

Environmental Sanitation of Traditional Market in Padang and Payakumbuh

Aria Gusti¹, Putri Nilam Sari¹

Department of Environmental and Occupational Health, Faculty of Public Health, Andalas University, Padang, Indonesia.

¹ORCID: 0000-0001-6999-6051 (Aria Gusti)

Abstract:

Environmental sanitation behavior refers to the involvement of citizens in the provision, utilization, and maintenance of environmental sanitation facilities and services. This study aims to assess the availability of environmental sanitation facilities and market sanitation behavior of market traders in terms of utilizing available environmental sanitation facilities and responses when environmental sanitation facilities are not available. This research uses a case study approach, and this study will focus on the Nanggalo market in Padang City and the Ibhuh market in Payakumbuh City, Indonesia. A total of 96 traders became respondents in this study who took systematic sampling. The dependent variable in the study is the market category, and the independent variable includes access to environmental sanitation facilities and environmental sanitation behavior. Data were analyzed using cross-tabulation. Access to sanitation facilities was obtained by almost all traders (97.9%) in Ibhuh Market, claiming to use tap water as a source of clean water while Nanggalo Market mostly (41.7%) using dug wells. On accessibility to the toilet, the findings revealed that all traders in the Nanggalo market had access to the toilet. However, in the Ibhuh market, there are 2.1% do not have access to a toilet. This study establishes that there is a relationship between the sanitation behavior of traders and the type of market where they carry out their trading activities. The study also stipulates that traders, especially in the Ibhuh market, go a long distance to access environmental facilities such as water supply and toilets than their counterparts in the Nanggalo market. This study recommends the synergy of efforts by all parties involved in creating a healthy environment.

Keyword: Sanitation, Behavior, Trader, Traditional Market

1. INTRODUCTION

The market as an essential structural part of the local economy, which facilitates the exchange of commodities, money transfer, and traffic of goods, information flow, and other forms of spatial and other social interaction, also leads to waste generation, especially plastic waste. (1). This problem has the potential for environmental pollution with the accompanying public health implications (2). One of the recognized public health hazards throughout the world is inadequate environmental sanitation (3). In most communities, the fundamental causes of diseases are sanitation insufficient, unsafe water supply, improper disposal of waste, and air pollution (4,5,6).

The idea to reduce the environmental and human health consequences arising from poor sanitation practices has been

put in place by past and present government administrations (7). One of them is the practice of environmental sanitation. This idea practiced in urban and rural environments, including markets (8).

Environmental sanitation on the market is essential because that is where buying and selling takes place and often takes the form of direct consumption of goods and services (1). The market environment, especially in developing countries, is polluted because of human errors. Among others, inadequate waste and wastewater disposal, open defecation, and unhygienic sanitation practices. Also, the location of the market in a residential area puts the population at higher risk (7)

The aspects of mitigation techniques are often left out in the condition of environmental sanitation facilities and the behavior of environmental sanitation from market traders. This condition can be in terms of availability, function, and accessibility of environmental sanitation facilities in the market (9).

Environmental sanitation behavior refers to the involvement of citizens in the provision, use, and maintenance of environmental sanitation facilities and services and compliance with environmental laws (10). The meaning is the disposition of traders and the utilization of facilities when they are available and their response when they are not available. Provisions of adequate environmental sanitation facilities and services are best referred to as a means to achieve appropriate environmental sanitation conditions. The attitude and practice of traders' behavior determine the condition of market sanitation. Thus, to achieve proper environmental sanitation conditions in the market, good sanitation behavior, and the availability of facilities and services must work simultaneously.

The Indonesian government established two retail classifications (markets), namely traditional markets and modern markets (11). Traditional markets are places where sellers and buyers meet and are characterized by direct seller transactions. There is usually a bargaining process. Buildings usually consist of stalls or outlets, booths, and open bases that are opened by sellers or a market manager. Most sell daily necessities such as food ingredients in the form of fish, fruit, vegetables, eggs, meat, cloth, electronic clothing, services, and others. In the city of Padang, including traditional markets, such as; Pasar Raya, Alai Market, and Nanggalo Market. While in the city of Payakumbuh, one of the traditional markets is included in the category of healthy markets, namely the Ibhuh market.

Modern markets are not much different from traditional markets, but this type of market sellers and buyers do not

transact directly. Still buyers see the price tags listed in the goods (barcodes), are in buildings, and services are carried out independently (self-service) or served by salespeople (12). Items sold, other than food ingredients such as; fruit, vegetables, meat; most of the other items sold are items that can last a long time. Examples of modern markets in the city of Padang are Plaza Andalas, Basko Grand Mall, and Citra Swalayan.

Traditional markets in Indonesia are often uncomfortable visiting because they are identical to dirty places, smelly, muddy, stuffy. It also becomes a breeding ground for infectious animals, such as cockroaches, flies, and mice. Information from various health authorities noted that there were more than 250 types of diseases transmitted through unsafe food. An unhealthy market positively impacts the sale of unsafe food. Data from 2005 shows that 60% of Indonesians obtain food and other daily necessities from traditional markets (13).

Channels of pollution that may occur in the market are to humans, merchandise, including food, and all equipment/facilities on the market. Sources of contamination in food can be started from agriculture (rice/vegetables in rice fields/gardens, fish in ponds/ponds), collection, storage, transportation, and storage. Pollution in humans, especially when in career status or personal hygiene or clean living behavior (PHBS) that do not meet health requirements. Pollution in existing equipment is intended primarily for sanitation facilities, including the provision of clean water and landfills/waste (14).

The Directorate General of Communicable Disease Control and Environmental Sanitation (P2M-PL) has fostered several traditional markets to maintain public health and safety and food poisoning in several areas, including in Payakumbuh, Special Capital Region (DKI) Jakarta, Sragen, Tangerang, Pekalongan, and Gianyar (14).

This study aims to assess the availability of environmental sanitation facilities and market sanitation behavior of market traders in terms of utilizing available environmental sanitation facilities and responses when environmental sanitation facilities are not available. This study uses a case study approach, and this study will focus on the Nanggalo market in Padang City and the Ibhuh market in Payakumbuh City, Indonesia.

RESEARCH METHOD

The markets studied were the Nanggalo Market in Padang City and the Ibhuh Market in Payakumbuh City, West Sumatra Province. The Nanggalo Market represents traditional markets that have not been categorized as healthy markets, while the Ibhuh Market is a traditional market that has been awarded as a healthy market.

The dependent variable in the study is the market category, and the independent variable includes access to environmental sanitation facilities and environmental sanitation behavior. Access to environmental sanitation facilities consists of clean water sources, access to toilets, types of toilets, types of sewerage. In contrast, while environmental sanitation behavior consists of types of clean water storage facilities, waste disposal methods, distance to the nearest drinking water source, distance to the nearest toilet, factors that reduce interest in using the toilet.

Systematic sampling methods are used in selecting sample traders in both markets. For the administration of the questionnaire, two percent (2%) of traders in each part of the trader category were selected for the survey. Thus, a total of 96 respondents were chosen. This consists of 48 (50%) traders from the Nanggalo market and 48 (50%) from the Ibhuh market. Data collected through a questionnaire survey is a profile of traders, sanitation facilities, and environmental sanitation behavior in response to the availability and unavailability of environmental sanitation facilities. Data analysis was performed using cross-tabulation.

RESULT AND ANALYSIS

Characteristics of Respondents

The respondent profile discussed consisted of gender and type of stall where they were selling. The gender distribution of respondents shows that women accounted for the highest proportion of traders (55.2%), compared to the proportion of male respondents (44.8%). The most types of shops/stalls where traders sell are permanent trough-shaped shops both in Ibhuh (58.3%) and in Nanggalo (37.5%). Characteristics of respondents, as shown in table 1.

Table 1. Characteristics of Respondents

Characteristics	The Ibhuh Market	The Nanggalo Market	Total
	n (%)	n (%)	n (%)
Gender			
Man	21 (43,8%)	22(45,8%)	43(44,8%)
Women	27(56,2%)	26(54,2%)	53(55,2%)
Total	48(100%)	48(100%)	96(100%)

Types of Stalls			
Chicken Stall	3(6,3%)	2(4,2%)	5(5,2%)
Meat Stall	3(6,3%)	2(4,2%)	5(5,2%)
Fish Stall	3(6,3%)	4(8,4%)	7(7,3%)
Permanent (trough)	28(58,3%)	18(37,5%)	46(47,9%)
Permanen (Stall)	0(0,0%)	12(25%)	12(12,5%)
Street Vendor	11(22,9%)	10(20,8%)	21(21,9%)
Total	48(100%)	48(100%)	96(100%)

Access to Sanitation Facilities

This section discusses traders' access to environmental sanitation facilities in the study area. Information about this, as listed in Table 2, is essential to consider the environmental sanitation facilities available to traders. This is necessary because the availability of facilities can affect the respondent's environmental sanitation behavior.

The information in Table 2 shows that in the Ibh market, 97.9% of traders claimed to have access to tap water, and the remaining 2.1% used to refill water as a source of clean water. In the Nanggalo market is more varied, where 34.8% of traders have access to tap water, 14.6% use water from bore wells, while 41.7% of other traders indicate that their water source is dug wells.

On accessibility to the toilet, the findings revealed that all traders in the Nanggalo market had access to the toilet. However, in the Ibh market, there are 2.1% of traders who do not have access to toilets. This finding implies that respondents who do not have access to a toilet will look for alternative sources as toilets that may not be environmentally friendly.

The results of investigations on temporary landfills available to traders in two markets revealed that 62.5% of traders in both markets claimed easy access. Only 2.1% of traders in the Nanggalo Market have wet and dry rubbish bins, while none at the Ibh Market. Garbage transport equipment is available for 37.5% of traders in Ibh Market and 35.4% of traders in the Nanggalo Market.

Findings on the types of available wastewater discharges indicate that in the Ibh Market 81.3% were open channels, 16.7% closed channels, and the remaining 2.1% were piped. While in the Nanggalo Market, the open channel is 58.3%, the closed channel is 41.7%, and there is no pipeline. Open sewers are susceptible to blockage by sewage, which causes the breeding of pests and disease outbreaks.

The handwashing area in Ibh Market is easily reached by 22.9% of traders, equipped with 12.5% soap and running water available to 64.6% of traders. While in Nanggalo Market, hand washing was easily reached by 16.7% of traders, none were equipped with soap, and running water was available according to 83.3% of traders.

Table 2. Access to Environmental Sanitation Facilities

Facilities	The Ibh Market	The Nanggalo Market	Total
	n (%)	n (%)	n (%)
Clean Water Sources			
Tap Water	47 (97,9%)	21(43,8%)	68(70,8%)
Bor Wells	0(0,0%)	7(14,6%)	7(7,3%)
Dug Wells	0(0,0%)	20(41,7%)	20(20,8%)
Refill Water	1(2,1%)	0(0,0%)	1(1,0%)
Total	48(100%)	48(100%)	96(100%)

Access to the Toilet			
Yes	47(97,9%)	48(100%)	95(99,0%)
No	1(2,1%)	0(0,0%)	1(1,0%)
Total	48(100%)	48(100%)	96(100%)
Temporary Trash Disposal			
Easy to Reach	30(62,5%)	30(62,5%)	60(62,5%)
Wet and Dry Trash Can Available	0(0,0%)	1(2,1)	1(1,0%)
Available Carrier Equipment	18(37,5%)	17(35,4%)	35(36,5%)
Total	48(100%)	48(100%)	96(100%)
Wastewater Sewer Type			
Piping	1(2,1%)	0(0,0%)	1(1,0%)
Closed Channel	8(16,7%)	20(41,7%)	28(30,1%)
Open Channel	39(81,3%)	28(58,3%)	67(69,8%)
Total	48(100%)	48(100%)	96(100%)
Hand washing facilities			
Location Easily Reached	11(22,9%)	8(16,7%)	19(19,8%)
Equipped with soap	6(12,5%)	0(0,0%)	6(6,3%)
Flowing Water Available	31(64,6%)	40(83,3%)	71(73,9%)
Total	48(100%)	48(100%)	96(100%)

Environmental Sanitation Behavior

Continued findings on market traders' access to environmental sanitation facilities, this section presents the results of an analysis of market traders' environmental sanitation behavior (see Table 3). Findings at the waste storage facility at the Ibh market show plastic bags (35.4%) as the most prominent. Other forms of waste storage facilities in the Ibh market are containers without covers, baskets, and sacks with a proportion of 22.9%, 20.8%, and 16.7% of traders who use this facility, respectively. In the Nanggalo market, the most prominent waste storage facilities are plastic bags (52.1%) followed by sacks (20.8%), and open containers (18.8%).

In the garbage disposal method, it was observed in the Ibh market that (47.9%) traders stated that garbage collection officers collected their rubbish. Other waste disposal methods used by traders in this market dispose of trash into the provided landfills (45.8%), drainage (4.2%), and dumped into the nearest

bush (2.1%). In the Nanggalo market, the most (60.4%) traders dump their trash in landfills available in the market while others were collected by garbage collection officers (39.6%).

Regarding the findings of the distance between the shop/stall and the nearest clean water source, preliminary quantitative data are categorized into three: 1-50 meters, 51-100 meters, and 100 meters and above. In the Ibh market, 25.0% of respondents stated that the distance from their shop/kiosk to the nearest water source was less than 50 meters, 41.7% traveled 51-100 meters while 33.3% were at a distance of more than 100 meters to the water source. In the Nanggalo market, the majority (60.4%) of traders claim the distance between the kiosk and their water source is less than 50 meters, 31.2% claim a distance of 51-100 meters while the rest (8.3%) travel more than 100 meters.

Table 3. Environmental Sanitation Behavior

Facilities	The Ibhuh Market	The Nanggalo Market	Total
	n (%)	n (%)	n (%)
Type of Waste Storage Facilities			
Container Without Cover	11(22,9%)	9(18,8%)	20(20,8%)
Container With Cover	2(4,2%)	0(0,0%)	2(2,1%)
Plastic Bags	17(35,4%)	25(52,1%)	42(43,8%)
Basket	10(20,8%)	4(8,3%)	14(14,6%)
Sack	8(16,7%)	10(20,8%)	18(18,8%)
Total	48(100%)	48(100%)	96(100%)
Waste Disposal Method			
Thrown into the nearest bush	1(2,1%)	0(0,0%)	1(1,0%)
Disposed into temporary landfills	22(45,8%)	29(60,4%)	51(53,1%)
Discharged into drains / drainage	2(4,2%)	0(0,0%)	2(2,1%)
Collected by garbage collection officers	23(47,9%)	19(39,6%)	42(43,8%)
Total	48(100%)	48(100%)	96(100%)
Distance from the Nearest Clean Water Source			
< 50 meters	12(25,0%)	29(60,4%)	41(42,7%)
51 – 100 meters	20(41,7%)	15(31,2%)	35(36,5%)
>100 meters	16(33,3%)	4(8,3%)	20(20,8%)
Total	48(100%)	48(100%)	96(100%)
Distance from the toilet			
< 50 meters	11(22,9%)	29(60,4%)	40(41,7%)
51 – 100 meters	20(41,7%)	15(31,2%)	35(36,5%)
>100 meters	17(35,4%)	4(8,3%)	21(21,9%)
Total	48(100%)	48(100%)	96(100%)
Interest in Using the Toilet			
Bad Sanitary Conditions	4(8,3%)	34(70,8%)	38(39,6%)
Distance away	2(4,2%)	0(0,0%)	2(2,1%)
Other reason	42(87,5%)	14(29,2%)	56(58,3%)
Total	48(100%)	48(100%)	96(100%)

The distance traders traveled to access toilet facilities were also checked. In facilitate analysis, initial quantitative data are categorized into three: 1-50 meters, 51-100 meters, and 100 meters and above. In the Ibh market, 22.9% of traders traveled less than 50 meters to use the toilet, 41.7% traveled 51-100 meters to access the toilet, while 35.4% did travel 100 meters up to use the toilet. In the Nanggalo market, 60.4% of traders traveled less than 50 meters to use the toilet, 31.2% traveled 50-100 meters to use the toilet while 8.3% walked more than 100 meters to use the toilet.

On the findings of the factors that influence toilet use, an investigation from the Ibh market revealed that 8.3% of respondents did not use toilets in the market due to poor sanitation conditions; 4.2% stated that long distances made them reluctant to use toilets in the market. In the Nanggalo market, the majority of traders (70.8%) said they did not use toilets because of poor sanitation conditions.

CONCLUSION

This study assesses the environmental sanitation behavior of traders in Ibh traditional markets in Payakumbuh City and Nanggalo in Padang City. This study establishes that there is a relationship between the environmental sanitation behavior of traders and the type of market where they conduct their trading activities. The study revealed that the Nanggalo market was more equipped with environmental facilities than the Ibh market. The study also stipulates that traders, especially in the Ibh market, go a longer distance to access environmental sanitation facilities such as water supply and toilets than their counterparts in the Nanggalo market.

With a background that environmental sanitation is a community responsibility, this study recommends the synergy of efforts by all parties involved in creating a healthy environment. The government, trade associations, Community Based Organizations (CBOs), market management authorities, and NGOs must provide environmental sanitation facilities and services in the market. Also, because the market is a place of business, traders must be mobilized to pay for environmental sanitation services in the market to create sustainable services. Furthermore, the government must enforce existing environmental sanitation regulations to impose sanctions on market traders for deviant behavior.

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