

ORIGINAL ARTICLE

Community Perception and Assessment of Public Toilets in Kuala Lumpur Among Users of KTM Commuter Public Toilet

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ABSTRACT

Introduction: Some public toilets in Malaysia are still far from the clean category, with an unpleasant smell, faulty and insufficient basic amenities. Poor sanitation continues to be a global issue, contributing to the spread of life-threatening illnesses and pollution of land and water. One of the United Nations Sustainable Development Goals (SDGs), Goal 6, Clean Water and Sanitation, plays a role in addressing this issue. Therefore, this study aims to determine the perception and assessment of the public toilets in Kuala Lumpur. **Methods:** A cross-sectional study design was used among the public toilet user of Keretapi Tanah Melayu (KTM) Commuter. Respondents (n=112) were obtained through convenience sampling among the commuter KTM public toilet users in Kuala Lumpur. Descriptive statistics were used to analyze the sociodemographic information, general questions, perception, and assessment of public toilets. Pearson correlation test was used to determine the association between perception and assessment of public toilets. **Results:** The results showed that most of the elements of public toilet facilities such as door, floor, and walls were rated neutral except for the toilet seat that was rated dirty (40.2%). The majority of respondents had a moderate perception of public toilets (73.2%). The findings also showed no association between perception and assessment of public toilets ($p=0.139$, $r=0.141$). **Conclusion:** In conclusion, Keretapi Tanah Melayu (KTM) Commuter public toilet users in Kuala Lumpur have a moderate perception, and they mostly suggested that public toilet user is the most responsible for the cleanliness of the public toilet.

Keywords: Assessment, Community, Perception, Public toilet

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INTRODUCTION

According to ASEAN Public Toilet Standard (1), a public toilet is defined as a space that consists of at least one bowl, with or without seating, to sit or squat, and connected to a drainpipe and flushing device that is often shared by people to urinate and defecate. Toilets that people can use in public places where many people pass by, such as markets, train stations, tourist attractions, and near office buildings, are called public toilets (2). According to Greater Bendigo Council (3), a public toilet can be defined as an important public amenity that contributes to the comfort of residents and visitors. A public toilet is usually located in a busy area or the most populated area that can be used by the community (4). According to the Centre for Disease Control and Prevention (5), the availability of toilets can help promote health because

people can properly dispose of their excreta. Nowadays, public toilets in Malaysia do not only serve for sanitation purposes but are also important as an image of the country. Since the toilet is a city's asset as declared by Eastern Regional Organization for Planning and Human Settlement (6), it is critical to analyse the perceptions of community members who use toilet facilities regularly (7). Understanding people's perceptions of the present and future sanitation systems can help to address and achieve successful urban sanitation (8).

One of the benefits of public toilets is that it helps to produce a healthy community. A lack of public toilets will result in unsanitary places and can spread infection, causing diseases such as diarrhea (9). According to New Humanitarian Organization (10), lack of toilets and poor hygienic conditions lead to water-borne disease. A study conducted in Malaysia also reported that the absence of sanitation facilities has a significant association with diarrhea, especially with children under the age of 5 years old (11). Contaminated water and a lack of a decent toilet are also among the top five biggest deaths

of women throughout the world (12). A single toilet flush could create thousands of aerosol droplets, produce hundreds to thousands of bacteria, and then evaporate to the size of the droplet's core and remain airborne for long periods (13). Access to sanitation and hygiene is one of the human rights as declared by United Nation. Safe drinking water and access to sanitation facilities were done by United Nation to strengthen the process of integration and development of the Asian community (14). To achieve Sustainable Development Goal 6, namely, to ensure the availability and sustainable management of water and sanitation for all by 2030, the United Nations has officially announced on 19 November World Toilet Day within the 'scope of the World Toilet Organization in 2013 (15). World Toilet Day aims to inspire people around the world to tackle the global sanitation issue.

There are studies carried out by other countries to assess the perception of public toilets. Perception is a thought, belief, or opinion that many people often have and is based on appearances (16). In this context, perception of public toilet users about what they thought and feel about public toilets. For example, a study in Indonesia reported that the perception of tourists about the cleanliness of public toilets is very less clean (17). Meanwhile, a Singapore local toilet study reported that users were either very unhappy or unhappy with the cleanliness of toilets at coffee shops and hawker centres followed by bus interchanges, parks, and MRT stations (18). A study conducted in Australia by Greater Bendigo City Council (3), found that the community also has a poor perception towards the public toilet. Open space was not properly managed by the City Council and was poorly located with the presence of graffiti and vandalism. According to Camenga et al. (19), the lack of cleanliness of public toilets resulted in self-restricting use in public spaces, especially those not located in commercial spaces. Negative expectations are more closely linked to hygiene and privacy, with ease of use coming in second (20). A study conducted in a public school's toilet found that students would never use the school bathroom to defecate, and only 32% of the students would use the bathroom when desperate (21). According to Hossainm et al. (22), open access public toilets are a very dirty place, with more than 70% of respondents complaining about the atmosphere. Some people have the perception that they feel reluctant to leave their homes and visit areas where they are afraid, they cannot find a public toilet. Meanwhile, older people and caregivers with young children, people with disabilities, and people with chronic health issues, all need easy access to adequately equipped public toilets (23). An assessment conducted by the local authority on a public toilet in Malaysia reported that almost 45% of Malaysia public toilets achieved only three-star rating while only eight percent achieved a five-star rating, including all public toilets located at public places such as private public toilets, petrol stations,

food or restaurants, shopping malls, airports, train stations, bus stations and hotels (24). There is a limited study conducted on the assessment of public toilets in Malaysia because it is mainly assessed and audited by the local authority itself. Therefore, the purpose of this study is to determine commuters' user perception of Kuala Lumpur KTM public toilets and the community assessment of public toilets.

MATERIALS AND METHODS

Study Design

The study was done among the KTM Commuter public toilet user in Kuala Lumpur, Malaysia by using a cross-sectional study design. According to Table 1, KTM commuter public toilet user in this study was selected because KTM Commuter has access to all places around Kuala Lumpur, and the commuter public toilet user also has to wait for a longer period before the train arrives. KTM Commuter took 40-60 minutes to arrive at a particular station which is the longest as compared to other rail stations available in Kuala Lumpur. Originally, all KTM Commuter was selected in the study. However, due to not all KTM Commuter stations providing public toilets to users, the factor of the number of passengers at the KTM Commuter or the frequency of toilet use at KTM Commuter by the user, only 9 KTM Commuter was able to be selected by the researcher out of 17 KTM Commuter located in Kuala Lumpur. The KTM Commuter selected are Taman Wahyu, Batu Kentomen, Sentul, Kuala Lumpur, KL Sentral, Bandar Tasik Selatan, Kepong, Segambut and Abdullah Hukum.

Table 1: Frequency of rail station in Kuala Lumpur

	Frequency	Source
KTM Commuter	Every 40 – 60 minutes depending on peak hours	KTMB Berhad, 2018
Light Railway Train (LRT)	every 3 – 14 minutes depending on peak hours	Prasarana Malaysia Berhad
Mass Rapid Transit (MRT)	Every 4 – 15 minutes depending on peak hours	Prasarana Malaysia Berhad
Monorail	Every 5 – 12 minutes depending on peak hours	Prasarana Malaysia Berhad

Study Instrument

A questionnaire was adapted based on the previous study which consisted of general information on the public toilet from Town of Bassendean, 2008, experience on using public toilet facilities from Torfaen County Borough Council, Singapore Toilet Survey, and the assessment question from ASEAN Public Toilet Standard (1, 18, 25). Section A was adapted from the basic demographic questionnaire. Section B and F were adapted from the Public Toilet Community Survey, Town of Bassendean. Section B consists of questions about the frequency of using a public toilet, a person's

responsibility in keeping the public toilet clean, the general perception of a public toilet in Kuala Lumpur, and the importance of a public toilet. While in Section F consists of the suggestion for improvement of public toilet facilities that include option answers and an open-ended question. Section C and Section D were adapted from the Local Toilet Survey (26) and Singapore Toilet Survey (18). Section C, respondent was asked about their experience when using Kuala Lumpur public toilet facilities. Section D consists of 19 questions that measure the perception of respondents toward public toilets in Kuala Lumpur. Section E is fully adapted from the Self-Assessment Checklist (1).

Sample Size

The sample size was calculated based on the one proportion for one group formula (27) as the study aimed to identify the association between perception and assessment of public toilets at KTM Commuter in Kuala Lumpur. Since there is no previous study found related to the perception and assessment of public toilets at KTM Commuter in Kuala Lumpur, the proportion had been set at 50% (0.5) to provide the highest sample size at 50% proportion. At 95% of confidence interval which has 1.96 of standard errors. The optimal sample size is 131 after taking 10% of the dropout rate. A pilot study was conducted with a sample size of ten percent, which involved thirteen students from the Faculty of Medicine and Health Sciences, Universiti Putra Malaysia. This was done to ensure that the questionnaire was reliable, with a Cronbach's alpha value of 0.7 or more (28). Cronbach's alpha of reliability statistic for the perception question was 0.774 which indicated acceptable reliability. Cronbach's alpha of reliability statistic for the assessment question was 0.931 indicates strong reliability. Ethical approval from the Ethics Committee of Universiti Putra Malaysia (UPM) was obtained before the study was conducted. The ethics reference number of this study is JKEUPM-2019-497.

Data Collection and Analysis

The data were collected by distributing the questionnaire to the respondent. Before answering the questions, they were asked about their age and if they have experienced using the KTM Commuter public toilet. Respondents were briefed on the study purpose and only the respondents who agreed to participate were given the consent form to be filled out before answering the questionnaire. Only KTM Commuter public toilet users aged ranges from 16 years old and above, Malaysian and also had used any public toilets at KTM Commuter in Kuala Lumpur were selected as respondents in this study through convenience sampling. Descriptive statistics were used to analyze the sociodemographic information, general questions, perception, and assessment of public toilets. For the perception scoring method, there were four options of answers which are strongly agreed, agree, disagree, and strongly disagree. The response "strongly agree" received a score of 4, "agree" received a score

of 3, "disagree" received a score of 2, while the answer "strongly disagree" received a score of 1. The total scores were counted and converted to a categorical form which was low, moderate, and high perception. For community assessment, all participants were required to assess the KTM Commuter public toilet that they have used. For each question, there are just two options which are yes or no. The response "Yes" received a score of 2, whereas the answer "No" received just one mark. The total marks were calculated and classified into two categories, passed and failed. Total marks exceeding 18 were considered passed, while marks under 18 did not pass the assessment. Pearson correlation test was used to determine the association between perception and assessment of public toilets. The data analysis was executed by using SPSS Statistics Version 25.0.

RESULTS

Respondents Sociodemographic Characteristics

All of the sociodemographic data such as age, gender, race, family income, educational level, salary, marital status, and occupation were summarized in Table 2. Firstly, for gender, most of the respondents were female (75.9%) and the rest were males. Regarding race, most of the respondents were Malay (87.5%), followed by Indian (8.0%), Chinese (3.6%), and another race (0.9%). For age, 64.3% of participants came from the age group of 16-24 years old. A total of 29.5% of the KTM Commuter public toilet users were from the age group of 25-40 years old. The age groups of 41-60 years old and above 60 years old contributed a total of 3.6% and 2.7% of the total income respectively. For marital status, single status dominates with 90.2%. The married and divorced status were 8.0% and 1.8% respectively. For education level, most of the participants have bachelor's degree (63.4%) and the lowest participant came from primary education level (1.8%). As for the occupation sector, 53.6% were students, followed by the private sector (32.1%). Lastly, for family income, 25.9% have a family income of RM1001-RM2000, 22.3% have a family income of more than RM5000, and 18.8% have a family income of less than RM1000.

Table II: Sociodemographic Characteristics of Respondents

Characteristics	Frequency	Percentage (%)
Gender		
Male	27	24.1
Female	85	75.9
Race		
Malay	98	87.5
Chinese	4	3.6
Indian	9	8.0
Others	1	0.9

CONTINUE

Table II: Sociodemographic Characteristics of Respondents(-CONT.)

Characteristics	Frequency	Percentage (%)
Age		
16- 24 years' old	72	64.3
25- 40 years' old	33	29.5
41- 60 years' old	4	3.6
Above 60 years' old	3	2.7
Marital status		
Single	101	90.2
Married	9	8.0
Divorced	2	1.8
Education level		
Primary	2	1.8
Secondary	10	8.9
Diploma/ Matriculation/ foundation	24	21.4
Bachelor's degree	71	63.4
Master's degree	5	4.5
Occupation sector		
Government	4	3.6
Private	36	32.1
Self employed	4	3.6
Retiree	2	1.8
Unemployed	6	5.4
Student	60	53.6
Family income		
Less than RM1000	21	18.8
RM1001-RM2000	29	25.9
RM2001-RM3000	16	14.3
RM3001-RM4000	15	13.4
RM4001-RM5000	6	5.4
More than RM5000	25	22.3

Experience using Kuala Lumpur Public Toilet Facilities

All participants were required to choose one of the answers based on their experience using Kuala Lumpur public toilet facilities. There were five answer options which were very dirty, dirty, neutral, clean, and very clean. This section was only analyzed using descriptive statistics which were frequency and percentage. Almost all elements of public toilets were rated neutral by the participants except for the toilet seat that was rated dirty with 45 participants (40.2%). Figure 1 shows the percentage of answers for each element of public toilet facilities. According to each category of answers, the element that received the highest “very dirty” was the toilet bowl (12.5%). Next, the highest “dirty” was the toilet seat (40.2%). The highest “neutral” was a door (67.9%). Then, the highest answer for clean and very clean were wash sink (33.9%) and lighting (4.5%).

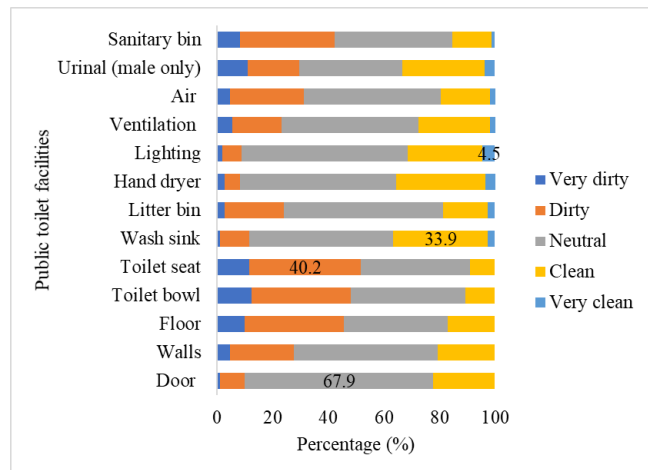


Figure 1: Experience on using Kuala Lumpur public toilet facilities. According to each category of answers, the elements that received highest “very dirty” was toilet bowl (12.5%). Next, the highest “dirty” was toilet seat (40.2%). The highest “neutral” was door (67.9%). Then, the highest answer for clean and very clean were wash sink (33.9%) and lighting (4.5%).

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Level of Perception and Assessment on KTM Commuter Public Toilet

The result shows that majority of participants have moderate perception with 73.2%. There was only 14.3% of the respondents had a high perception while 12.5% has a low perception of Kuala Lumpur’s public toilet. Table III shows the percentage of perception of a public toilet in Kuala Lumpur. Table IV below shows the result of the community assessment. The majority of KTM Commuter public toilets pass the assessment (58.9%) while the others did not pass (41.4%). Pearson correlation test was used to analyze the association between perception and assessment. There was no association between perception and assessment of the KTM Commuter public toilet (p=0.139, r=0.141). This indicates that even though the community had a moderate perception, the KTM Commuter public toilet still passed the assessment.

Table III: Perception on public Toilet

No	Question	N (%)			
		Strongly agree	Agree	Disagree	Strongly disagree
	Public toilet cleanliness is important to me.	91 (81.3)	20 (17.9)	-	1 (0.9)
	Public toilet cleanliness is important to me when I decided whether I will use the toilet again or not.	86 (76.8)	22 (19.6)	-	4 (3.6)
	I have high expectations of cleanliness for high budget toilets.	71 (63.4)	33 (29.5)	7 (6.3)	1 (0.9)
	I have low expectation of cleanliness for low budget toilets.	28 (25.0)	45 (40.2)	33 (29.5)	6 (5.4)

CONTINUE

Table III: Perception on public Toilet (cont.)

No	Question	N (%)			
		Strongly agree	Agree	Disagree	Strongly disagree
	A clean public toilet will increase my overall level of satisfaction.	86 (76.8)	23 (20.5)	3 (2.7)	-
	A dirty public toilet will decrease my overall level of satisfaction.	78 (69.6)	30 (26.8)	1 (0.9)	3 (2.7)
	There are enough public toilets to allow me to leave home without significant worry or concern about needing to use the toilet.	53 (47.3)	45 (40.2)	12 (10.7)	2 (1.8)
	There is enough information about the whereabouts of public toilets and the facilities they offer.	34 (30.4)	57 (50.9)	20 (17.9)	1 (0.9)
	Supermarkets have sufficient toilet facilities to enable me to shop there.	32 (28.6)	60 (53.6)	19 (17.0)	1 (0.9)
	Town centers have sufficient toilet facilities to enable me to shop there.	32 (28.6)	60 (53.6)	18 (16.1)	2 (1.8)
	My choice of shops is limited because of lack of suitable toilets.	22 (19.6)	46 (41.1)	40 (35.7)	4 (3.6)
	I have had difficulty commuting to work within Kuala Lumpur due to a lack of toilet facilities between my home and workplace.	12 (10.7)	35 (31.3)	55 (49.1)	10 (8.9)
	There are sufficient suitable public toilet facilities for me to be able to meet my family or friends in public places.	22 (19.6)	58 (51.8)	28 (25.0)	4 (3.6)
	A lack of suitable public toilet facilities prevents me from being as physically active as I would like to be.	21 (18.8)	52 (46.4)	36 (32.1)	3 (2.7)
	A lack of suitable public toilet facilities prevents me from attending venues where leisure activities take place.	28 (25.0)	57 (50.9)	24 (21.4)	3 (2.7)
	There is enough suitable toilet provision to allow me to access green spaces such as parks, canals, woodland and other outdoor environments.	28 (25.0)	67 (59.8)	16 (14.3)	1 (0.9)
	I would access green spaces more regularly if there were more suitable toilet facilities.	35 (31.3)	60 (53.6)	15 (13.4)	2 (1.8)
	There is a need for improvement on design	39 (34.8)	62 (55.4)	10 (8.9)	1 (0.9)
	There is a need for improvement on maintenance	56 (50.0)	48 (42.9)	6 (5.4)	2 (1.8)
	There is a need for improvement on safety	55 (49.1)	46 (41.1)	10 (8.9)	1 (0.9)

Table IV: Community assessment on KTM Commuter public toilet

Question	N (%)	
	Yes	No
Signage is clear and well visible from distance. Entrance is clean, uncluttered.	108 (96.4)	4 (3.6)
Walls, ceiling are clean, dry, undusted and not littered.	80 (71.4)	32 (28.6)
Floors and walls are clean, intact and dry.	74 (66.1)	38 (33.9)
There is no bad smell in the toilet.	51 (45.5)	61 (54.5)
Ventilation/ openings for air circulation are in place and functioning.	86 (76.8)	26 (23.2)
Suggestion box and education material are in place.	51 (45.5)	61 (54.5)
Basic amenities are in place (toilet paper, soap, bins, mirror, tissue, etc)	82 (73.2)	30 (26.8)
Resource and water saving measures (sensor taps, natural light)	82 (73.2)	30 (26.8)
Privacy (maze entrance, urinals and cubicle partitions)	88 (78.6)	24 (21.4)
Taps, hand dryers, litter bins are in place and working.	107 (95.0)	5 (4.5)
No leakage, no damage to the fittings, fixture and plumbing.	92 (82.1)	20 (17.9)
Tissue/ soap dispenser are in place, working and filled.	84 (75.0)	28 (25.0)
Wash area is overall clean, dry, tidy and not littered.	75 (67.0)	37 (33.0)
Cubicle door is clean, functioning and latched; lock/ latch is intact	94 (83.9)	18 (16.1)
Toilet has a toilet seat and lid	98 (87.5)	14 (12.5)
Coat hanger is in place and intact	92 (82.1)	20 (17.9)
Toilet bowl/ squat are intact and unclogged, not stained	70 (62.5)	42 (37.5)
Cubicle floor is uncluttered, clean and dry	66 (58.9)	46 (41.1)
Manual/ auto flush is clean and functioning	88 (78.6)	24 (21.4)
Toilet paper dispenser is intact and filled.	65 (58.0)	47 (42.0)
Sanitary bin (hand free with foot pedal) with liners is in place, is dry, clean, sanitized, odorless, intact	57 (67.1)	32.9 (28)
Waste bin (hand-free with foot pedal) with liners is in place, is dry, clean, sanitized, odorless, intact	83 (74.1)	29 (25.9)
Urinals are intact and unclogged, not stained	19 (70.4)	8 (29.6)
Manual/ auto flush is clean and functioning	21 (77.8)	6 (22.2)
Internal and external lighting is in place and functioning	98 (87.5)	14(12.5)
There is appropriate CCTV/ Patrolling	60 (53.6)	52 (46.4)
Walls and ceilings are intact, not cracked	92 (82.1)	20 (17.9)

Improvement of Public Toilet Facilities

In this section, two questions were asked about the suggestion for improvement of public toilet facilities. The first question is a multiple-choice question. Figure 2 shows the highest suggestion for improvement was aesthetical values with 74.6% followed by storage facilities (55.6%). The least suggested improvement was a feature to deter anti-social behavior (38.1%). The second question was open-ended. Respondents were asked to state comments or suggestions for improvement for the public toilet in Kuala Lumpur. The respondent suggested providing a place to put their belongings and cloth hanger in each toilet cubicle. There was also a respondent suggested increasing safety inspection at the public toilet by regularly checking for hidden cameras installed by an irresponsible citizen. The respondent also suggested increasing promotion on how to maintain public toilets. Most of the respondents suggested always maintaining cleanliness in the toilet and suggested regular cleaning and maintenance to ensure the toilet is working properly. Some respondents commented that usually toilet bowl is not clean and the toilet lacks tissue and soap. Therefore, tissue and soap need to be regularly replaced. Nevertheless, there are still respondents who praise the public toilets saying the public toilet in KTM stations is clean and smells fragrance.

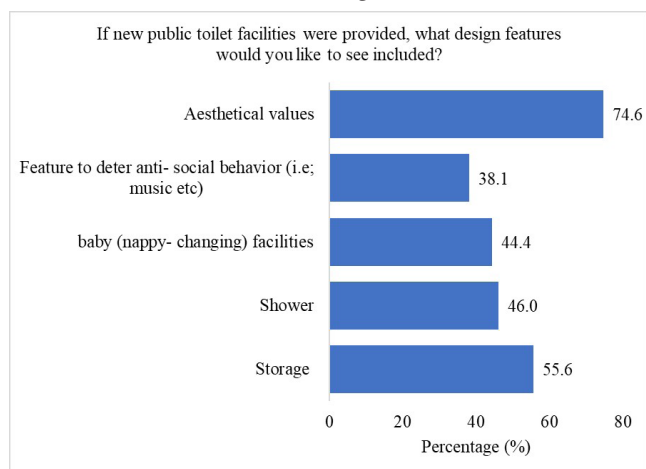


Figure 2: Improvement for public toilet facilities. The highest suggestion for improvement was aesthetical values with 74.6% followed by storage facilities (55.6%). The least suggested improvement was feature to deter anti-social behavior (38.1%).

DISCUSSION

Most of the respondents occasionally used the public toilet (84.8%). Three-quarters of them agreed that the public toilet is sometimes not in good condition and unclean. The majority of the participants also chose public toilet users (82.5%) as the most responsible person for maintaining toilet cleanliness. A similar result was obtained from (18), in which the user is the most responsible for keeping the toilet clean. Lastly, the public toilet is important for its image (82.1%), followed by mental health (75.9%). The lowest is physical health (36.6%). This is in coherence with (6), which stated

that the image of public toilets is important. For the experience of using public toilet facilities, most of the public toilet facilities were rated neutral except for the toilet seat that was rated dirty (40.2%). The same response was obtained from (18). Then, according to each category of answers, the element that received the highest “very dirty” was the toilet bowl (12.5%). Next, the highest “dirty” was the toilet seat (40.2%). The highest “neutral” was a door (67.9%). Then, the highest answer for clean and very clean was wash sink (33.9%) and lighting (4.5%) respectively. Dirty toilet bowl and toilet was because there was a user that did not flush after use and presence of litter in toilet bowls or urinals (18).

For the level of perception, the majority of participants have a moderate perception (73.2%) while only 12.5% have a low perception of Kuala Lumpur’s public toilet. There was also only 14.3% had high perception. This result is different from a study conducted by Greater Bendigo City Council which found that the community had a poor perception towards public toilets due to the presence of graffiti and vandalism (3). It is different from public toilets in Malaysia as there is very less vandalism towards public toilets. The frequency of use of the public toilet in Kuala Lumpur which reported that 84.8% of participants occasionally use public toilet could explain why the participants have moderate perception. A total of 76.8% of the KTM Commuter public toilet users strongly agreed that the cleanliness of the public toilet is important to decide whether to use the toilet again or not. Poor hygiene will leave a bad impression and experience on the user which will prevent the user from using the toilet again. A study in Tamil Nadu recorded a high perception of their public toilets, where the public toilet user found the cleanliness of the toilet as a very important aspect for them to use the public toilet (29, 30). Then, poor maintenance of public toilet at places like railway station, bus stops leave the public toilet with a poor impression (31). People also agree that using a contaminated toilet with faeces would lead to the risk of infection (32).

In addition, 47.3% of KTM Commuter public toilet users strongly agreed that there are enough public toilets that allow the user to leave home without worrying about having to use the toilet. In contrast to the previous study, which found that people are feeling reluctant to leave home and visit areas as they are afraid, they cannot find a public toilet, therefore wanting more provision of the public toilet (23). KTM Commuter public toilet users also disagree with the statement of having difficulty commuting to work within Kuala Lumpur due to a lack of toilet facilities (51.8%). A total of 51.8% agreed that there are sufficient public toilet facilities for them to meet family or friends in public places. Moreover, they agreed that a lack of clean public toilet facilities would prevent them from being physically active (46.4%), going to public places for leisure activities (50.9%), and

accessing green spaces (53.6%). Based on the results, the KTM Commuter public toilet users also strongly agreed there is a need for improvement in the maintenance and safety of public toilets (49.1%). This is different from the Singapore Toilet Study, where the improvement should be in terms of maintenance and design. Maintenance is needed to fix the broken part of public toilet facilities such as broken flush (18).

For the community assessment result, 58.9% of KTM Commuter public toilets passed the assessment while 41.1% did not pass the assessment. Based on the result, 54.5% of public toilet has a presence of a bad smell and does not have a suggestion box and education material (54.5%). A bad smell could be present due to not flushing after use as found in (18). However, almost all elements passed the criteria such as walls (71.4%), floor (66.1%), signage (96.4%), ventilation (76.8%), hand dryer, and litter bins (95.0%), and flush (78.6%). Only the toilet paper dispenser was 58.0% intact and filled and 42.0% were unfilled. For the main objectives, as shown in the result, there was no association between perception of public toilet and the public toilet assessment with $p\text{-value} = 0.139 (>0.05)$. The participants could have a moderate perception of the public toilet because they occasionally used the public toilet as mentioned earlier. Then, 58.9% of KTM Commuter public toilet users have passed the assessment which showed that some of the toilets have improved except for a few which will require attention on how to improve it. Another reason contributing to the poor sanitation of public toilets is a lack of a sense of belonging. It is not only the job of cleaners to keep public toilets clean but it is also a part of the public toilet user's responsibilities. It is the user's obligation to keep public toilets clean. The majority of the community has a moderate perception of public toilets which they strongly agreed that there is a need for improvement in maintenance and safety. Regular maintenance should be made by the toilet owner to ensure the toilet is working properly. The result obtained was different from the study done by Donkor et al. (30), regular cleaning should also be made by toilet cleaner based on the amount of usage the facilities receive. All broken parts of the toilet should be immediately reported to the toilet owner for repair.

For the suggestion for improvement of public toilet facilities, the aesthetical value was highly chosen as the improvement with 74.6% vote. Aesthetical values are values that give out warm, beautiful and calming view that can be obtained from trees, plants, flowers and decoration and mural painting. The next suggestion is to provide storage for public toilet users (55.6%). Having storage at public toilet could ease the user to keep their belonging while using the toilet. The least suggested is feature to deter anti-social behavior (38.1%). The result obtained was different from (32), where the most suggested item for improvement was a space for changing baby diapers. In terms of safety,

the respondent suggested increasing security through regular inspection for a hidden camera that was installed in the toilet by an irresponsible individual (2). This might be able to increase confidence when using the public toilet (33). The respondent suggested that public toilet user is the most important person to keep the toilet clean by using it properly. Therefore, they suggested providing more promotion on "how to take care of the public toilet". Posters about the do's and don't's in the public toilet should be displayed in each cubicle to increase awareness about the right way to use public toilets. Education should be made to ensure the user uses the toilet properly such as not squatting on the toilet seat, flushing after use, and not littering the toilet bowl.

There are some limitations to this study. Firstly, the time frame of the study is short and researchers need to conduct the study on schedule. Therefore, only one type of community can be selected by the researchers, which is public toilet users, specifically KTM Commuter public toilet users. If a larger sample can be obtained and larger community engagement, the difference in results of the assessment can be obtained between different types of communities, such as shopping malls, recreational parks, and other public areas. Therefore, the result of the assessment was only valid for the KTM Commuter public toilet, which cannot be generalized to the other public toilet in Kuala Lumpur. Further studies can be done to assess the knowledge, attitude, and practice of the community when using public toilets. In addition, more assessments could be made at other locations in Kuala Lumpur such as at the shopping malls and recreational areas as mentioned earlier so that comparisons of different locations could be made.

CONCLUSION

In conclusion, there was no association between community perception and assessment on public toilets. Public toilet user is the most important individual to keep the toilet clean followed by the toilet cleaner and toilet owner. The Ministry of Housing, Urban Wellbeing and Local Government must step up its public toilet initiatives so that public toilets in Malaysia can achieve a five-star rating. Local authorities should also undertake frequent inspections of public cleaning contractors to ensure that public toilets are in good condition and safe. The perception and assessment of public toilets can help the government, policymakers, private sector to identify the key issue in a public toilet and be able to improve their services. Meanwhile, public awareness needs to be improved by displaying a poster in the public toilet to illustrate the public toilet precautions. Many platforms could be used to educate the user such as through social networks, televisions, and radio.

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