

The Effect of Educational Media on the Knowledge and Attitude of Personal Hygiene in Food Handlers

Okta Viani Wulandari^{1*}, Ratih Kurniasari²

^{1,2} Prodi Ilmu Gizi, Fakultas Ilmu Kesehatan, Universitas Singaperbangsa Karawang

How to Cite: Wulandari, O. V. W., & Kurniasari, R. The Effect of Educational Media on the Knowledge and Attitude of Personal Hygiene in Food Handlers. Jurnal Kesehatan, 18(1), 66–75. <https://doi.org/10.23917/jk.v18i1.7071>

Article Information

Article History:

Submission: 5 November 2024

Revision: 8 January 2025

Reception: 26 February 2025

Keywords:

Health Education, Food Handlers, Personal Hygiene

ABSTRACT

Introduction: Personal hygiene of food handlers is a crucial issue in the food industry, as inadequate hygiene practices can increase the risk of food contamination, impact consumer health, and threaten food safety standards. This study aims to determine the effect of leaflet media, music video media and game media on changes in knowledge and attitudes of food handlers about personal hygiene at SMKN 2 Karawang restaurant. **Method:** This research uses a quasi-experimental approach with a one group pre-post test design using total sampling technique with a sample size of 30 respondents. Three educational media used as a reference for group division with 30 respondents as samples, so that 3 groups were made, namely the leaflet media group, the music video media group, and the game group, with 10 respondents belonging to each group. The Wilcoxon signed rank test was used for statistical analysis. **Results:** Obtained significant results between knowledge and attitudes with leaflet media, music video media and game media with a p-value <0,05. The highest average value for knowledge after being given education using the three media was the same (11.90 ± 0.316), while the highest average value for attitude after being given education was using leaflet and game media (9.80 ± 0.422). **Conclusion:** There is an effect of leaflet media, music video media, game media on the knowledge and attitude of food handlers in SMKN 2 Karawang restaurant.

Corresponding Authors: (*)

Prodi Ilmu Gizi, Fakultas Ilmu Kesehatan, Universitas Singaperbangsa Karawang, Jl. HS. Ronggo Waluyo, Puseurjaya, Telukjambe Timur, Karawang, Jawa Barat 41361, Indonesia

Email: 2210631220014@student.unsika.ac.id

INTRODUCTION

According to WHO, *food safety* is a branch of science that discusses the process of preparing, handling and storing food or beverages to prevent contamination by physical, biological and chemical substances. The main objective of food safety is to prevent the entry of foreign substances into food or beverages, thereby reducing the risk of dangerous food-borne diseases. Physical contamination occurs when foreign objects such as hair, metal, plastic, dust, nails, or dirt enter food or beverages. Biological contamination refers to substances produced by living things, such as humans, rodents or insects, that contaminate

food. Meanwhile, chemical contamination includes substances such as herbicides, pesticides, veterinary drugs, as well as pollutants from the environment, such as air, soil or water. In addition, cross-contamination during food processing (Lestari, 2020).

Safe food is food that is free from various hazards that can endanger human health, including biological, chemical and physical contaminants. According to Government Regulation No. 86/2019 on Food Safety, food must meet safety standards to prevent pollution during production and processing. The principles of food safety include sanitation, prohibition of the use of unauthorized additives, and strict supervision of products in circulation. With increasing public awareness of the importance of food safety, the government continues to strengthen regulations and supervision to ensure every individual can consume food safely (Rosida & Natasyari, 2023).

Food handlers are at risk of transmitting diseases, therefore, food handlers are very important during the food processing process (Tuglo et al., 2021). Human resources including education, which increases awareness of personal and environmental hygiene, greatly affects the state of sanitation. The level of education represents insight or knowledge, individuals with lower levels of education tend to have less extensive knowledge compared to individuals with higher levels of knowledge (Aprivia & Yulianti, 2021).

Food handlers must maintain hygiene and sanitation in their work environment because it has many uses for food handlers, such as preventing cross-contamination of food and maintaining the quality of food processed. Sanitary hygiene is the physical condition or environment of the institution concerned, while personal hygiene is the person who does it (Aprivia & Yulianti, 2021).

The World Health Organization (WHO) in 2022, stated that food can be a source of disease if contaminated with harmful microbes. Food contamination with harmful substances causes 600 million to 1 in 10 people to fall ill, with 420,000 deaths and 33 million loss of healthy life. Approximately 70% of diarrhea cases reported by WHO occur in developing countries due to contaminated food in restaurants or catering. The risk of getting poisoned increases due to poor sanitation practices (Hartini, 2022). Food sanitation issues in Indonesia are a serious problem that continues to threaten the community. The number of food poisoning cases in 2011 reached 128 cases from 25 provinces, with 18.144 victims (Pitriyanti et al., 2024). In 2017, food service food was the type of food that caused an Extraordinary Event (KLB) of food poisoning as many as 7 incidents (13.21%). BPOM reported an Extraordinary Event (KLB) in 2019 that there were 97 cases of food poisoning caused by processed foods from food services, and processed foods from food services also ranked second in the group of causes of food poisoning most after processed household foods (Yahya et al., 2022).

Personal hygiene is very important for food handlers, as it can affect the quality and safety of the food produced. Food handlers' knowledge and attitudes regarding hygiene play a major role in the implementation of good hygiene practices. Research shows that although many food handlers have good knowledge of hygiene, their attitudes are often less supportive of the implementation of these practices, such as not washing hands before and after processing food or not wearing masks while working (Puspitasari et al., 2023). Therefore, continuous training and education is needed to increase awareness of the importance of personal hygiene in maintaining public health and preventing food contamination (Nurafni Maftukhah, 2024).

Nutrition education is one way to address food health issues. It is intended to bring about changes and improvements in knowledge within a short period of time. Various ways can be used for nutrition education, with educational media being one of them.

Educational media is relied upon to increase a person's knowledge of the information provided. Various media can be used, one of which is leaflet media, three-dimensional media (music video), and *game* media.

Leaflet media, music video media and *game* media are unique and motivate food handlers to change for the better. The leaflet media contains information that is short, concise and simple so that it is believed that the information provided is easy to understand. The music video media contains animated videos so that food handlers can apply good personal hygiene. In addition, the *game* media contains games on matters related to personal hygiene, so that education can be provided in a more fun form, so that the memory of the education that has been given to food handlers can be longer. The groups were divided based on the total number of students in class 12 tataboga 3, then the number of students was divided into 3 groups for the leaflet media group, music video media, and *game* media group.

SMKN 2 Karawang has a total of 2.103 students and is also one of the A accredited schools. Based on observations, all key informants did not know or hear the term personal hygiene and had not fully implemented good personal hygiene attitudes. This study aims to determine the effect of educational media on changes in knowledge and attitudes of food handlers about personal hygiene at the SMKN 2 Karawang restaurant.

LITERATURE REVIEW

Hygienic and nutritious food is defined as food that is free from germs and toxins that can harm health. The food consumed should have complete nutrients, such as carbohydrates, fats, proteins, vitamins, minerals and water. Nutrients are food components that can help human health. Nutrient content is different in each food, so consuming food according to its nutrient content is recommended so that the body gets a balanced amount of nutrients. Each nutrient cannot function independently to make it grow or process it, but will perform different functions in the body's metabolism (Soegiantoro et al., 2022).

Not only must it have good nutrition, but in terms of processing, free from food handlers, and how to serve the food must also be considered. Food safety is the conditions and efforts needed to protect food from biological, chemical and other contaminants that can interfere with, harm and endanger health. During food processing, it is important to ensure food safety. Eating food that is contaminated or contains toxic substances or materials or pathogenic bacteria that can cause *disease* known as *foodborne disease* (Annas et al., 2021). According to Permenkes RI No.1096/MENKES/PER/VI/2011, 6 hygiene sanitation efforts that must be carried out in order to achieve the availability of healthy food include, efforts to sort raw materials, storage of raw materials, food processing, storage of cooked food, transportation of cooked food and serving food (Muhammad Hatta et al., 2018).

In Indonesia, food poisoning is the most common occurrence. In 2016, there were 1.068 cases of food poisoning in Indonesia. A total of 5.673 people were exposed to the outbreak in 2016, 3.351 became ill, and 7 people died. On average, food poisoning has temporary symptoms such as nausea, vomiting and diarrhea, which can lead to serious illness. In 2015, WHO stated that children, pregnant women, and individuals with low immune systems are the groups most vulnerable to food poisoning (Annas et al., 2021).

People who handle food, food premises, equipment, food processing, and food serving are all part of food hygiene and sanitation efforts. If food handlers do not manage food properly and correctly, it can cause disease and poisoning due to chemicals, microorganisms, plants, or animals, as well as allergies (Annas et al., 2021). According to Permenkes RI No.1096 / MENKES / PER / VI / 2011, the act of washing hands, washing

tools or containers to be used, maintaining a clean environment during the cooking and food preservation process such as storing food in a clean place, striving for food to always be in clean and closed containers, keeping the room from insects and other rodents from entering the food warehouse is the right handling for food safety reference to anticipate consumers from diseases caused by microorganisms (Nikmah Miftakhul, 2017). If hygiene sanitation continues to be neglected and food handlers still ignore microorganisms in food, it can endanger consumer health and allow more food poisoning incidents to occur.

METHOD

The type of research used is *quasi experimental* approach with *one group prepost test* design. SMKN 2 Karawang was chosen as a research site because it fits the characteristics of the problem to be discussed, namely this research site has gourmet students who take turns picketing at the school restaurant. The population in this study were all 12th grade gourmet 3 students of SMKN 2 Karawang, totaling 30 students. This study used a sample of the entire population of 12th grade culinary students 3 SMKN 2 Karawang with 30 respondents as the sample size. The sample in this study met the inclusion and exclusion criteria. The inclusion criteria are as follows: (1) 12th grade students of Tataboga 3 SMKN 2 Karawang who are registered at the school, (2) are picketing at the school restaurant, (3) willing to be respondents and able to communicate well. Then the exclusion criteria are: (1) not a 12th grade student of tataboga 3 SMKN 2 Karawang, (2) not willing to be a respondent and not present during data collection. So that these exclusion criteria are not met by students, due to the participation of all 12th grade culinary students 3 in this study. *The total sampling* technique was used for sampling.

Three educational media used as a reference for group division with 30 respondents as samples, so that 3 groups were made, namely the leaflet media group, the music video media group, and the *game* group, with 10 respondents belonging to each group. According to Masturoh (2018), knowledge is categorized as good when the knowledge questionnaire score is 76-100, sufficient knowledge when the questionnaire score is 56-75, and poor knowledge when the questionnaire score is <56. Then according to Nursalam (2016), the attitude is categorized as good if the attitude questionnaire score is 76-100, the attitude is sufficient if the questionnaire score is 56-75, and the attitude is lacking if the questionnaire score is <56.

The education provided is education about personal hygiene which contains the introduction of the term personal hygiene and the term sanitary hygiene, the purpose of personal hygiene, the 6 principles of sanitary hygiene, the application of personal hygiene and the impact if you do not apply personal hygiene properly which is given by sending media links that have been uploaded via Instagram social media to the *WhatsApp Group* of each group.

Data collection was conducted from August to October 2024 at SMKN 2 Karawang. Validity and reliability tests were conducted before the *pre-test* and *post-test* questionnaires were completed by all group respondents. A total of 12 questions were given in the knowledge questionnaire, while 10 questions were given in the attitude questionnaire to determine the knowledge and attitudes of food handlers whether there was an effective increase by providing interventions that utilized leaflet media, music videos and *games*. *Software* (SPSS) *version 25.0 for windows* was used for data analysis processing. The normality test was carried out after obtaining all data to determine whether the data was normally distributed or not. Because in this study the data was not normally distributed, the *Wilcoxon signed rank test* was used *statistical* analysis for the variables of knowledge and attitude towards personal hygiene.

This study used *Informed Consent* or written consent and provided an explanation without coercion to participate to each respondent. Respondents were allowed to quit the study, and it did not affect their academic field.

RESULT AND DISCUSSION

Face-to-face research was attended by 30 respondents who were willing to fill out questionnaires and activities during the research. In the following table are the results of the study which will explain the characteristics of respondents descriptively.

Table 1. Characteristics of Respondents Based on Gender and Age

Category	Frequency	Percentage (%)
Gender		
Male	5	16,7
Female	25	83,3
Age		
16	1	3,3
17	26	86,7
18	3	10

Table 1 shows that in this study, 5 respondents (16,7%) were male and 25 respondents (83,3%) were female. In the age *range* of 17 years, 26 respondents (86,7%) were the most respondents in this study while 16 years old (3,3%) was the least respondent. Thus, food handlers in adolescence need support from the surrounding environment such as friends, teachers and restaurants to improve personal hygiene attitudes.

Table 2. *Pre-test* and *Post-test* Knowledge of Personal Hygiene of Food Handlers

Variables	Pretest		Posttest	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Knowledge Level				
Less	4	13,3	0	0
Simply	7	23,3	0	0
Good	19	63,4	30	100
Attitude Level				
Less	1	3,3	0	0
Simply	14	46,7	1	3,3
Good	15	50	29	96,7

There were 4 respondents (13,3%) with poor knowledge, 7 respondents (23,3%) had sufficient knowledge, and 19 respondents (63,4%) had good knowledge. Whereas after the intervention was carried out using poster media, music video media, and *games*, all respondents had a good level of knowledge as many as 30 respondents (100%). Meanwhile, the attitude of 1 respondent (3,3%) was obtained in the poor category, 14 respondents (46,7%) in the moderate category, and 15 respondents (50%) in the good category. Whereas after being given the intervention of leaflet media, music video media, *game* media, there were no respondents who had attitudes in the less category, as many as 1 respondent (3,3%) had a moderate attitude, and as many as 29 respondents (96,7%) had a good attitude (Table 2).

Based on the results of this study, most respondents had good knowledge and attitudes, this is in line with research (Soon et al., 2020) where most food handlers have good knowledge of the Five Keys to Safe Food according to WHO to keep food at a healthy temperature and research (Tuglo et al., 2021) which shows that most food handlers have a

good attitude towards food safety. However, this study is not in line with research (Tuglo et al., 2021) because in that study, food handlers did not have good enough knowledge so that food handlers answered questions about storage and temperature in meat incorrectly and research (Ferly et al., 2023) where as many as 50% of respondents had a poor attitude towards food sanitation hygiene. According to the researcher's assumption, this happened due to several possible factors such as the questions given in the questionnaire were too easy, easy access to information from social media, the question points in the questionnaire had been discussed during the learning class, and there was already awareness in attitude but not yet fully implemented.

Table 3. Pretest and Posttest Knowledge on Personal Hygiene of Food Handlers

Media	Knowledge Level	Mean \pm SD	Min - Max	p-value
Leaflet	<i>Pre-test</i>	9,40 \pm 0,966	8 \pm 11	0,005
	<i>Post-test</i>	11,90 \pm 0,316	11 \pm 12	
Music video	<i>Pre-test</i>	8,20 \pm 2,044	5 \pm 12	0,008
	<i>Post-test</i>	11,90 \pm 0,316	11 \pm 12	
Game	<i>Pre-test</i>	8,70 \pm 1,703	6 \pm 11	0,005
	<i>Post-test</i>	11,90 \pm 0,316	11 \pm 12	

The average value in the leaflet group *pre-test* was 9,40 \pm 0,966 and *post-test* was 11,90 \pm 0,316 with a p-value of 0,005. Then for the music video group, the *pre-test* was 8,20 \pm 2,044 and the *post-test* obtained an average of 11,90 \pm 0,316 with a p-value of 0,008. Then in the *pre-test game* group, the average result was 8,70 \pm 1,703 and the *post-test* obtained an average value of 11,90 \pm 0,316 with a p-value of 0,005. Based on the average results of the use of educational media above, it is obtained that music video media has the development of knowledge about personal hygiene in food handlers than other media (Table 3).

Table 4. Pretest and Posttest Attitudes on Personal Hygiene of Food Handlers

Media	Attitude Level	Mean \pm SD	Min - Max	p-value
Leaflet	<i>Pre-test</i>	8,30 \pm 1,059	6 \pm 9	0,011
	<i>Post-test</i>	9,80 \pm 0,422	9 \pm 10	
Music video	<i>Pre-test</i>	8,60 \pm 0,699	8 \pm 10	0,024
	<i>Post-test</i>	9,50 \pm 0,707	8 \pm 10	
Game	<i>Pre-test</i>	8,10 \pm 0,876	7 \pm 9	0,007
	<i>Post-test</i>	9,80 \pm 0,422	9 \pm 10	

The average results in the *pre-test* leaflet group were 8,30 \pm 1,059 and *post-test* 9,80 \pm 0,422 with a p-value of 0,011. Then in the music video group, the *pre-test* was 8,60 \pm 0,699 and the *post-test* obtained an average of 9,50 \pm 0,707 with a p-value of 0,024. Next in the *Game* group, the *pre-test* obtained an average result of 8,10 \pm 0,876 and the *post-test* obtained an average value of 9,80 \pm 0,422 with a p-value of 0,007. Judging from the average results of the use of educational media above, it is obtained that *Game* media is able to make changes in attitudes towards personal hygiene in food handlers than other media (Table 4).

Therefore, health counseling regarding personal hygiene for food handlers is still needed, and as health promotion through education is considered quite effective (Muthi & Kurniasari, 2024). The use of media in health promotion is an alternative way to convey information and messages about health to individuals. The hope is that this can increase a person's knowledge and attitude about health (Chahyanto et al., 2019). The selection of the use of media to be used is more important than the delivery of message content, because

the media to be used functions with the main target to be influenced by the content in the media (Fauziah et al., 2023).

Leaflet

Providing leaflets as one of the educational media given to food handlers was shown to improve several aspects of their knowledge and attitudes regarding hygiene practices in food handling. In terms of knowledge, food handlers became more aware of the importance of proper hand washing, the use of personal protective equipment such as gloves and masks, and the identification of potential biological, physical and chemical contamination in the food processing process. In addition, they are more aware of the adverse impacts of inadequate hygiene practices on consumer health and food safety standards. In terms of attitude, there is an increased concern for the implementation of personal hygiene, including keeping nails, hair and clothing clean while working. Food handlers also showed a more proactive attitude in implementing preventive measures, such as ensuring a clean work environment and complying with established hygienic procedures.

Leaflets are media that are considered quite effective in delivering messages. Leaflets are media used to promote health and serve as a tool to increase message acceptance. Leaflets consist of a foldable piece of paper that contains printed text consisting of short and concise sentences accompanied by simple pictures. One of the advantages of leaflets is the success of delivering short and simple messages, which makes the message easier to accept by the target (Ernawati, 2022).

Based on the results of the study, the use of education with leaflet media was significant with a p-value of 0,005 on knowledge and 0,011 on attitude. This means that there is an influence of leaflet media on the knowledge and attitudes of food handlers at SMKN 2 Karawang restaurant. Meanwhile, the use of leaflet media is able to provide motivation for food handlers to better understand good and correct personal hygiene, especially when processing food. This is in line with research (Manullang & Rosalina, 2021) which states that there is an effect of differences in knowledge between the intervention group and the control group after using leaflet media in health promotion.

Video Music Media

Based on the results of the study, significant results were obtained between knowledge and attitudes towards music video media with a p-value of 0,008 on knowledge and 0,024 on attitudes. Three-dimensional media can stimulate two senses, namely hearing and vision, which can provide a more real understanding to the target, then the information obtained will be more if it uses many senses. In addition, there is a big change in the knowledge of food handlers due to the use of music video media, this is probably because animation is used in its display and audio is used as an explanation of the message so that food handlers are able to clearly understand the message obtained with a permanent nature. However, there is no previous research that is in line with the changes in personal hygiene knowledge through three-dimensional media.

Three-dimensional media can influence the knowledge and attitudes of food handlers because it has an attractive appearance and sound, so that it raises curiosity and is not bored when looking at it. Meanwhile, three-dimensional media can make things look more real. In addition, Three-dimensional media can motivate food handlers to better understand good personal hygiene when processing food. This is in line with research (Fitriani Dwiana et al., 2019) which states that there is an influence on the knowledge and

attitudes of adolescent women with the use of *motion video* media in counseling nutritional anemia at Bina Muda Cicalengka High School.

Game Media

The *world search puzzle* game is a word search activity in a collection of letters arranged randomly in a square grid. Respondents are tasked with finding all the hidden words in the grid. The words can be found in various directions, namely horizontal, vertical, or diagonal. A commonly used strategy is to search for the first letter of the word, then continue searching for the next letter around the first letter, either right, left, up, down, or diagonally, until it forms the desired word. While this strategy can help complete the game, the completion time is highly dependent on the player's speed and accuracy, given the challenge of finding the hidden words amongst the set of letters. The game can be played repeatedly and the letters and words in the grid will reshuffle from the previously played position. The aim of using the game is for respondents to be able to remember the words related to personal hygiene in this game as things that need to be done when touching food.

Based on, the results showed that there was an effect of *game* media on the knowledge and attitudes of food handlers before and after giving the *pre-test post-test* with a p-value of 0,005 on knowledge and 0,007 on attitude. Educational *games* are able to trigger the attractiveness of respondents, so as to increase the logic and understanding of respondents in using this media. On the other hand, new innovations in providing messages to food handlers can be through *game* media so that the educational method becomes fun.

Through the use of *game* media, food handlers can pour their emotions so that a sense of enthusiasm arises to complete the *game* and respondents will continue to remember it. This is in line with research (Muthi & Kurniasari, 2024) which states that there is a successful increase in knowledge and attitudes of respondents using *game* media in sanitation hygiene education.

CONCLUSION

Based on research that has been conducted at the SMKN 2 Karawang restaurant, it is concluded that there is an effect of leaflet media, music video media, *game* media on the knowledge and attitudes of food handlers about personal hygiene in food handlers. The advantages of this study are that the effectiveness of giving messages is achieved and positive feedback is obtained from respondents. The disadvantage of this study is that the period given for taking the *post-test* is only 7 days, so that the knowledge and attitudes of respondents may not be permanent.

ACKNOWLEDGEMENT

The authors would like to thank SMKN 2 Karawang for allowing the research to be conducted, to Mrs. Ratih Kurniasari as the supervisor has provided all the direction, advice, and support.

REFERENCES

- Annas, H. N., Andriyani, Fauziah, M., Ernyasih, & Lusida, N. (2021). Gambaran Penerapan Higiene dan Sanitasi Pengolahan Makanan di Rumah Makan Padang " X " Pamulang Tangerang Selatan Tahun 2020. *Environmental Occupational Health and Safety Journal*, 2(1), 49–58.
- Aprivia, S. A., & Yulianti, A. E. (2021). Hubungan Tingkat Pengetahuan Dan Perilaku

- Dengan Penerapan Personal Hygiene Penjamah Makanan Tahun 2021. *Jurnal Kesehatan Lingkungan (JKL)*, 11(2), 79–89. <https://doi.org/10.33992/jkl.v11i2.1455>
- Chahyanto, B. A., Pandiangan, D., Aritonang, E. S., & Laruska, M. (2019). Pemberian informasi dasar Posyandu melalui kegiatan penyegaran kader dalam meningkatkan pengetahuan kader di Puskesmas Pelabuhan Sambas Kota Sibolga. *AcTion: Aceh Nutrition Journal*, 4(1), 7. <https://doi.org/10.30867/action.v4i1.119>
- Ernawati, A. (2022). Media Promosi Kesehatan Untuk Meningkatkan Pengetahuan Ibu Tentang Stunting. *Jurnal Litbang: Media Informasi Penelitian, Pengembangan Dan IPTEK*, 18(2), 139–152. <https://doi.org/10.33658/jl.v18i2.324>
- Fauziah, L., Susanti, N., & Normila. (2023). Pengaruh Edukasi Gizi “Whatsapp Group” Terhadap Pengetahuan dan Praktik Pemberian Makanan Pendamping ASI. *Kajian Ilmiah Problema Kesehatan*, 8(3), 468–476. <https://creativecommons.org/licenses/by/4.0/%0Ahttps://sinta.kemdikbud.go.id/journals/profile/1162>
- Ferly, D., Gusti, A., & Nur, E. (2023). Faktor-Faktor yang Berhubungan dengan Perilaku Penjamah Makanan Jajanan di Pantai Air Manis Kota Padang Tahun 2023. *Jurnal Kesehatan ...*, 2(1), 26–38. <http://jurnal.poltekkespadang.ac.id/ojs/index.php/kesling/article/view/1125%0Ahttps://jurnal.poltekkespadang.ac.id/ojs/index.php/kesling/article/download/1125/254>
- Fitriani Dwiana, S., Eko, G. P., & Dkk. (2019). Penyuluhan Anemia Gizi Dengan Media Motion Video Terhadap Pengetahuan Dan Sikap Remaja Putri. *Jurnal Kesehatan*, 97–104.
- Hartini, S. (2022). 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*, 2(2), 16–26. <https://doi.org/10.15294/nutrizione.v2i2.58466>
- Lestari, T. R. P. (2020). Keamanan Pangan Sebagai Salah Satu Upaya Perlindungan Hak Masyarakat Sebagai Konsumen. *Aspirasi: Jurnal Masalah-Masalah Sosial*, 11(1), 57–72. <https://doi.org/10.46807/aspirasi.v11i1.1523>
- Manullang, C. E., & Rosalina, E. (2021). Pengaruh Promosi Kesehatan Dengan Media Leaflet Terhadap Peningkatan Pengetahuan Pencegahan Hipertensi Pada Lansia Di Kampung Sawah Jakarta Utara. *Carolus Journal of Nursing*, 4(1), 1–12. <https://doi.org/10.37480/cjon.v4i1.67>
- Muhammad Hatta, Erwindah, & A. Marahena. (2018). Gambaran Hygiene Sanitasi Pengelolaan Makanan Di Reastoran Madura Kota Masohi Kabupaten Maluku Tengah. *Jurnal Mitrasedhat*, 8(2), 201–208. <https://doi.org/10.51171/jms.v8i2.185>
- Muthi, S., & Kurniasari, R. (2024). Pengaruh Media Edukasi Terhadap Pengetahuan dan Sikap Higiene Sanitasi Makanan Jajanan The Influence of Educational Media on Knowledge and Attitudes of Snack Food Sanitation Hygiene. 450–457.
- Nikmah Miftakhul. (2017). Pemeriksaan Mikrobiologi Sampel Makanan Di RSUD Dr. Soetomo Surabaya. *Jurnal Kesehatan Lingkungan*, 10(3), 283–290.
- Nurafni Maftukhah. (2024). Hubungan Pengetahuan, Sikap dan Perilaku Terhadap Personal Hygiene Penjamah Makanan (Food Handler) Di Pasar Retail Jakabaring Palembang. *Journal Health Applied Science and Technology*, 2(1), 20–26. <https://doi.org/10.52523/jhast.v2i1.35>
- Pitriyanti, L., Sagung Sawitri, MPH, D. A. A., & Gita, S.KM, M.Kes, I. K. (2024). Outbreak Investigation of Food Intoxication of Finger Candy (Case Study At Elementary School in Denpasar Bali, Indonesia). *Jurnal Kesehatan*, 12(2), 92–101.

- <https://doi.org/10.32763/4myz4p81>
- Puspitasari, D. Z., Astuti, D., & Porusia, M. (2023). Hubungan Pengetahuan Dan Sikap Dengan Perilaku Personal Hygine Penjamah Makanan Pada Industri Rumah Tangga Produk Abon. In *Jurnal Kesehatan* (Vol. 16, Issue 1, pp. 51–63).
- Rosida, & Natasyari, D. D. S. (2023). Sosialisasi Penerapan Cara Produksi Pangan Olahan yang Baik (CPPOB) di UMKM Arjaya Pangan Nusantara, Surabaya. *DIANDRA: Jurnal Pengabdian Kepada Masyarakat*, 2(1), 21–26.
- Soegiantoro, D. H., Soegiantoro, H. R., & Soegiantoro, G. H. (2022). Penyuluhan Higiene Dan Sanitasi Dalam Pengolahan Makanan Di Sevensky Lippo Plaza Yogyakarta. *Jurnal Industri Pariwisata*, 4(2), 122–130. <https://doi.org/10.36441/pariwisata.v4i2.660>
- Soon, J. M., Wahab, I. R. A., Hamdan, R. H., & Jamaludin, M. H. (2020). Structural equation modelling of food safety knowledge, attitude and practices among consumers in Malaysia. *PLoS ONE*, 15(7 July), 1–12. <https://doi.org/10.1371/journal.pone.0235870>
- Tuglo, L. S., Agordoh, P. D., Tekpor, D., Pan, Z., Agbanyo, G., & Chu, M. (2021). Food safety knowledge, attitude, and hygiene practices of street-cooked food handlers in North Dayi District, Ghana. *Environmental Health and Preventive Medicine*, 26(1), 1–13. <https://doi.org/10.1186/s12199-021-00975-9>
- Yahya, P. N., Ronitawati, P., Sitoayu, L., Sa' pang, M., & Nuzrina, R. (2022). Faktor-Faktor Yang Memengaruhi Praktik Keamanan Pangan Pada Penyelenggaraan Makanan Di Sekolah. *Gizi Indonesia*, 45(1), 47–58. <https://doi.org/10.36457/gizindo.v45i1.543>