JMCR | P-ISSN: 3063-4288 | E-ISSN: 3063-2366 | Vol. 1 No. 2 (2024) | OPEN ACCESS
https://doi.org/10.58740/jmcr.v1i2.320

Journal Of
Multidiscipline and Collaboration Research

Analysis of Food Hygiene, Sanitation Hygiene and Safety of Eating Equipment

Rivaldi Andika Winata*[1], Lemba[2], Ninda Rahmadita[3], Hikmah Fadhillah[4], Syarfina Malsyafinanti[5], Marlenywati[6]
[1,2,3,4,5,6]Universitas Muhammadiyah Pontianak, Indonesia

Keywords:
Food Hygiene, Safety of Eating Equipment, Sanitation Hygiene

***Correspondence Author:**
221510121@unmuhpnk.ac.id

Abstract: This study aims to assess food cleanliness, hygiene sanitation, and the safety of eating utensils in the canteens at Universitas Muhammadiyah Pontianak, specifically those serving buffet-style food. The research uses a quantitative method with a descriptive approach to describe the cleanliness and sanitation conditions in five canteens on campus. Data were collected through direct observations, interviews, and observation forms with canteen staff. The results show that most canteens have good levels of cleanliness and sanitation, with 80% of canteens receiving a "Good" rating for food cleanliness, although 20% require improvement. For hygiene sanitation, 40% of canteens received a "Good" rating, but 40% others need improvements, particularly in areas rated as "Poor." The assessment of eating utensil safety shows that most canteens meet good safety standards. However, some canteens, especially Kantin Mas Bian, need to improve utensil storage, as it received a "Does Not Meet Standards" score. Overall, the results of this study indicate that the cleanliness, sanitation, and safety of eating utensils in the canteens at Universitas Muhammadiyah Pontianak are good, but there is still room for improvement, particularly in sanitation management and utensil storage to support the health and comfort of the campus community.

INTRODUCTION

The canteen is a vital facility within a campus environment, providing a variety of food options for students, staff, and visitors. Maintaining cleanliness and food safety in the canteen is a critical aspect that must be taken seriously. With the increasing number of students and the high intensity of academic activities, the demand for healthy and safe food continues to grow. Ensuring the hygiene, sanitation, and safety of eating utensils in the canteen at Universitas Muhammadiyah Pontianak is a shared responsibility to support the health and well-being of the entire campus community.

However, challenges persist in maintaining adequate food cleanliness and hygiene in the canteen or cafeteria area. Often, campus canteens receive minimal attention from their managers regarding the quality of food sold, the food handlers (in this case, the vendors), the cleaning staff, and aspects of sanitation and waste management. This aligns with research by Ritonga (2020), which states, “There are still numerous issues with hygiene and sanitation that do not meet the required standards, leading to potential bacterial contamination of food that may result in food poisoning and illnesses. This, in turn, can

Published under CC BY-NC 4.0 | © 2024 by the authors of this article

disrupt students' learning activities and impact their academic performance." The condition of a campus canteen reflects the health of its students. Canteens must meet hygiene, health, and environmental standards, commonly referred to as hygiene and sanitation standards.

A review of the literature highlights that safe and clean food is essential in preventing diseases caused by microbial contamination and other harmful substances. According to the World Health Organization (WHO), consumable food must not only provide adequate nutrition but also be free from contaminants that can harm human health (WHO, 2018). Consequently, research on the cleanliness, sanitation, and safety of food in canteens is a crucial step toward safeguarding the health and well-being of students and the broader campus community.

Raising awareness about the importance of cleanliness, sanitation, and food safety in canteen environments is equally important for creating a healthy campus setting. Through training and monitoring, canteen workers can better understand the significance of providing safe and clean food and maintaining the cleanliness of eating utensils. Partnerships between canteen managers, students, and authorities can play a pivotal role in improving food hygiene, sanitation, and safety at the Universitas Muhammadiyah Pontianak canteen.

Regulations and guidelines issued by authorities, such as the Indonesian Ministry of Health, provide a legal foundation and standards that all canteens, including those on campus, must adhere to (Kemenkes RI, 2023). However, the implementation and monitoring of compliance with these regulations need to be regularly evaluated to ensure that food cleanliness and safety standards are effectively met. In the specific context of the Universitas Muhammadiyah Pontianak canteen, local factors such as environmental conditions, community consumption habits, and resource availability must be considered when analyzing food hygiene, sanitation, and safety. Research focused on local conditions can provide deeper insights into the challenges and opportunities for improving food quality in the canteen (Apriani & Asnur, 2023).

The canteen's current conditions often lack sufficient attention from managers regarding food safety measures, such as covering food, maintaining the cleanliness of the surrounding environment near main roads, parking access, and the distance between dining tables. The cleanliness of utensils, including plates and spoons, also remains a concern. These issues can increase the risk of disease exposure, potentially affecting students' academic activities. Observations show that among 14 food vendors serving buffet-style meals across five canteens, only one vendor adequately covers their food, and only one ensures proper covering of eating utensils.

According to the Indonesian Ministry of Health Decree No. 942/Menkes/SK/VII/2003 on guidelines for street food requirements, several aspects influence food quality, including food handlers, equipment, water, food ingredients, food additives, serving methods, and vendor facilities. In the era of globalization and technological advancement, information technology can be an effective tool for monitoring and managing food cleanliness and safety in canteens. Technology-based food safety management systems can assist in tracking raw materials, monitoring sanitation conditions, and reporting contamination incidents (Motarjemi, 2023). Integrating

information technology into canteen management can enhance efficiency and effectiveness in maintaining food quality.

This study aims to analyze the level of cleanliness, sanitation, and food safety, as well as the hygiene of eating utensils, at the canteen of Universitas Muhammadiyah Pontianak. Additionally, it seeks to identify the factors that influence the quality of cleanliness and food safety, including the behavior of canteen managers, vendors, and cleaning staff. The study also focuses on assessing the implementation of hygiene and sanitation standards in accordance with existing regulations, such as the Indonesian Ministry of Health Decree No. 942/Menkes/SK/VII/2003. Furthermore, this research aims to propose technology-based strategies to improve the management of cleanliness and food safety in campus canteens.

The findings of this study have significant implications for various stakeholders. For Universitas Muhammadiyah Pontianak, the results can serve as a foundation for formulating policies and programs to enhance cleanliness, sanitation, and food safety in campus canteens, thereby supporting the creation of a healthy and productive campus environment. For canteen managers and vendors, this research can raise awareness and improve understanding of the importance of maintaining cleanliness and provide practical guidance for meeting health standards. For students and the campus community, improving the quality of cleanliness and food safety will minimize the risk of foodborne illnesses, thereby supporting health, concentration, and academic performance. Moreover, the study provides empirical data for policymakers to evaluate and improve the implementation of food hygiene and sanitation policies in educational institutions. Additionally, the integration of proposed technology-based food safety management systems offers an innovative solution for campus canteen management, which can be replicated in other educational institutions. Academically, this research contributes to the literature on cleanliness and food safety management in higher education environments, particularly within the local context of Indonesia.

METHOD

This research employs a quantitative approach using a descriptive method to provide a detailed depiction of the hygiene, sanitation, and food safety conditions in the canteens at Universitas Muhammadiyah Pontianak based on existing facts. The study was conducted at Universitas Muhammadiyah Pontianak, located at Jl. Jenderal Ahmad Yani No.111, Pontianak City, West Kalimantan, over two months from June to July 2024. The population of the study includes all canteen workers, with a sample comprising 14 respondents from five canteens offering buffet-style meals, selected through total sampling. Data were collected through direct observation and interviews using observation forms, including primary data obtained from interviews and field observations, and secondary data sourced from documents and other references, such as journals and government publications. Data analysis was performed using univariate analysis to describe the characteristics of the collected data, distribution patterns, and basic statistics of the studied variables.

RESULT AND DISCUSSION

This section presents the research findings obtained from data analysis regarding the cleanliness, sanitation, and food safety in the canteens at Universitas Muhammadiyah Pontianak. The data presentation aims to provide a factual depiction of the conditions observed in the field, based on observations, interviews, and other supporting information. These findings are expected to serve as a foundation for understanding the actual situation in campus canteens and to provide relevant insights for developing better policies and practices in managing cleanliness and food safety. The analysis and discussion are conducted by referencing applicable theories, regulations, and previous research findings. The results of the food system assessment, good food ingredients and food management can be seen in table 1.

Table 1. The Results of The Food System Assessment, Good Food Ingredients and Food Management

Canteen Name	Skor			Total Score	Category
	Food System	Quality of Food Ingredients	Food Management		
Bu Pur Canteen	7	7	7	21	Meets Requirements
Emak Canteen	7	7	7	21	Meets Requirements
MU Canteen	7	7	7	21	Meets Requirements
Mas Bian Canteen	5	6	6	17	Meets Requirements
Bude Canteen	7	7	7	21	Meets Requirements
Total	**33**	**34**	**34**	**101**	**Meets Requirements**

Table 1 shows that the five canteens have an average score ranging from 5 to 7. The Food System Assessment results for these five canteens, with an average score of 5-7, fall into the "Meets Requirements" category. The Good Food Ingredients Assessment results, with an average score of 6-7, are also categorized as "Meets Requirements." Similarly, the Food Management Assessment results, with an average score of 6-7, are classified as "Meets Requirements".

Table 2. The results of the Food Cleanliness Assessment

Assessment Aspect	Score Achieved	Maximum Score	Percentage (%)
Food System	33	35	94%
Quality of Food Ingredients	34	35	97%
Food Management	34	35	97%
		Average	**96%**

The results of the Food Cleanliness Assessment across all canteens indicate an average percentage of 96%, categorized as "Good." The Food System Assessment results show a percentage of 94%, also categorized as "Good." The Good Food Ingredients Assessment results demonstrate a percentage of 97%, categorized as "Good," while the Food Management Assessment results also reach 97%, categorized as "Good."

Table 3. Food Cleanliness Statistical Data

Food Cleanliness Assessment Level	N	%
Fair	1	20.0%
Good	4	80.0%

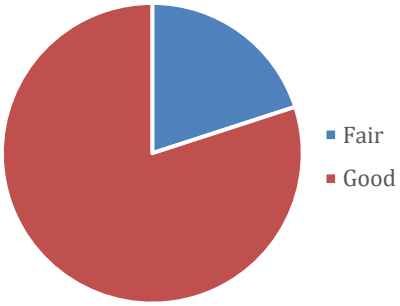


Figure 1. Level of Food Hygiene Assessment

The statistical data on the Food Cleanliness Assessment indicates that, among the five canteens at Universitas Muhammadiyah Pontianak specifically serving buffet-style meals, 80% of the food cleanliness level is categorized as "Good," while 20% is categorized as "Fair."

Table 4. Results of Sanitary Assessment of Waste Disposal and Processing Sites

Canteen Name	Score Achieved		Total Score		Category	
	Waste Disposal Sanitation	Processing Area Sanitation	Waste Disposal Sanitation	Processing Area Sanitation	Waste Disposal Sanitation	Processing Area Sanitation
Bu Pur Canteen	7	2	9	5	Meets Requirements	Does Not Meet Requirements
Emak Canteen	9	5	9	5	Meets Requirements	Meets Requirements
MU Canteen	7	4	9	5	Meets Requirements	Meets Requirements
Mas Bian Canteen	7	2	9	5	Meets Requirements	Does Not Meet Requirements
Bude Canteen	6	5	9	5	Meets Requirements	Meets Requirements
Total	**36**	**18**	**45**	**25**	**Meets Requirements**	**Meets Requirements**

The results of the Waste Disposal Sanitation Assessment show that the five canteens achieved scores ranging from 6 to 7. One out of the five canteens scored 6, three scored 7, and one scored 9, all categorized as "Meets Requirements." Meanwhile, the Sanitation of Food Processing Areas showed scores ranging from 2 to 5. Two out of the five canteens scored 2, categorized as "Does Not Meet Requirements," while three canteens scored between 4 and 5, categorized as "Meets Requirements".

Table 5. Results of the Hygiene Sanitation Assessment

Assessment Aspect	Score Achieved	Maximum Score	Percentage (%)
Personal Hygiene	103	140	94%
Waste Disposal Sanitation	36	45	80%
Food Handler Knowledge	69	70	99%
Processing Area Sanitation	18	25	72%
		Average	**86%**

The results of the Hygiene Sanitation Assessment show an average percentage of 84%, categorized as "Fair." The Personal Hygiene results have a percentage of 94%, categorized as "Good." The Waste Disposal Sanitation results show a percentage of 80%, categorized as "Fair." The Knowledge of Handlers results have a percentage of 99%, categorized as "Good," while the Food Processing Area Sanitation results show a percentage of 72%, categorized as "Fair".

Table 6. Sanitation Hygiene Assessment Statistical Data

Hygiene and Sanitation Assessment Levels	N	%
Poor	2	40%
Fair	1	20%
Good	2	40%

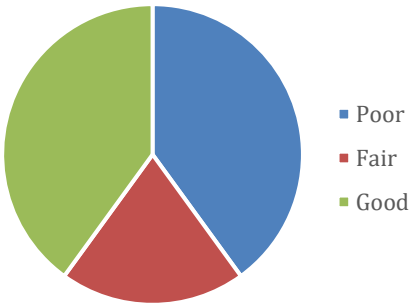


Figure 2. Level of Sanitation Hygiene Assessment

The statistical data on the Hygiene Sanitation Assessment indicates that, among the five canteens at Universitas Muhammadiyah Pontianak specifically serving buffet-style meals, 40% of the hygiene sanitation level is categorized as "Good," 20% as "Fair," and 40% as "Poor".

Table 7. Results of the Cleanliness Assessment of Cutlery and Cutlery Storage

Canteen Name	Score		Total Score	Category	
	Eating Utensil Cleanliness	Eating Utensil Storage		Cleanliness	Storage
Bu Pur Canteen	8	6	14	Meets Requirements	Meets Requirements
Emak Canteen	9	6	15	Meets Requirements	Meets Requirements
MU Canteen	7	6	13	Meets Requirements	Meets Requirements

Mas Bian Canteen	5	3	8	Meets Requirements	Does Not Meet Requirements
Bude Canteen	9	6	15	Meets Requirements	Meets Requirements
Total	**38**	**27**	**65**	**Meets Requirements**	**Meets Requirements**

The results of the Tableware Cleanliness Assessment show scores ranging from 5 to 9 across the five canteens. The results indicate that Kantin Bu Pur scored 8, Kantin Emak scored 9, CanteenMU scored 7, Kantin Mas Bian scored 5, and Kantin Budhe scored 9, all categorized as "Meets Requirements." The Tableware Storage Assessment results show that Kantin Bu Pur, Kantin Emak, CanteenMU, and Kantin Budhe each scored 6, categorized as "Meets Requirements," while Kantin Mas Bian scored 3, categorized as "Does Not Meet Requirements".

Table 8. The results of the Tableware Safety Assessment

Assessment Aspect	Score Achieved	Maximum Score	Percentage (%)
Eating Utensil Cleanliness	38	45	84%
Eating Utensil Storage	27	30	90%
		Average	**87%**

The results of the Tableware Safety Assessment show an overall average percentage of 87%, categorized as "Good." The Tableware Cleanliness Assessment results show a percentage of 84%, categorized as "Good," while the Tableware Storage Assessment results have a percentage of 90%, categorized as "Good".

Table 9. Tableware Safety Assessment Statistical Data

Tableware Safety Assessment Levels	N	%
Poor	2	20%
Good	4	80%

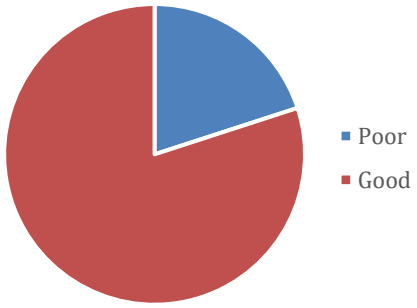


Figure 3. Level of Tableware Safety Assessment

The statistical data on the Tableware Safety Assessment indicates that, among the five canteens at Universitas Muhammadiyah Pontianak specifically serving buffet-style

meals, 80% of the tableware safety level is categorized as "Good," while 20% is categorized as "Poor".

Table 10. Overall Data Results

Assessment Aspect	Score Achieved	Maximum Score	Percentage (%)
Food System	33	35	94%
Quality of Food Ingredients	34	35	97%
Food Management	34	35	97%
Personal Hygiene	103	140	94%
Waste Disposal Sanitation	36	45	80%
Food Handler Knowledge	69	70	99%
Processing Area Sanitation	18	25	72%
Eating Utensil Cleanliness	38	45	84%
Eating Utensil Storage	27	30	90%
Average			**90%**

The overall results of the Food Cleanliness, Hygiene Sanitation, and Tableware Safety Assessments show a percentage of 90%, categorized as "Good". Referring to the findings that show the level of food cleanliness, sanitation, and food safety in the canteens of Universitas Muhammadiyah Pontianak, specifically those serving buffet-style meals. Overall, the research results indicate that the canteens at this campus maintain good cleanliness and sanitation quality, with most of the assessment categories falling under the "Good" level.

First, the food cleanliness assessment results show that most canteens meet the cleanliness standards, with 80% of the canteens categorized as "Good" and 20% as "Fair." This indicates that most canteens have maintained food cleanliness well, although there is room for improvement in some canteens that received the "Fair" category.

The hygiene sanitation assessment reveals areas that need more attention, where 40% of the canteens received a "Good" category, 20% "Fair," and 40% "Poor." This indicates that although most canteens have maintained sanitation well, some canteens need to improve their hygiene and sanitation management, particularly in areas that do not meet the standards.

The tableware safety assessment results show that most canteens at Universitas Muhammadiyah Pontianak have met tableware safety standards, with an average score of 87%, which is very good. Only a small portion received the "Poor" category, indicating that, in general, tableware cleanliness and safety are well implemented. The assessment of tableware storage also shows that most canteens meet the standards, with 80% of the canteens receiving good scores in terms of tableware storage. However, Kantin Mas Bian needs further improvement as it received a "Not Satisfactory" score.

Overall, the research findings suggest that the cleanliness of food, hygiene sanitation, and tableware safety in the canteens at Universitas Muhammadiyah Pontianak are quite good, but there are still some areas that need improvement, particularly in sanitation and tableware storage. Further efforts should be made by the canteen management to enhance cleanliness, sanitation, and safety to support the health and comfort of students, staff, and campus visitors.

CONCLUSION

In general, the cleanliness of food, hygiene sanitation, and the safety of eating utensils at the University of Muhammadiyah Pontianak's cafeterias, particularly those serving buffet-style meals, have met most of the expected standards. The majority of the cafeterias demonstrate good cleanliness and sanitation quality, with most of the assessment categories rated as "Good." However, there are still some areas that require more attention, especially in sanitation and the storage of eating utensils. The results of the study show that 80% of the cafeterias meet the good food cleanliness standards, although 20% of the cafeterias need improvement. Similarly, in terms of hygiene sanitation, while most cafeterias maintain good sanitation, 40% still need to improve their cleanliness and sanitation, especially in areas that received a "Poor" rating. The safety of eating utensils shows satisfactory results, with most cafeterias meeting the good safety standards. Overall, while the cleanliness, sanitation, and safety of eating utensils at the University of Muhammadiyah Pontianak's cafeterias are good, further efforts are needed to improve sanitation management and the storage of eating utensils to ensure the health and comfort of students, staff, and campus visitors. Regular improvement and monitoring of these aspects are essential to maintain quality and support the sustainability of cleanliness and food safety in the cafeterias.

REFERENCES

Amallia, R. H. T., Sariwulan, R. M., Saputri, A., Lestari, A., & Putri, W. U. (2021). Analisis angka kuman pada kampus X Kota Palembang [Research article]. Jurnal Penelitian, 12(1), 57–64. https://jurnal.um-palembang.ac.id/syifamedika/article/download/2928/pdf

Amin, N. F., Garancang, S., & Abunawas, K. (2023). Konsep umum populasi dan sampel dalam penelitian. Jurnal Kajian Islam Kontemporer, 14.

Apriani, A., & Asnur, L. (2023). Sanitasi makanan karyawan di kantin XYZ Padang. Jurnal Penelitian dan Pengembangan Sains dan Humaniora, 7(2), 208–215. https://doi.org/10.23887/jppsh.v7i2.54288

Assidiq, A. S., Darawati, M., Chandradewi, A., & Suranadi, N. L. (2019). Pengetahuan, sikap dan personal hygiene tenaga penjamah makanan di ruang pengolahan makanan. Jurnal Gizi Prima (Prime Nutrition Journal), 4(2), 81. https://doi.org/10.32807/jgp.v4i2.135

Butarbutar, M., Anisah, H. U., Theng, B. P., & Setyawati, C. Y. (2022). Metodologi penelitian: Pendekatan multidisipliner. Media Sains Indonesia.

Cholid, K. A., Darundiati, Y. H., & Sulistiyani, S. (2022). Faktor-faktor yang berhubungan dengan angka kuman pada peralatan makan di rumah makan wilayah perimeter dan buffer area Pelabuhan Sampit. Jurnal Kesehatan Masyarakat (Undip), 10(3), 290–297. https://doi.org/10.14710/jkm.v10i3.32746

Doktriana, R. A. G., Yaser, M., & Wahyudi, J. (2024). Analisis hygiene dan sanitasi makanan di instalasi gizi rumah sakit Rahma Adiyaksa. Antigen, 2(2), 11–21. https://doi.org/10.57213/antigen.v2i2.232

Dr. Mitra, S. (2024). Analisis data penelitian kesehatan.

Engge, B. S. (2023). Hubungan faktor lingkungan dengan perilaku pencegahan DBD pada masyarakat di Desa Mulyo Agung Kecamatan Dau Kabupaten Malang.

Indrasari, Y. (2020). Efisiensi saluran distribusi pemasaran kopi rakyat di Desa Gending Waluh Kecamatan Sempol (Ijen) Bondowoso. Jurnal Manajemen Pemasaran, 14(1), 44–50. https://doi.org/10.9744/pemasaran.14.1.44-50

Juhaina, E. (2021). Keamanan makanan ditinjau dari aspek higiene dan sanitasi pada penjamah makanan di sekolah, warung makan, dan rumah sakit. Electronic Journal Scientific of Environmental Health and Disease, 1(1). https://doi.org/10.22437/esehad.v1i1.10763

Kemenkes RI. (2011). Peraturan Menteri Kesehatan RI No. 1096/Menkes/PER/VI/2011: Higiene sanitasi jasaboga.

Kemenkes RI. (2023). Permenkes No. 2. Kementerian Kesehatan Republik Indonesia, 151(2), 10–17.

Kepmenkes RI. (2003). Keputusan Menteri Kesehatan RI No. 942/Menkes/SK/VII.

Motarjemi, Y. (2023). Food safety management: A practical guide for the food industry (2nd ed.). https://doi.org/10.1016/B978-0-12-820013-1.00046-2

Nasution, A. S. (2020). Hygiene penjamah makanan menyebabkan kontaminasi Escherichia coli pada jajanan pasar tradisional. Promotor, 3(1), 1–6. https://doi.org/10.32832/pro.v3i1.3119

Ritonga, E. A. (2020). Analisis higiene dan sanitasi di kantin kampus Universitas Sriwijaya Indralaya. Universitas Sriwijaya Repository. https://repository.unsri.ac.id/43466/3/RAMA_13201_10011381621149_0014096907_01_front_ref.pdf

Rulen, B. N., & Intarsih, I. (2021). Analisis keberadaan bakteri dan higiene sanitasi peralatan makan di rumah makan wilayah kerja Puskesmas Simpang Tiga Pekanbaru. Ensiklopedia Aku, 3(2), 179–189. http://jurnal.ensiklopediaku.org

Wakarmamu, T. (2021). Metode penelitian kualitatif. Cv. Eureka Media Aksara.

WHO. (2018). Guidelines on sanitation and health. World Health Organization. http://www.who.int/water_sanitation_health/publications/guidelines-on-sanitation-and-health/en/

WHO. (2022). Towards stronger food safety systems and global cooperation. World Health Organization. https://www.who.int/publications/i/item/9789240057685

WHO. (2023). Technical brief: Transforming food systems to reduce global inequality and improve food safety and health. World Health Organization. https://cdn.who.int/media/docs/default-source/universal-health-coverage/who-uhl-technical-brief-template---food-safety.pdf?sfvrsn=6681d1e3_3&download=true

Wulandari, M. T., Safaruddin, & Santoso, R. (2022). Peranan department general affrair dalam pelayanan operasional perusahaan di PT Semen Baturaja (Persero) Tbk. Attariiz, 1(3), 121–131. https://doi.org/10.62668/attariiz.v1i03.312

Yusminatati. (2020). Hubungan pengetahuan dan sikap dengan perilaku penjamah makanan dalam penerapan higiene sanitasi makanan pada rumah makan di Kecamatan Pauh Kota Padang tahun 2020. Skripsi.