THE RELATIONSHIP BETWEEN THE IMPLEMENTATION OF HYGIENE AND SANITATION OF STREET FOOD IN ELEMENTARY SCHOOLS IN AUR BIRUGO TIGO BALEH DISTRICT, BUKITTINGGI CITY

Abdi Iswahyudi Yasril[1,2], Shantrya Dhelly Susanty[2], Adriani[2], Erdi Nur[3], Ririn Salmi Fallen[2], Andree Aulia Rahmat[4]

[1]Doctoral Program in Environmental Science, Graduate School, Universitas Negeri Padang, Padang City, West Sumatra, Indonesia

[2]Public Health Study Program, Universitas Fort De Kock, Bukittinggi City, West Sumatra, Indonesia

[3]Department of Environmental, HealthMinistry of Health Polytechnic of Health, Padang, West Sumatera, Indonesia

[4]Department of Public Health, Faculty of Medicine and Health Sciences, Universitas Jambi, Jambi, Indonesia

Abstract

Food vendors at elementary schools in Aur Birugo Tigo Baleh sub-district generally still do not meet acceptable personal hygiene and sanitation standards. This can be seen from the vendors' behavior, such as not washing their hands when preparing or serving food, many vendors not using sanitation facilities like aprons, and inadequate sanitation equipment. The purpose of this research is to identify the factors related to the implementation of food sanitation hygiene in the snack foods at the elementary schools in the Aur Birugo Tigo Baleh District, Bukittinggi City, in 2024. This study uses a quantitative method with a cross-sectional study approach. The population in this study consisted of 37 people using the total sampling method. Data analysis used the *Chi-square test*. The chi-square test results indicate a relationship between attitude and the application of food hygiene and sanitation (p= 0.042; OR= 4.114). Then, 3 variables showed that knowledge (p= 1.000), sanitation facilities (p= 0.495), and environment (p= 0.252) were not related to the application of street food sanitation hygiene. It is hoped that snack food vendors will pay more attention to the hygiene and sanitation of their food, and that health institutions will increase supervision and training for snack food handlers in elementary schools regarding the importance of implementing and improving hygiene and sanitation practices for snack food.

Keywords: Hygiene, Food Sanitation, School Snacks

Corresponding Author : Abdi Iswahyudi Yasril
Email: iswahyudiabdi@fdk.ac.id

Article Received : October 06, 2025
Article Revised : February 03, 2026
Article Published : March 31, 2026

INTRODUCTION

Street food is defined as food that is ready to eat or prepared for immediate consumption at the point of sale, on the street, or in public places such as residential areas, shopping malls, terminals, markets, and schools. This snack has three advantages: it's affordable, easy to find, tastes good, and suits most people's tastes. The snack comes in various shapes, colors, and flavors. They are very popular with children because of their attractive shapes and colors. Traders often exploit this trend to make a profit by using harmful chemicals to enhance the color of their food. Formalin and borax are used to preserve food, making it chewy (1). The safety of street food at school is very important because school students consume snacks sold around the school every day.

Food Processing Facilities (FPF) are food processing businesses that include services or catering, restaurants, drinking water depots, canteens, and street food. All of these have a

significant potential to cause health problems, especially foodborne illnesses (2). To ensure that the food produced is safe and healthy for consumption, every food processing unit must implement food sanitation, which includes applying four aspects of sanitation in cooked food storage, food processing, and food service: buildings, equipment, food handlers, and the food produced (3). Cleanliness itself can be defined as a health effort that includes maintaining and protecting one's own hygiene. Examples include washing hands, washing dishes, and discarding food that is inedible or spoiled. According to Law of the Republic of Indonesia Number 18 of 2012, food sanitation is defined as efforts to create and maintain a healthy and hygienic eating environment, free from biological, chemical, and other contaminants that can be harmful (4).

Food that is unsafe or polluted can serve as a breeding ground for bacteria, viruses, parasites, and chemical or physical agents that can cause over 200 ailments in humans, ranging from cancer to diarrhea to death (5). According to WHO, there are over 76 million incidents of contaminated food poisoning in the US annually, which leads to 325,000 hospital admissions and 5,000 fatalities. Food that has been cooked, particularly from eateries, cafeterias, catering services, and street food sellers, is the source of about 70% of these cases (6).

According to Ministry of Health records, there were 70 occurrences of food poisoning in the same year (KLB). A food and beverage poisoning outbreak (KLB) occurs when two or more individuals consume the same food or beverage and develop almost identical poisoning symptoms (7). Sometimes the symptoms of food poisoning are not limited to nausea, vomiting, diarrhea, and dehydration. Nevertheless, many cases end in death, and some can even be lethal (8). According to data from the Ministry of Health, there were 4,792 cases of food poisoning in Indonesia between January 1 and October 16, 2023. This number of food poisoning cases continues to increase, increasing by more than 1,000 cases compared to the total of 3,514 cases recorded in 2022 (9).

From the start of the year until mid-October 2023, West Java had the highest number of food poisoning cases nationwide (1,679 cases), followed by Central Java (roughly 1,082 cases), East Java (701 cases), Yogyakarta (530 cases), and West Sumatra (184 cases). Household cooking accounted for 53% of this food poisoning case, followed by street food vendors at 17%, catering services (restaurants, food stalls, and canteens) at 15%, packaged food at 4%, food stalls at 4%, and street food outlets at 7%. The lack of sanitation and cleanliness, particularly for food workers, was one area that was not addressed. One of the primary causes of food poisoning is food handlers, which includes unclean cooking equipment, poor personal hygiene, and incorrect ingredient selection and handling. Symptoms of food poisoning include headache, cramping in the abdomen, nausea, vomiting, and diarrhea (9).

Many street vendors sell various types of snacks, such as seasoned fries, fried sausages, colorful candies, and shaved ice with various flavors. In the eyes of children, this food looks interesting and delicious. Children usually don't consider the hygiene or preparation of the food they buy, let alone the ingredients. Eating snacks carelessly often causes diarrhea. This is because the snacks sold are not in clean condition. Street vendors usually sell their food openly, allowing dust and flies to get in (10). Based on data from the Bukittinggi City Health Service,A total of 3,745 cases of diarrhea were found in children aged 1-60 years, including elementary school children, and 906 (24.2%) were treated for all ages (1-60 years and above). Data from

the Tigo Baleh Community Health Center shows that the Aur Birugo Tigo Baleh District has a population of 30,844 and found 833 cases of diarrhea in all ages. A total of 141 cases, or 16.9% of all cases, were treated at the Tigo Baleh Community Health Center (11).

Rezi's research results showed that 33.3% of respondents had poor hygiene practices, 41.7% of respondents had poor knowledge, 50.0% of respondents had negative attitudes, and 29.2% of respondents had poor health worker roles. Factors related to these hygiene practices were knowledge, attitudes, and the role of health workers (12). According to Akbar, et al. (2022) with the title Factors Related to the Implementation of Sanitation Hygiene in Elementary School Canteens in Sungai Penuh City in 2022. The results of the study showed that food handlers who had poor implementation of canteen sanitation hygiene were (59.0%), handlers with low knowledge were (51.0%), handlers with poor attitudes were (76.0%), handlers who did not have supervision from canteen sanitation hygiene health officers were (52.0%), and handlers who did not have the availability of canteen sanitation facilities were (56.0%). There was a relationship between knowledge, training participation, supervision and availability of sanitation facilities with the implementation of canteen sanitation hygiene in Elementary Schools in Sungai Penuh City in 2022, while there was no relationship between attitudes and knowledge of sanitation hygiene in canteens in Sungai Penuh City in 2022 (p-value 0.594) (3).

Based on the results of the researcher's observations, it appears that there are still food handlers who do not carry out personal hygiene and there are still behaviors that are not good regarding workers' personal hygiene, for example, there are still traders who do not wash their hands when processing food or serving food, and there are still many traders who do not use sanitation facilities such as not using aprons and inadequate sanitation equipment among traders in elementary schools.

METHODS

This research is quantitative with a cross-sectional study design. This research was conducted from February to May 2024 in elementary schools within the working area of the Tigo Baleh Health Center, Bukittinggi City. The population in this study consists of 37 street food vendors, selected using total sampling (13). Data collection was carried out by distributing questionnaires regarding the independent variables, namely knowledge, attitudes, sanitation facilities, and the environment. The dependent variable is street food hygiene sanitation. Data analysis was performed using univariate and bivariate tests with the chi-square test. The chi-square test was used because the data used were categorical and did not require a normality test. The chi-square test aims to determine the relationship between variables (13). This research has passed the ethics at KEPK Fort De Kock University with number 184/KEPK/III/2024.

RESULTS

Research Characteristics and Univariate Data

Table 1. Frequency Distribution Factors Related to The Implementation of Food Hygiene and Sanitation in Street Food Vendors In Elementary Schools in Aur Birugo Tigo Baleh District, Bukittinggi City

Variables	Frequency	Percentage (%)
Gender		
Man	30	81.1
Woman	7	18.9
Education		
Elementary School	11	29.7
Junior High School	13	35.1
Senior High School	13	35.1
Knowledge		
Low	15	40.5
High	22	59.5
Attitude		
Negative	16	43.2
Positive	21	56.8
Sanitation Facilities		
Not eligible	13	35.1
Qualify	24	64.9
Environment		
Not good	18	48.6
Good	19	51.4
Implementation of Hygiene Sanitation		
Poor Sanitation	14	37.8
Good Sanitation	23	62.2
Total	**37**	**100**

Table 1 demonstrates that the majority of respondents were male, with a percentage of 81.1%, totaling 30 respondents. Based on education, the number of respondents was the same, namely junior high school and high school education, with a percentage of 35.1%. Based on the research results from 37 respondents, as many as 22 (59.5%) respondents had a good frequency of knowledge, 21 (56.8%) had a positive attitude, 24 (64.9%) respondents had adequate facilities, 19 (51.4%) respondents had a good environment and 23 (62.2%) had good implementation of food hygiene and sanitation of street food.

Bivariate Analysis

Table 2. Relationship between the Implementation of Hygiene and Sanitation of Street Food At the Aur Birugo Tigo Baleh District Elementary School, Bukittinggi City

Variables	Implementation of Hygiene and Sanitation				Total		p *Value*	OR (CI 95%)
	Poor Sanitation		Good Sanitation					
	N	%	n	%	n	%		
Knowledge								
Low	6	40	9	60	15	100	1,000	1,167 (0,303-4,499)
High	8	36,4	14	63,6	22	100		
Atittude								
Negative	9	56,2	7	43,8	16	100	0,042	4,114 (1,006-16,827)
Positive	5	23,8	16	76,2	21	100		
Sanitation Facilities							0,495	1,714 (0,431-6,826)
Not eligible	6	46,2	7	53,8	13	100		
Qualify	8	37,8	16	66,7	24	100		
Environtment								
Not Good	9	50	9	50	18	100	0,252	2,800 (0,706-11,097)
Good	5	26,3	14	73,7	19	100		

Based on the analysis results, knowledge, health facilities, and the environment have no relationship to the implementation of street food hygiene and sanitation ($p > 0.05$). Meanwhile, attitudes have a relationship to the implementation of street food hygiene and sanitation. After further analysis, an OR of 4.114 was obtained, meaning that respondents with negative attitudes are 4 times more likely to not implement street food hygiene and sanitation compared to respondents with positive attitudes.

DISCUSSION

The Relationship Between Knowledge and the Implementation of Hygiene and Sanitation in Street Food

Based on the analysis results, the p-value obtained was $1.000 > 0.05$ (Ho accepted), which means there is no relationship between knowledge and the application of food hygiene and sanitation in elementary schools in Aur Birugo Tigo Baleh District. Knowledge is the result of understanding that occurs after sensing something. Furthermore, knowledge can be defined as something that explains what a food handler already knows or the extent to which someone can understand or interpret what they already know. Studies show that food handler behavior does not always correlate with good knowledge of food hygiene. Besides knowledge and education, there are many other factors that can influence food handler behavior (2).

The results of Hetty's research showed that there were 18 people (51.4%) who did not meet the food hygiene and sanitation quality standards and had low knowledge. Then the bivariate results showed that the ρ-value for knowledge was 0.028 POR (6.240), meaning there

was a relationship between knowledge and food hygiene and sanitation (14). This research is strengthened by Hartini's research (2022), namely Based on Table 1, most food handlers have a good level of knowledge of sanitation hygiene (53.8%). Analysis for the variable of sanitation and hygiene knowledge level with sanitation and hygiene practices yielded a p-value of 0.053 ($p > 0.05$), indicating no relationship between sanitation and hygiene knowledge level and sanitation and hygiene practices (15).

The research findings indicate no significant relationship between the knowledge levels of street food vendors and their practices in applying sanitation and hygiene in street food processing at elementary schools. This finding indicates that the level of knowledge among traders regarding food hygiene does not automatically influence how they apply sanitation practices in their daily activities. Generally speaking, although some vendors have a theoretical understanding of the importance of maintaining cleanliness, such as washing hands before touching food, using gloves, storing food with covers, and keeping equipment and the environment clean. This is not reflected in real-world behavior on the ground. Many vendors know the correct procedures but still practice unhygienic food handling, such as not washing their hands after receiving money, storing food in open conditions, using non-running handwashing water, or using cooking utensils that have been used repeatedly without being cleaned. It can be assumed that the behavior of traders is more influenced by habits, limited facilities, low risk perception, economic factors, and a lack of supervision. Thus, increasing knowledge alone is not sufficient to improve sanitation and hygiene practices; a comprehensive approach is needed thru the provision of supporting facilities, continuous monitoring, and practical training that promotes real and sustainable behavioral change.

.

The Relationship Between Attitudes and the Implementation of Hygiene and Sanitation in Street Food

Based on the analysis, out of 16 respondents with negative attitudes, 9 were unable to apply street food hygiene and sanitation. And out of 21 respondents with positive attitudes, 5 did not apply street food hygiene and sanitation. The results of the statistical analysis show that the p-value is $0.042 < 0.05$ (Ho is rejected), meaning there is a relationship between attitude and the implementation of street food hygiene and sanitation in Aur Birugo Tigo Baleh District Elementary Schools. After further analysis, an odds ratio (OR) of 4.114 was obtained, indicating that respondents with negative attitudes are 4 times more likely not to implement street food hygiene and sanitation compared to those with positive attitudes. Attitudes are not yet concrete actions but rather perceptions and a person's readiness to react to stimuli around them. Measuring respondents' attitudes through an object can be done directly or indirectly. Food handlers have a perspective on good and proper hygiene and practice it (15).

This study aligns with Supri Hartini's study on the relationship between the level of knowledge of sanitation hygiene and the attitudes of food handlers with sanitation hygiene practices. The results of her study showed a p-value of 0.004 ($p < 0.05$), indicating a relationship between the attitudes of food handlers and sanitation hygiene practices. The Spearman correlation value was 0.732, indicating a positive (unidirectional) correlation with strong correlation strength (15). Pitri's research also shows that based on the results of the study using the chi-square test, a p-value of 0.032 was obtained, so it can be concluded that there is

a significant relationship between attitudes and hygiene practices of food handlers in elementary schools in the Tanjung Pinang Health Center work area (12).

Based on the results of field research, it can be assumed that the practice of food hygiene and sanitation among street vendors in Aur Birugo Tigo Baleh District is highly influenced by the vendors' attitudes toward the importance of maintaining food cleanliness. Vendors who show a positive attitude toward the importance of cleanliness and sanitation tend to be more consistent in implementing food safety practices, such as washing hands before preparing food, using clean equipment, covering food from dust or insects, and keeping their selling environment hygienic. Conversely, traders with a negative attitude seem to pay less attention to these aspects. They tend to believe that cleanliness is not a factor affecting sales or consumer health, and are more focused on speed of service and economic profit. This is evident from the field conditions where some vendors do not use protective equipment such as gloves, do not cover their food, or prepare food in potentially contaminated areas. Attitudes are not just perceptions, but also a real determining factor in traders' behavior toward safe food management. Thus, the field assumption that can be concluded is that the attitudes of vendors play an important role in shaping food hygiene and sanitation practices, as attitudes can influence vendors' motivation, commitment, and willingness to implement food safety practices according to health standard.

The Relationship between Sanitation Facilities and the Implementation of Hygiene and Sanitation in Street Food

Based on the research results using the chi-square test, a p-value of 0.495 > 0.05 was obtained (Ho accepted). Therefore, it can be concluded that there is no relationship between sanitation facilities and the implementation of sanitation hygiene in street food. The availability of sanitation facilities is one of the supporting factors that can influence a person's behavior in implementing sanitation hygiene (16).

This study aligns with Nur et al.'s study on the relationship between personal hygiene, sanitation facilities, and food equipment storage techniques with the cleanliness of food equipment in canteens and street food outlets. The results showed a p-value of 0.086 (sig > 0.05), which means Ho is accepted, meaning there is no relationship between sanitation facilities and the cleanliness of food equipment (17). This research aligns with Meli Aspiani's (2020) study on the relationship between knowledge, attitudes of food handlers, and sanitation facilities on food safety in restaurants in the Depok Beach culinary tourism area, Bantul Regency. The results of her study showed a p-value of 0.198 (sig > 0.05), which indicates that Ho is accepted, meaning there is no relationship between sanitation facilities and food safety (18).

The research findings indicate that there is no relationship between sanitation facilities and the implementation of hygiene practices among street food vendors in elementary schools. This means that even tho facilities like clean water, soap, handwashing stations, and trash bins are available, they cannot guaranty that vendors will practice good hygiene. This result contradicts the theory that sanitation facilities play an important role in shaping hygiene behavior. The condition of the field indicates that the presence of facilities does not guaranty their use. Many vendors continue to handle food without washing their hands or using

sanitation facilities, even tho these facilities are easily accessible. Some possible reasons behind this include old habits that are difficult to change, a low understanding of the importance of sanitation, and facilities that are inadequate or impractical to use. Additionally, internal factors such as knowledge, attitudes, experience, and lack of supervision seem to have a greater influence on sanitation behavior than just the availability of facilities. Thus, it can be concluded that the availability of sanitation facilities alone is not sufficient to promote good hygiene behavior. Behavior change requires support in the form of education, habituation, social motivation, and ongoing monitoring.

When linked to the government's free nutritious meal program (MBG), street vendors do not play a direct role in managing or providing MBG, but they still have an indirect connection to the success of the MBG program because they are part of the food environment where the MBG target group, school children, are located. MBG aims to improve the nutritional status and health of school children. However, children receiving MBG still consume snacks from street vendors around the school before or after receiving MBG. If the vendors' hygiene practices are poor, the risk of foodborne illness increases, children's health is affected (e.g., diarrhea), and nutrient absorption from MBG becomes suboptimal. This means that the sanitation of vendors can either strengthen or weaken the impact of MBG, even tho the vendors are not directly involved in the program.

The Relationship Between the Environment and the Implementation of Hygiene and Sanitation in Street Food

Based on research using the chi-square test, a p-value of 0.252 > 0.05 was obtained (Ho accepted). This means there is no relationship between the environment and the application of food hygiene and sanitation in street food. Food vendors must maintain the cleanliness of their selling area, raw materials, and utensils used to prevent the spread of diseases such as food poisoning and diarrhea (19). A good and healthy environment is essential for human survival. Everything around us is our environment. Caring for the environment is the result of education, not talent or instinct. Caring for the environment is a mental attitude reflected in a person's behavior. The environment can also be defined as what surrounds humans, how they interact with each other, and how they influence human life (14).

This research is not in line with the research of Aisha Berliana Nugraha; it can be seen that the results of the research show that the p-value is 0.003 (p-value < 0.05), so it can be seen that there is a relationship between environmental sanitation knowledge and the behavior of street food vendors around the Unisba Tamansari Campus, Bandung City (20).

The research findings indicate that environmental conditions are not significantly related to the implementation of food hygiene and sanitation by street vendors at elementary schools. This means that regardless of whether vendors sell in a clean or less clean environment, it does not directly affect their sanitation practices. The field conditions indicate that the behavior of vendors is actually more influenced by internal factors such as habits, risk perception, health awareness, and economic profit orientation. Many vendors do not consider sanitation very important as long as there are no complaints from buyers, so good facilities or environmental conditions do not automatically improve hygiene practices. Thus, it can be assumed that a good environment is not the primary determinant of food sanitation behavior,

as behavioral change depends more on the vendors' awareness, knowledge, and motivation than on physical environmental factors. If linked to the Free Nutritious Meal Program (MBG), which aims to improve the nutritional status and health of school children, which is determined not only by the nutritional adequacy of the food but also by its safety and the health conditions of the recipients. Although street vendors are not directly involved in the management of MBG, they are part of the school food environment that still interacts with the target of MBG, which is primary school students. This finding indicates that a good physical environment around schools, such as clean vending areas, does not automatically guaranty safe sanitation practices by vendors, and therefore there is still potential for foodborne illnesses in the school environment.

In the context of MBG, this condition poses a challenge because children receiving nutritious food from the MBG program still risk exposure to unhygienic food or environments, which can lead to health problems like diarrhea. These health issues can reduce the absorption of nutrients from MBG food, thus preventing the program's goals of improving children's nutritional status and health from being optimally achieved. Furthermore, the finding that vendors' behavior is more influenced by internal factors such as habits, risk perception, health awareness, and profit orientation indicates that the success of MBG is not solely supported by improvements in the physical environment, but requires a behavioral change approach. Therefore, the implementation of MBG needs to be synergized with food safety education, hygiene behavior training, and school snack supervision, in order to create a school environment that truly supports the program's success.

CONCLUSION AND RECOMMENDATION

The conclusion of this study is that only the attitude variable is related to the application of street food hygiene and sanitation, with a p-value of 0.042 and an OR of 4.114. This means that respondents with negative attitudes are 4 times more likely not to practice food hygiene and sanitation compared to respondents with positive attitudes. Therefore, it is recommended that street food vendors improve their good hygiene practices, starting with using food processing equipment such as gloves and aprons, always keeping their hands clean by washing them before touching food using running water and soap, using spoons or tongs to pick up food, using containers that are safe for consumer health, keeping the environment around their selling area clean, and maintaining personal hygiene.

And beside attitude, sanitation and environmental facilities are generally important indicators when linked to the Free Nutritious Meals (MBG) program. This study confirms that MBG requires a supportive ecosystem based on behavioral changes, where street vendors are positioned as targets for fostering a healthy school environment, not as those responsible for the MBG program. This approach is important to ensure that the nutritional benefits of MBG are not diminished by health risks due to poor food sanitation around schools.

REFERENCES

1. Habibia S, Susilawati S, Yulia Y. Gambaran Higiene Sanitasi Kantin Sekolah Dasar Di Wilayah Kecamatan Pontianak Barat. *Journal of Environmental Health and Sanitation Technology*. 2023;2(2):46–50. DOI: 10.30602/jehast.v2i2.279
2. Ayu Lestari. Hubungan Perilaku Mengkonsumsi Makanan Jajanan Kantin Sekolah

dengan Status Gizi Siswa SD Inpres Moutong Tengah. *Promotif : Jurnal Kesehatan Masyarakat*. 2021;11(1):87–94. DOI: 10.56338/pjkm.v11i1.1657

3. Akbar HN, Lanita U, Hidayati F. Faktor – Faktor yang Berhubungan dengan Penerapan Higiene Sanitasi pada Kantin Sekolah Dasar di Kota Sungai Penuh Tahun 2022. *Jurnal Kesmas Jambi*. 2023;7(1):55–64. DOI: 10.22437/jkmj.v7i1.22534
4. Arifin MH, Wijayanti Y. Higiene dan Sanitasi Makanan di Kantin Sekolah Dasar dan Madrasah Ibtidaiyah. *Jurnal HIGEIA*. 2019;3(3):442–53. Available from: http://journal.unnes.ac.id/sju/index.php/higeia
5. Dewi YIK, Putri GG, Nurkhalim RF. Gambaran Penerapan Prinsip Higiene Sanitasi Makanan dan Minuman pada Penjual Pecel Tumpang Di Wilayah Kota Kediri. *Jurnal PIKes Penelititian Ilmu Kesehatan*. 2021;2(1):26–35. Available from: https://www.ojs.pikes.iik.ac.id/index.php/jpikes/article/view/15
6. Kemenkes RI. *Data Dan Informasi Kesehatan Indonesia*. Vol. 8, Profil Kesehatan Indonesia. 2022.
7. Purbasari H, Sudiadnyana W, et al. Hubungan Tingkat Pengetahuan Hygiene Sanitasi Makanan Dengan Perilaku Pengelola Kantin Sekolah Dasar. *Jurnal Kesehatan Lingkungan*. 2022;12(1):1–6.
8. BPOM RI. *Laporan Tahunan Direktorat Penyidikan Obat dan Makanan 2022*. Vol. 7, BPOM RI. 2022.
9. Kementrian Kesehatan RI. *Profil Kesehatan Indonesia 2023*. 2023. 100 p.
10. Yuniati, Novitry F, Heryanto E. Faktor yang Berhubungan dengan Hygiene Sanitasi Makanan Jajanan di Kantin Sekolah. *Lentera Perawat*. 2024;5(1):87–96.
11. Dinas Kesehatan Kota Bukittinggi. *Renstra Dinas Kesehatan Kota Bukittinggi.* 1st ed. Indonesia: Dinas Kesehatan Kota Bukittinggi; 2022. 1–130 p.
12. Pitri RH, Sugiarto S, Husaini A. Faktor Yang Berhubungan Dengan Praktik Hygiene Penjamah Makanan Di Sekolah Dasar Wilayah Kerja Puskesmas Tanjung Pinang. *Journal of Healthcare Technology and Medicine*. 2020;6(2):732.
13. Yasril AI. *Metodologi Penelitian Interdisipliner. 1st ed*. Darwel, editor. Vol. 4. Padang: MMFAST PUBLISHING; 2025. 1–169 p. ISBN: 978-623-10-7231-3
14. Ismainar H, Harnani Y, Sari NP, Zaman K, Hayana H, Hasmaini H. Hygiene dan Sanitasi Pada Pedagang Makanan Jajanan Murid Sekolah Dasar di Kota Pekanbaru, Riau. *Jurnal Kesehatan Lingkungan Indonesia*. 2022;21(1):27–33. DOI: 10.14710/jkli.21.1.27-33
15. Hartini S. Hubungan Tingkat Pengetahuan Hygiene Sanitasi Dan Sikap Penjamah Makanan Dengan Praktik Hygiene Sanitasi (Studi pada PT. Ryan Katering, Jakarta). *Nutrizione: Nutrition Research And Development Journal.* 2022;2(2):16–26. DOI: 10.15294/nutrizione.v2i2.58466
16. Stephani S, Adifa F, Pertiwi AT. Penerapan Higiene dan Sanitasi Makanan Pada Pedagang Kaki Lima (PKL). *Jurnal Humaniora, Ekonomi Syariah dan Muamalah*. 2025;3(2):35–40.
17. Maunah NA, Ulfa L. Hubungan Antara Personal Hygiene, Fasilitas Sanitasi dan Teknik Penyimpanan Peralatan Makan dengan Kebersihan Peralatan Makan di Kantin dan Makanan Jajanan. *Jurnal Untuk Masyarakat Sehat* (JUKMAS). 2020;4(2):112–9. DOI: 10.52643/jukmas.v4i2.918
18. Aspiani, M., & Rustiawan A. Hubungan Pengetahuan, Sikap Penjamah Makanan dan Fasilitas Sanitasi terhadap Keamanan Pangan di Rumah Makan Kawasan Wisata Kuliner Pantai Depok Kabupaten Bantul Tahun 2019. In *Prosiding University Research Colloquium* (pp. 40-47). 11th Univ Res Colloq 2020. 2020;1(1):1–8.
19. Wibowo BJ, Kusdiartini V. Pengelolaan Usaha Pedagang Kaki Lima (PKL) Berbasis Ramah Lingkungan Di Kampung Pelangi Kota Semarang. *Praxis : Jurnal Sains,*

Teknologi, Masyarakat dan Jejaring. 2022;4(2).

20. Aisha Berliana Nugraha, Titik Respati, Purnomo. Hubungan Pengetahuan Sanitasi Lingkungan dan Personal Hygiene terhadap Perilaku Pedagang Makanan Kaki Lima di Sekitar Kampus Unisba Tamansari Kota Bandung. *Bandung Conference Series: Medical Science*. 2024;4(1):62–7. DOI: 10.29313/bcsms.v4i1.10393