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# Hygiene conditions for food handlers, tenant sanitation with the presence of E. Coli in food court snacks in Makassar City

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**Abstract**---Unhygienic food management or with poor food sanitation can cause the food to be contaminated by pathogenic microorganisms, such as *Escherichia coli*. These bacteria can cause various very detrimental diseases, such as digestive disorders. This study is a quantitative analytic study using a cross-sectional design. The population in this study were all tenants in the Tpanjang village as many as 64 tenants. The research sample consisted of 9 food/beverage samples. Inclusion criteria in determining the sample are hawker traders who are in the research location, are hawker traders who are in the Food Court area and are willing to be respondents (samples are taken). The results showed that food handler hygiene was not related to the presence of E. Coli in Food Court snacks in Pandang Village, Makassar City ( $p = 0.284 > 0.005$ ) as well as Tenant Sanitation was not related to the presence of E. Coli in Food Court snacks in Pandang Village, Makassar City. ( $p=0.074 > 0.05$ ). The conclusion of this study is that there is no relationship between food handler hygiene and the presence of E. Coli in Food Court snacks in Pandang Village, Makassar City, there is no relationship between Tenant Sanitation and the presence of E. Coli in Food Court snacks in Pandang Village, Makassar City.

**Keywords**---Hygiene Condition, Tenant Sanitation, E. Coli.

## **Introduction**

According to the Decree of the Minister of Health No. 715, Food sanitation hygiene is an effort to control the factors of food, people, places and equipment that can or may cause disease or health problems. Unhygienic food management or with poor food sanitation can cause the food to be contaminated by pathogenic microorganisms, such as *Escherichia coli*. These bacteria can cause various very harmful diseases, such as digestive disorders (WHO, 2018).

Bacteria in food can be caused by the sale of food that does not pay attention to cleanliness and safety, for example in Indonesia, especially in Makassar City, food sales are carried out freely so that you can find many street food vendors selling on the roadside without paying attention to hygienic presentation.

One source of food that has the potential to be contaminated with Coliform microbes is street food because snacks are food and drinks prepared and sold by traders on the streets and other public crowded places which are directly eaten and consumed without proper processing and preparation (Khiki, 2018). Based on the results of the visit at the time of the initial data collection, it was found that some of the handlers did not use gloves, aprons, and when processing food without washing their hands first. In addition to this, the implementation of health protocols during the pandemic is not visible from several tenants who serve food so that the potential for disease transmission from food to humans to food is very possible.

## **Methods**

This research is a quantitative research by conducting interviews, laboratory tests and direct observations using observation sheets in order to obtain information about food handler hygiene, tenant sanitation and bacteriological content of food and beverages. This study is a quantitative analytic study using a cross-sectional design. The variables in this study consisted of the independent variable, namely the hygiene of the handlers and the condition of the sanitation facilities (providing hand washing facilities, clean water, waste water disposal, washing utensils) and the dependent variable, namely the presence of *E. coli* bacteria in food court snacks. The research location is a one-stop hawker center (food court) located in Pandang Village, Panakkukang District. The population in this study were all 64 tenants located in Pandang Village. The sampling technique used was purposive sampling technique. Purposive sampling is a non-random sampling technique because the selected objects and subjects are based on certain considerations (Arikunto, 2016). The research sample consisted of 9 food/beverage samples. Inclusion criteria in determining the sample are hawker traders who are in the research location, are hawker traders who are in the food court area and are willing to be respondents (samples are taken).

## Result and Discussions

### Result

#### Respondents characteristics

Table 1  
Distribution of Respondents Characteristics

Characteristics	Total	
	n	%
Age		
18	2	22.1
19	2	22.1
20	2	22.1
21	1	11.1
23	1	11.1
25	1	11.1
Gender		
Woman	4	44.4
Man	5	55.6
Education		
primary school	0	0.0
Junior high school	1	11.1
Senior High School	8	88.9

Source: Primary data, 2021

Table 1 shows the distribution of respondents based on the age of the respondents, showing that the most respondents were aged 18, 19, and 20 (22.1%) while the least respondents were aged 21, 23, and 25 (11.1%). Based on the results of the study, it can be seen that the distribution of respondents based on the gender of the respondents, shows that the most respondents are female, namely 4 people (44.4%). Based on the results of the study, it can be seen that the respondents based on the respondent's education showed that the most respondents had a high school education level, namely 8 people (88.9%).

#### Researched variables

Table 2  
Distribution of Food Handler Hygiene Relationship with Presence of E. Coli

HYGIENE FOOD HANDLERS	Presence of E. COLI				Total		P Value
	Negative		Positif				
	n	%	n	%	N	%	
enough	6	66.7	1	11.1	7	77.8	0.284
Not enough	1	11.1	1	11.1	2	22.2	
Total	7	77.8	2	22.2	9	100	

Source: Primary data, 2021

Table 3  
Distribution of the Relationship of Sanitary Hygiene with the Presence of E.Coli

Hygiene Food Handlers	Presence of E. COLI						p Valu e
	Negatif		Positif		Total		
	n	%	n	%	N	%	
Qualify	2	22.2	2	22.2	4	44.4	0.07
Not Qualify	5	55.6	0	0.0	2	55.6	3
Total	7	77.8	2	22.2	9	100	

Source: Primary data, 2021

Based on the Chi Square test, p value = 0284 ( $> 0.05$ ) which means that there is no relationship between the hygiene of food handlers and the presence of e.coli in Food Court snacks in Pandang Village, Panakkukang District, Makassar City in 2021. Based on the Chi Square test, p value is obtained = 0.073 ( $> 0.05$ ) which means that there is no relationship between tenant sanitation and the presence of e.coli in Food Court snacks in Pandang Village, Panakkukang District, Makassar City in 2021.

## Discussion

### The relationship of sanitary hygiene with the presence of E. Coli

Food handlers according to the Indonesian Ministry of Health (2006) are people who are directly related to food and equipment from the preparation, cleaning, processing, transportation to serving stages. In the food processing process, the role of food handlers is very large. Food handlers who handle food ingredients often cause microbiological contamination (Depkes, 2006).

Hand hygiene is one indicator of health in maintaining the quality of food and beverages. Good or bad hygiene of the handlers will affect the quality of the dish. Based on the Chi Square test, the value of  $p = 0284$  ( $> 0.05$ ) means that there is no relationship between the hygiene of food handlers and the presence of e.coli in Food Court snacks in Pandang Village, Panakkukang District, Makassar City in 2021.

This is due to the possibility that the pandemic condition which has entered two years has caused a lack of visitors at the research location so that food handlers do not carry out many activities of making or serving food, because if we look at the results of the distribution table based on the habit of washing hands before work, after work and after going out. from toilets/latrines it was found that 66.6% did not do this. Do not talk much and always cover the mouth when coughing or sneezing by staying away from food or leaving the room only 22.2%. Awareness of food handlers regarding these habits that are not realized when processing food can be minimized by the use of personal protective equipment such as the use of masks and gloves which can be more effective in preventing the spread of bacteria and viruses (Menkes, 2011).

Dirty or contaminated hands can transfer pathogenic bacteria and viruses in the body, feces or other sources to food. Hand washing is the main thing that must be done by workers involved in food handling. Hand washing with soap followed by rinsing will remove many of the microbes present on the hands (Azwar, 2005).

Based on laboratory examination of 9 samples of Food Court snacks, it was also found that there were 2 samples that were tested positive for contamination with the presence of *Escherichia Coli*. Snacks contaminated with *E. Coli* are the most crowded tenants among the tenants used as sampling in this study, so it can be said that the quiet tenants have a small potential for *E. Coli* contamination caused by food handlers.

This is in line with research conducted by Dyah, et al (2015) which stated that there was no relationship between handler hygiene and the presence of *Escherichia Coli*. This is different from the research conducted by Kiki and Andi (2018) which stated that there was a relationship between personal hygiene of food handlers and the bacteriological quality of MPN Coliform on snacks in the Fresh Panakukang market area of Makassar City.

#### **Tenant's sanitation relationship with *E. Coli* presence**

Tenant sanitation is one of the health indicators in maintaining the quality of food and beverages. Tenant sanitation that meets the requirements or not will affect the quality of the dish. Based on the Chi Square test,  $p$  value = 0.073 ( $> 0.05$ ) which means there is no relationship between tenant sanitation and the presence of *e.coli* in Food Court snacks in Pandang Village, Panakkukang District, Makassar City in 2021. Tenant sanitation, which meets the requirements is 4 tenants (44.4%) and 5 tenants did not meet the requirements (55.6%). There is no relationship between Sanitation Hygiene and the presence of *e. coli* due to the lack of visitors at the research site so that there is not too much waste disposal, the availability of clean water to carry out food processing activities is also quite good, marked by the presence of flowing water for each tenant/stand. Proper waste management includes waste storage, garbage collection, and waste disposal. Garbage storage is a temporary trash can before garbage is transported and disposed of. The requirements for the trash bin must be strong, not easy to leak, and can be transported by one person (Fathonah, 2004). A good water condition is to provide water for washing hands that is separate from washing utensils, such as using running water from the faucet and buckets/tubs provided for washing utensils, namely tubs for soaking, tubs for soaping, and tubs for rinsing (Rahayu, 2006).

Based on observations in the field, most of the traders have a booth condition in an open area and only barrier materials such as tarpaulins that cover the food processing area and are close to sources of pollution, for example, there are several places where traders sell their goods close to waste disposal sites (canals) and trash cans. Open and dirty, and do not use a cover and the area is close to the washing area. Where food/beverage utensils that you want to wash are placed directly on the ground without a special container or area for washing equipment. This causes vectors such as flies in the area around the sale. And several sellers of grilled meatballs were seen washing the skewers of meatballs and satay in

buckets of water around the sale which, from the physical point of view, had been used repeatedly and it was seen that the skewers were left scattered on the floor during food processing. The toilets used at the research site are also mostly toilets that are shared by visitors and food handlers, so the potential for the increase in bacteria carried is much greater.

Therefore the improvement of food processing facilities is important in preventing contamination by food bacteria. One of the ways to improve TPM facilities is to protect them from the sun, rain and wind, not to become a breeding ground for vectors and nuisance animals, if viewed from a construction point of view, the trash bins that should be implemented are made of strong, waterproof, closed, and use special plastic bags for leftovers and ready-to-eat foods that spoil quickly.

Traders should always maintain the availability of sufficient water sources for washing equipment, separate water for the washing and rinsing process with separate tubs, pay attention to the source of clean water used for washing equipment by not using the water repeatedly until it is dirty and oily – oil. One source of food that has the potential to be contaminated with microbes is street food because snacks are food and beverages prepared and sold by traders on the streets and other public crowded places which are directly eaten and consumed without proper processing and preparation

### **Conclusion**

Based on the results of research on the hygiene conditions of food handlers, sanitation of tenants at the food court snacks in Pandang Village, Makassar City, it can be concluded that there is no relationship between the hygiene of food handlers and the presence of bacteriological e.coli in the food court snacks in the Makassar City Viewpoint in 2021. No There is a relationship between the hygiene and sanitation of tenants with the presence of bacteriological e.coli at the food court in the Makassar City Viewpoint in 2021.

People should be more vigilant and sort out the snacks they want to eat. Be more careful before buying by paying attention to the hygiene of the handlers/traders and the sanitation of the tenants. Food handlers should carry out clean and healthy living behaviors by maintaining hand hygiene, using an apron, protecting against contamination of snacks and not talking a lot and always covering the mouth when coughing or sneezing by staying away from food or leaving the room. Especially in a pandemic like now to implement strict health protocols.

### **Thankyou**

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