

Food Safety Risk Perception of Market Consumer in Surakarta City

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Abstract. Food safety is a very important global issue, with various challenges that continue to emerge around the world. As the main provider of fresh and safe food to consumers, food safety, such as sanitation and hygiene, is considered important and value-added by consumers. Understanding how consumers perceive risks related to the safety and quality of the products they buy in both types of markets, this study is expected to provide a clearer picture of the effectiveness of the implementation of food safety standards from the consumers' perspective. The results showed that the level of consumer risk perception was categorized as high. In addition, there is no difference in risk perception between consumers of Nationally accredited local market that have implemented food safety standards and non accredited local market that have not implemented food safety standards.

1 Introduction

Food safety is a critical global issue, with challenges continuing to emerge around the world [1]. Along with rapid population growth and urbanisation, food safety issues are increasingly complex. The risk of food contamination, whether by chemical, biological or physical materials, can affect consumer health and potentially cause infectious diseases or food poisoning [2]. To overcome these problems, the Indonesian government has launched various programs and policies. One of the significant efforts in Indonesia is to establish an Internal Control System (ICS) contained in the Pasar Pangan Segar Aman (PAS Aman) program. The main objective of this program is to create a clean and safe market environment and ensure that the products sold meet the established food safety standards.

The market, as an economic institution where buyers and sellers meet, plays a crucial role in this condition. As the main provider of fresh and safe food to consumers, food safety, such as sanitation and hygiene, is considered important and has added value to consumers. Pasar Tanggul is the only traditional market in Surakarta that has become a Pasar Pangan Segar Aman (PAS Aman). The quality and safety of food in this market are a priority to ensure that consumers get safe and quality products.

If food safety is not properly maintained by sellers, the consequences can be very serious. Consumers are at risk of foodborne illness, which can lead to long-term health problems and reduce public trust in traditional markets [3, 4]. The results of the Pasar Pangan Segar Aman

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(PAS Aman) 2023 Activity Report on Pasar Tanggul showed that 2.8% of the results of the pesticide contamination rapid test had positive results, which showed that fruit and vegetable products had pesticide contamination that exceeded the threshold. Furthermore, 30% of the results of the formalin contamination rapid test have positive results, which indicate that food products have formalin contamination exceeding the threshold.

The results of the report indicate that there are still food safety risks in food products in the market. Consumer knowledge and attention, seen from risk perception, will describe how consumers assess something [5]. Risk is a combination of many factors that are influenced by consumer attitudes and behavior and result in consumer trust and satisfaction with a product [6]. When consumer risk perception has been formed, it will affect consumer decisions whether to avoid risk or accept the risk so that the decision to choose a product will occur.

This study aims to determine the differences in consumers' risk perceptions of food products sold in two types of markets, namely markets that have implemented food safety systems and public markets in Surakarta City. By understanding how consumers perceive risks related to the safety and quality of the products they buy in both types of markets, this study is expected to provide a clearer picture of the effectiveness of the implementation of food safety standards from the consumers' perspective. The results of this study can also serve as a basis for policymakers and market players to increase consumer confidence and encourage improvements in the food distribution and supervision system at the traditional retail level.

2 Methodology

The research method used in this study is a descriptive analytical method, which is an approach that aims to describe and analyze actual conditions or phenomena as they are at the time of the research. This method allows researchers to focus on ongoing problems in the field, then process the data from observations and interviews systematically to draw relevant conclusions [7]. This approach is considered appropriate because the research focuses on differences in consumer risk perceptions in two types of markets based on the application of food safety standards.

The research was conducted in Surakarta City, by selecting two categories of markets, namely Pasar Tanggul, which has implemented a food safety system, and several other traditional markets around the city as a comparison. The determination of respondents was done purposively with the main criteria being consumers who buy raw food such as vegetables, fruit, rice, fish, chicken, beef, tofu, tempeh, salted fish, karak, and grated coconut. The number of respondents in this study was 200 people who were divided proportionally between the Pasar Tanggul and the non-Pasar Tanggul. To analyze the differences in consumer risk perception between the two types of markets, a t-test was used as the main data analysis technique.

3 Results and Discussion

3.1 Research Location

Pasar Tanggul is one of the traditional markets that has a modern concept, located at Jl. RE Martadinata, Kampung Sewu, Jebres District, Surakarta City, Central Java Province. Pasar Rakyat Tanggul was built in 2015 and has an area of about 2,400 m².



Fig. 1. Pasar Tanggul Surakarta

Pasar Tanggul has adequate facilities such as clean toilets, waste storage, organic waste treatment, daycare and children's playground, smoking room and parking lot. Pasar Tanggul has been designated as a market with SNI (Indonesian National Standard) number 8152:2015. The SNI certificate was issued by the head of the National Standardisation Agency (BSN) with Decree number 84/KEP/BSN/4/2015 on 6 April 2015.

Vendors are grouped according to the type of goods they sell, making it easier for consumers to choose. Meat vendors in the Pasar Tanggul are separated and given a glass partition so that they can be seen from the outside so that the smell and blood from the meat does not affect other merchandise. Zoning of traders is important to make the market more organized, efficient, clean and convenient for consumers.

3.2 Respondent Profile

Table 1. Characteristics of Respondents

	Number of Respondent		Percentage	
Gender	Accridited Local Market	Non-Accridited Local Market	Accridited Local Market	Non-Accridited Local Market
Laki - Laki	13	21	13	21
Perempuan	87	79	87	79
Age				
15 – 64	89	100	89	100
>65	11	0	11	0
Education				
Not in School	13	8	13	8
SD	14	19	14	19

	Number of Respondent		Percentage	
Gender	Accridited Local Market	Non-Accridited Local Market	Accridited Local Market	Non-Accridited Local Market
SMP	26	20	26	20
SMA	31	38	31	38
Diploma	2	4	2	4
Sarjana	9	6	9	6
Magister	5	5	5	5
Shopping Frequency				
1 – 2	37	26	37	26
3 - 4	33	39	33	39
5 - 6	21	19	21	19
>6	9	6	9	6

The results showed that the dominance of respondents was female compared to men. This is because women more often do shopping for daily needs [8]. Apart from making purchases for daily needs, female consumers are considered more consumptive than men [9]. The majority of respondents are in the productive age range. This shows that the level of experience or mindset of the respondent is mature enough to consider the various statements given. The level of education possessed by the respondent will affect the knowledge possessed so that it determines his mindset in assessing risk perception [10]. The majority of respondents have a high school / vocational high school education level. Consumers who have a higher level of education are more responsive to information and have broader insights so that this will influence their choice of products to consume [11]. The majority of respondents shop at the market 1-2 times a week and 3-4 times a week. Respondents shop at the market quite often to fulfill their daily needs.

3.3 Difference in Consumer Risk Perception

Risk perception refers to the concerns or uncertainties that consumers feel regarding product quality, food safety, cleanliness of the market environment, and comfort while shopping. The indicators used to measure risk perception are attention to food safety programmes and willingness to choose markets that implement market safety programmes. The measurement used is a 1-5 Likert scale.

Table 2. Risk Perception Level

Risk Perception Score	Number of Respondent	
	Accridited Local Market	Non-Accridited Local Market
Strongly Agree	69	68
Agree	30	27
Neutral	1	5
Disagree	0	0
Strongly Disagree	0	0

The results showed that the level of consumer risk perception, both in accredited local market and non-accrdited local market areas, was in the high category. An accredited local market is a market that has a strategic location, has the commitment of market managers, is willing to provide monitoring stations, guarantees the safety of fresh food, and is free from hazardous chemical contaminants (formalin, borax, textile dyes), heavy metals, and microbiological contaminants. The majority of respondents in both areas strongly agreed with statements related to food safety risks, indicating a strong awareness and alertness to the potential dangers of consuming unsafe food products. This high perception of risk indicates that consumers have understood the importance of food safety in their shopping behaviour. High awareness of risk also indicates that when consumers feel that the food products they consume have met safety standards, they will feel calmer and more confident in consuming them [12].

Normality checks are carried out to evaluate whether the research data has a normal or abnormal distribution [7]. Kolmogorov-Smirnov analysis was used in this study. A data is normally distributed if it produces an Asymp. Sig (2-tailed) > 0.05, which indicates that the data is normally distributed.

Table 3. Normality Test Result

	Group	Statistic	df	Sig.
Risk	Accridited Local Market	.119	100	.001
	Non-Accridited Local Market	.173	100	.000
	Total		200	

The analysis results in Table 3 show the sig. value <0.05 this value indicates the data is not normally distributed. If the normality assumption is not met, then researchers are advised to use an alternative non-parametric test, namely the Mann-Whitney U Test. The independent statement in the Mann Whitney U-Test states that the two populations of interest are independent of one another.

Table 4. Mann Whitney U Analysis Result

	Consumer	N	Mean Rank	Sum of Ranks
Risk	Accridited Local Market	100	106.51	10651
	Non-Accridited Local Market	100	94.49	9449
	Total	200		
	Risk			
Mann-Whitney U		4399		
Z		-1.471		
Asym. Sig. (2-tailed)		.141 ^{ns}		

The results of the analysis in Table 4 show that the risk perception of consumers in accredited local market and non-accredited local market has no significant difference. Consumers' risk perception of food safety has the same characteristics regardless of where the food is sold. Consumers still choose safe food products that are clearly visible to the naked eye, both in accredited local market and non-accredited local market. The reason why there is no significant difference is due to the access factor to the market; accredited local market consumers tend to shop at accredited local market because the access is close to where consumers live. The average accredited local market consumer is a person who lives in the vicinity of accredited local market, so the consumer's decision to shop is based on close access to their residence. Consumer perceptions of food safety risk are essentially similar across different market locations because most consumers do not have a deep understanding of the food safety programmes that are implemented, such as sanitation standards, formal supervision, and safe food handling practices. The lack of food safety literacy makes consumers rely more on visible indicators, such as stall cleanliness, physical condition of products, and the behaviour of traders in handling food. As a result, consumers assess food safety primarily from a visual perspective, so their risk perceptions do not differ significantly between accredited local market and other markets.

4 Conclusion

There is no difference in risk perception between accredited local market and non-accredited local market consumers. This is because consumers' risk perception of food safety has the same characteristics regardless of where the food is sold. Programs related to healthy and safe markets need to be intensified by the government and related parties. Strengthening this program is important to increase the sense of security and comfort for consumers in conducting buying and selling activities, especially in the aspects of cleanliness, food safety, and management of the market environment. Intensive socialization, continuous supervision, and collaboration between traders, market managers, and related agencies will strengthen consumer confidence in traditional markets as healthy, hygienic, and decent shopping places.

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