

# Hasil Cek Paper 1

*by Dyah Suryani*

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## Factors Associated with Food Safety Practices (FSP) Among Visitors in the Depok Beach Area in Yogyakarta

Dyah Suryani<sup>1</sup>, Asep Rustiawan<sup>2</sup>, Arihni Arihatal Jannah<sup>3</sup>

<sup>1</sup>Department of Nutrition, Faculty of Public Health, Ahmad Dahlan University, Yogyakarta, Indonesia

<sup>2</sup>Department of Public Health, Faculty of Public Health, Ahmad Dahlan University, Yogyakarta, Indonesia

<sup>3</sup>Magister of Public Health Program, Faculty of Public Health, Ahmad Dahlan University, Yogyakarta, Indonesia

Corresponding Author:

**Dr. Dyah Suryani, S.Si, M.Kes**

Department of Nutrition, Faculty of Public Health, Ahmad Dahlan University, Yogyakarta, Indonesia.

Jl. Prof. DR. Soepomo Sh, Warungboto, Kec. Umbulharjo, Kota Yogyakarta, Daerah Istimewa Yogyakarta 55164, Indonesia

Email: [dyah.suryani@ikm.uad.ac.id](mailto:dyah.suryani@ikm.uad.ac.id)

### Abstract

**Background:** Most of the previous studies focused on food safety practices among food handlers. However, personal food safety practices are needed to prevent foodborne diseases. This study aimed to explore the factors associated with food safety practices among people who visited Depok Beach. **Methodology:** The quantitative approach has done for 211 Depok Beach visitors who were selected by the accidental sample method. The dependent variable of this study was food safety practice and the independent variables included sociodemographics, knowledge, and attitude about food safety. **Results:** This study found that factors such as marital status, knowledge, and attitude were 2.8, 1.2, and 2.2 times respectively more likely to practice poor food safety practices. **Conclusion:** The food safety practice among visitors was less than average. The factors associated with food safety practices among visitors were marital status, knowledge, and attitude about food safety. Health promotion about food safety for customers is needed. Further studies could mix with the qualitative approach to get comprehensive findings.

**Keywords:** Food safety, customers, visitors, Depok Beach

## Background

Global health remains a threat due to infections and diseases because of food contamination. There are many impacts of poor food safety practices, one of them is food poisoning and food-borne diseases. Poor food safety is still a cause of food poisoning worldwide (Fung et al., 2018). Incredible incidents of food poisoning occur in various countries such as Italy (Guidi et al., 2018), India (Khare et al., 2018), Argentina (Manfredi & Rivas, 2019), Ethiopia (Kassahun & Wongiel, 2019), Japan (Suzuki et al., 2020), Francis (Ve et al., 2019), and Korea (H. Lee et al., 2020) to cause severe pain and death. It is estimated that 600 million people annually fall ill from contaminated food, resulting in 420,000 deaths worldwide and 170,000 deaths in the Southeast Asian region (WHO, 2020). Food contamination is caused by various environmental factors such as toxic metals, chemicals, pesticides, veterinary drugs, natural poisons of food, and some that are contaminated during the cooking process (Skarsson, 2012). Therefore, good management of food safety is very important to prevent food-borne illness (Kamboj et al., 2020).

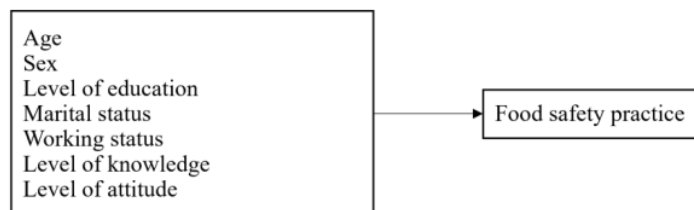
The tourism area is the destination area where most of the tourists visited. The availability of safe food in the public area is important to ensure the satisfaction of customers in terms of healthy, clean, and safe food. Moreover, food quality, cleanliness, and price are the things that visitors really consider when visiting tourist attractions (Wiatrowski et al., 2021). The tiered role of the government to the local community in maintaining food safety in their place of residence (tourism area) needs to be taken seriously (Fakfare & Wattanacharoensil, 2020). Therefore, it is very important to have location-based food safety planning, policies, and strategies in a tourism destination (Y. Lee et al., 2019).

The good implementation of food safety is not only the responsibility of food handlers. As mentioned by previous study, the ones who play the most important role in determining safe and healthy food for consumers are food handlers (Kwol et al., 2020). The role of food handlers in tourist attractions greatly determines the quality of the food that will be produced so it affects the food safety for tourists (Hastuti et al., 2022). Therefore, the implementation of food safety practices will merely be optimal given the appropriate management culture and adequate resources (Suryani & Rustiawan, 2022). However, the role of costumers is also important. It because the food safety practices are consisted of some practices which can be done by costumers. Some of those points such as pay attention to the expired date, read label before purchase, use clean hand before eat, and washed egg before cooking. The importance of food safety practices among costumers is interesting to study because most of study only focused on food safety practice among food handlers.

During the COVID-19 pandemic from late 2019 to early 2023, the tourism sector experienced a significant decline. This is due to prevention regulations with PSBB, application of protocols to prevent transmission in public places, limiting or closing certain tourist attractions to prevent transmission of the COVID-19 virus between humans. This research was conducted during the COVID-19 pandemic and was carried out at the tourist spot Depok Beach in Yogyakarta. This tourist spot is well-known and has become a destination for national and international tourists when visiting Special Region of Yogyakarta Province. The high coverage of the COVID-19 vaccination nationally and the reduced application of regulations for the prevention of COVID-19 in the community have made Depok Beach tourism increasingly crowded with tourists every day. Although visitors still come from local and national residents, food safety practices among tourists in the Depok Beach area must have good standards for both food handlers and costumers.

Globally, previous studies found the up to 20% of diarrhea among travelers which mostly due to poor hygiene and safety of food (Steffen et al., 2015). Acute diarrhea is common during the travel especially in low-middle-income countries, including Indonesia. Based on the

findings of study in Bali, Indonesia, *E.Coli* was found positively in the restaurant with not good hygiene food handlers (Purnama & Subrata, 2020). The same study conducted in Bali, found the hand washing behavior is significantly correlated to traveler's diarrhea (Ani & Suwiyoga, 2016). It is importance to implement hygiene and safety food for all tourism areas for preventing the traveler's diarrhea. However, there is lack of study conducted in tourism area located in Yogyakarta. Moreover, among all beaches in Yogyakarta, Depok beach is one popular beach where local and global tourist visited. The implementation of food safety management is needed for both food handlers and consumers. Furthermore, this study aimed to examine the factors influenced the food safety practice among tourist in Depok Beach tourism area, Yogyakarta, Indonesia.



**Picture 1:** Conceptual framework of factors associated with food safety practice

## Method

### Study design

A cross-sectional study design was used in this study to examine the influence of socio-demographic, knowledge, and attitude factors on the food safety practices of tourists in Depok Beach, Kretek Sub-district, Bantul District, Yogyakarta which is one of the famous beaches with various culinary tourism.

### Setting and samples

The survey was conducted from September to October 2022. The population of this study were all visitors to Depok Beach during the data collection. The sample was determined randomly using accidental sampling technique on the most visited day by tourists (respondents). The willingness of tourists to be included as respondents determines the number of samples. So, until the last day of data collection, the number of samples in this study was 211 respondents.

### Instrument

The questionnaire used in this study comprised 18 questions developed based on previous methods (Farahat et al., 2015; Hassan & Dimassi, 2014a; Odeyemi et al., 2019; Sani & Siow, 2014; Stratev et al., 2017; Zhang et al., 2015). The questionnaire was translated into Bahasa Indonesia by Ahmad Dahlan Language Center (ADLC). It consists of several question items that include sociodemographic characteristics, criteria for respondents choosing where to eat, food safety knowledge, food safety attitudes, and food safety practices. The sociodemographic questionnaire consists of age, gender, education, marital status, occupation, and area of origin. The food safety knowledge questionnaire has 18 questions, using a 2-1 Guttman scale with "true" and "false" answers. The practice safety attitude questionnaire has 15 questions, using a 4-1 Likert scale with the answers "Strongly Agree", "Agree", "Disagree", and "Strongly Disagree". Furthermore, the food safety practice questionnaire has 15 questions, using a 3-1 Likert scale with the answers "Always", "Sometimes", and "Never".

The questionnaire is reliable and has been validated through initial testing of 30 respondents at the Baru Bantul beach tour area. The tests were carried out for food safety knowledge questionnaires, food safety attitudes, and food safety practices which then obtained Cronbach alpha values of 0.83, 0.86, and 0.76 respectively.

#### Data collection

Data collection was carried out every weekend (Saturday and Sunday) face-to-face for one month in the entire Depok Beach area. The researcher was assisted by two enumerators whose perceptions had been equalized beforehand. Researchers and enumerators collected data on tourists who voluntarily be able for being respondents and filled out informed consent. Questionnaires were distributed to be filled in by respondents while still being accompanied by researchers or enumerators. The completed questionnaire was then checked again by the researcher and enumerator to ensure the completeness of the filling.

#### Data analysis

This study uses three stages of analysis, starting with univariate analysis to describe the characteristics of the subject. Then continued bivariate analysis with the Chi-Square test to identify the relationship between each variable with a 95% CI ( $\alpha = 0.05$ ). Furthermore, binary logistic regression tests to identify the most influential variables with the direction and magnitude after adjusting to all other independent variables. All data analysis was performed using SPSS Version 25 software.

#### Ethical consideration

Each respondent signed informed consent prior to data collection. Ethical Approval for this study was obtained from the Ahmad Dahlan University Yogyakarta ethics committee office (Certificate of Approval No. 012208112). The entire research process carried out the standard protocol for preventing the transmission of COVID-19 from the Indonesian Ministry of Health Indonesia.

### Results

Table 1 below described the general information about the study's sample. Among 211 respondents, the majority of them were of adult age (89.57%). More than half of them were female (65.88%) and almost all of them had a low educational level (95.26%). About half of the respondents were unmarried (56.40%), and came from Central Java Province (47.87%). In terms of working status, most of them were working (89.57%), considering the factor of cleaning for choosing the restaurant (50.71%). According to KAP (Knowledge, Attitude, and Practice) about food safety, more than half of them had poor 54.03%, poor 57.82%, and good 57.35%, respectively.

**Table 1:** Characteristics of tourists in Depok Beach in this study

Variables (n= 211)	Frequency (n)	Percentage (%)
<b>Age</b>		
Adolescent	22	10.43
Adult	189	89.57
<b>Sex</b>		
Female	139	65.88
Male	72	34.12
<b>Level of education</b>		
High	10	4.74
Low	201	95.26
<b>Marital status</b>		

Unmarried	119	56.40
Married	92	43.60
<b>Area of origin</b>		
Yogyakarta	59	27.96
Central Java	101	47.87
West and East of Java	30	14.22
Outside of java	21	9.95
<b>Working status</b>		
Working	189	89.57
Not working	22	10.43
<b>The reason for choosing the restaurant</b>		
Food taste	59	27.96
Food display	6	2.84
Price	31	14.69
Clean environment	107	50.71
Others	8	3.79
<b>Level of knowledge</b>		
Good	97	45.97
Poor	114	54.03
<b>Level of attitude</b>		
Good	89	42.18
Poor	122	57.82
<b>Food safety practice</b>		
Poor	90	42.65
Good	121	57.35

The result of the bivariate analysis which has been done using the simple logistic regression test is shown in Table 2 below. It showed that some variables have a correlation to food safety practice and some others no. The variables that are significantly associated with food safety practices were age, sex, marital status, level of knowledge, and level of attitude. However, other variables including level of education and working status were found no association with food safety practices.

**Table 2:** Analysis bivariate of food safety practice among tourists

Independent variables	N	Food safety practice		COR (95% CI)	p-value
		Good	Poor		
<b>Age</b>					
Adult	189	133	76	2.602 (1.04-6.50)	<b>0.041</b>
Adolescent	22	8	14		
<b>Sex</b>					
Female	139	87	52	1.870 (1.05-3.33)	<b>0.033</b>
Male	72	34	38		
<b>Level of education</b>					
High	201	115	86	0.891 (0.24-3.26)	0.862
Low	10	6	4		
<b>Marital status</b>					
Married	92	67	25	3.226 (1.80-5.79)	<b>0.000</b>
Unmarried	119	54	65		
<b>Working status</b>					
Working	22	14	8	1.341 (0.53-3.35)	0.530
Not working	189	107	82		
<b>Level of knowledge</b>					

Good	114	70	44	1.435 (0.83-2.48)	<b>0.015</b>
Poor	97	51	46		
<b>Level of attitude</b>					
Good	122	80	42	2.230 (1.27-3.90)	<b>0.005</b>
Poor	89	41	48		

The binary logistic regression was done to examine the correlation of each independent variable by adjusting to other predictors. The result revealed that marital status, level of knowledge, and level of attitude were found significantly associated with food safety practices. In detail, after adjusting to other independent variables, marital status significantly has a correlation with food safety practice. Those who were unmarried were 2.8 times more likely to practice poor food safety practices compared to married ones. According to the level of knowledge and attitude, it was found those who had poor knowledge and attitude had odds 1.2 and 2.2 times more likely to practice poor food safety compared to good ones after adjusting with other independent variables. However, other variables including age, sex, level of education, and working status found no significantly associated with food safety practices.

**Table 3:** Binary logistic regression analysis of poor food safety practices among tourist

Independent variables	Adj. OR	95% Confidence Interval		p-value
		Lower	Upper	
<b>Age</b> (ref. Adult)				
Adolescent	1.777	0.651	4.851	0.262
<b>Sex</b> (ref. female)				
Male	1.369	0.735	2.548	0.322
<b>Level of education</b> (ref. High)				
Low	0.849	0.190	3.807	0.831
<b>Marital status</b> (ref. Married)				
Unmarried	2.779	1.473	5.241	<b>0.002</b>
<b>Working status</b> (ref. Working)				
Not working	1.087	0.402	2.943	0.869
<b>Level of knowledge</b> (ref. Good)				
Poor	1.227	0.667	2.256	<b>0.031</b>
<b>Level of attitude</b> (ref. Good)				
Poor	2.190	1.187	4.042	<b>0.012</b>

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## Discussion

According to the findings of this study, it was found that the prevalence of visitors who had poor food safety practices was about half. The factors associated with food safety practices were marital status, knowledge, and attitude toward food safety practices. However, other factors are not significantly associated with food safety practices, such as age, sex, level of education, and working status. The findings of this study are in line with the previous study compared the food safety knowledge, attitude, and practice in Cameroon and Iran (Odomi et al., 2019). The different results found from the study in North Jakarta which was found a correlation between knowledge and attitude towards food safety practices (Putri & Susanna, 2021). Among the food handlers, the results of this study were not in line with the study in Tobago, it was found that education level, knowledge, and working status have a correlation with food safety practices WEBB. The study in Haiti brought out the customers and food handlers at the same time. The findings of that study revealed that the knowledge and attitude between them were average and the factors such as gender, training, and education level had no correlation with food safety knowledge (Samapundo et al., 2015). Different from the result

of this study, the study among Lebanese students found that gender, living with parents, and level of knowledge had a correlation with food safety practices (Hassan & Dimassi, 2014b).

In terms of the outcome of poor food safety practices, there is a direct impact on health which is commonly called food-borne diseases. One study in the Capital City of Jakarta found that food safety and food hygiene had an association with diarrhea among children under 2 years (Agustina et al., 2013). The importance of food safety concerns was found to have a correlation with eating choices based on the study among students in Ghana (Adam et al., 2014). Furthermore, food safety, food fraud, and food defense were considered for the risk assessments (Manning & Soon, 2016).

In terms of the limited studies conducted among customers of the general population, the impact of poor food safety practices is also impacted on industrial sectors. One industrial sector mentioned in a previous study was palm oil. Awareness of customers is needed to implement food and nutrition safety in the palm oil industry (Hariyadi, 2020). Apart from that industry, there is a packaging industry that was also mentioned by the study in Indonesia that the implementation of a food safety management system (FSMS) is required (Purwanto et al., 2020). The tourism industry also needs more attention to food safety management, especially mentioned in a street food study in Penang Malaysia (Mohamad et al., 2022).

The importance of food safety practice training is also needed not only for food handlers but also customers. The previous food safety training course for developing knowledge and attitude about food safety (Putri & Susanna, 2021). Furthermore, the concern of food safety is important not only for food servers, food handlers, or food vendors but also for individual homes because there is always any risk of foodborne disease (Ababio & Lovatt, 2015).

This study can contribute to providing data that could lead to improvements in practices of food safety among visitors in order to prevent the spreading of communicable diseases in tourism areas. This study has limitations, such as the result could not be generalized to other tourism areas. In the local context, this study can give a clear understanding of food safety among visitors in the area of the beach. In the global context, this study can contribute a general description of food safety practices among local tourists so international tourists can practice more food safety, especially in tourism areas in Indonesia.

## Conclusion and recommendation

The factors that were found to have an association with food safety practices were marital status, knowledge, and attitude toward food safety. The strongest factor was found in marital status which mentioned that unmarried ones tend to practice poor food safety. In terms of the lack number previous studies working on the relationship between marital status and food safety practices so it might be assumed that having a partner will lead people to practice in more appropriate including practicing food safety. The knowledge and attitude were also found significantly associated with food safety practices, which means there is a need for more health promotion that food safety is important for both food handlers and customers. Further study can do the mixed method to comprehensively find the factors associated with food safety practices among food handlers and customers.

## Conflict of interest

All of the authors state no conflict of interest in this research.

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## Authors contribution



This research was led by DR. Dyah Suryani and all the authors contributed to its originality.

### Biography of authors

Dr. Dyah Suryani, S.Si., M. Kes is an Assistant Professor at the Department of Nutrition, Faculty of Public Health, Ahmad Dahlan University, Yogyakarta, Indonesia.

Asep Rustiawan is an Assistant Professor at the Department of Public Health, Faculty of Public Health, Ahmad Dahlan University, Yogyakarta, Indonesia.

Arihni Arihatal Jannah is a student in the Magister of public health program at the Faculty of Public Health, Ahmad Dahlan University, Yogyakarta, Indonesia.

Suyitno, SKM., MPH is a lecturer at the Department of Public Health, Institute Kesehatan dan Teknologi Graha Medika, Kotamobagu, Indonesia.

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