserhan F, Almunyif A, Samaren H. Knowledge , Attitude , and Practice (KAP) of Personal Hygiene among Food Handlers in the South Region of Makkah , Saudi Arabia. Published online 2018:96-102.