Original Research Article

Assessment of sanitation facilities and environmental conditions of motor parks in Ibadan metropolis, Oyo State Nigeria

Comment [D1]: The title needs to be modified

Abstract

Introduction: Transportation and human mobility have become a part of development in many developing countries.In Nigerian cities, this vital activity has also led to problem of poor toilet facilities that are crucial infrastructure necessary for the social well-being and practical operation of functioning motor parks. The research focused on assessing the sanitation facilities and environmental conditions of motor park's toilets at Iwo Road, Sango, Beere, and Dugbe in Ibadan metropolis, Oyo State Nigeria.

Materials and Methods: Data for this research were obtained using structural questionnaires, key informant interview, and observation checklist.

Results: Findings revealed that 39.33% of the respondents had their houses very far from the motor park areas and this neccesitated their use of motor park toilet facility compared to 60.67% of the respondents that had their houses very close to the motor park. It was also revealed that 90% of the respondents had knowledge of water borne diseases, experiences relating to toilet and poor environmental sanitary conditions and poor toilet facilities. 84% of the respondents had concerns about poor environmental sanitation in motor park toilet facility. 87% of the

respondents had perception of poor quality of services provided. 92% of the respondents were aware about the factors influencing user's choice of toilet in motor park.

Discussion: From the research work, it wasrevealed that most of the passengers have theifr house very close to the motor park compare to those that have their housesvery far from the motor park that neccesitated provision of adequate toilet facility. It was also revealed that majority of the passengers had knowledge of water borne diseases and experienced poor environmental sanitation in motor park toilet facility and lastly majority of the passengers had perception of poor quality of services provided and aware of factors influencing user's choice of toilet in motor park. In lieu of these,Oyo State Government, focused Local Government councils and Packed Mangers should provide more toilet facilities and upgrade those presently available. **Conclusion:** There should be serious enlightenment to the public on the impending dangers of lack of safety and hygienic sanitary toilet facilities and effective management of public sanitary facilities in all motor parks' toilets in Ibadan with specific reference to Iwo road motor park.

Keywords: Sanitation facilities, Environmental conditions, Toilet facilities, Motor parks and Ibadan metropolis

Comment [D2]: The summary needs to be brief and mention the superior numbers in the results and discussion.

INTRODUCTION

Public toilets may be defined as comprisingboth traditional 'on-street', local authority public toilets and 'off-street' toilets to whichthe public has right of access, which, together, are better defined as 'away from home'toilets[1]. The provision of public conveniences (toilets) in a motor park is an important factor in delivering a people friendly environments for both transporters, drivers and visitors; that is free from communicable diseases attributable to poor sanitation[2]. Under FGN-UNICEF WASH programme, efforts are being made to make entire LGAs Open Defecation Free (ODF). As a strategy of achieving this, the programme is focusing on improving sanitation facilities and services in markets and public motor parks, which are

important arenas of civic interaction and engagement[3].This study tends to assess thesanitation facilities and environmental conditions of motor parks in Ibadan metropolis, Oyo State Nigeria**.**

Research has demonstrated that publictoilet provision constitutes the vital, missinglink that would enable the creation of sustainable, accessible, inclusive cities[1]. Proper sanitation facilities (for example, toilets and latrines) promote health because they allow people to dispose of their waste appropriately, preventing contamination of their environment and reducing risk to themselves and their neighbours. Throughout the world, many people do not have access to sanitation facilities, resulting in improper waste disposal that safely contain waste away from human contact and ensure that waste is properly treated prior to environmental discharge and other risks[4].Despite the creation of a special task force by the Lagos State Government of Nigeria to monitor public sanitary facilities, residents are lamenting the deplorable state of public toilets in major motor parks in the state, noting that they are not only unhygienic but could be fertile grounds for spreading infections[5]. It should be noted that answering the call of nature to urinate or defecate cannot be delayed most times due to the urgency. However, for many Ibadan residents, using public toilets in motor parks is a big health risk, as most of the facilities are not only unhygienic but also in deplorable conditions.

Comment [D3]: source

Enough research works have been conducted on usage of the motor parks by the passengers and their knowledge of the facilities provided within the motor parks, also the level ofsatisfaction of these facilities by the users is also discussedbut little or no works have been done on the assessment of sanitation facilities and environmental conditions of motor parks[6]. Therefore, the research work is intending to determine the sanitation facilities and environmental conditions of the identified motor parks, determining the consequences of poor sanitation facilities and environmental conditions on the users and providing solution to the lingering poor conditions of sanitation within the motor parks in Ibadan.

Comment [D4]: source

Endnotes

---

[1]In Fowler R. editor (2001): Better public toilets: a providers' guide to the provision and management of 'away from home' toilets, Winchester: British Toilet Association, 2001.
[2]Adaku Onyenucheya (2020):Firm rehabilitates public toilets to curb infectious diseases. Hypo Toilet Cleaner, 2022 Guardian Newspapers
[3]Federal Government of Nigeria and UNICEF (2016): Making Nigeria open defecation free by 2025: A national road map. The Roadmap provides a guide towards achieving an open defecation free country using different approaches**.**
[4]Centre for Disease Control and Prevention, Global Water, Sanitation, & Hygiene (WASH) (2022):Toilets & Latrines, The Need for Latrines and Toilets Centers for Disease Control and Prevention, National Center for Emerging and Zoonotic Infectious Diseases (NCEZID), Division of Foodborne, Waterborne, and Environmental Diseases at CDC.
[5]The Punch, Healthwise (2021):Lagos motor parks public toilets always unclean, unhygienic, residents cry out. Updated: August 15, 2021. Copyright PUNCH.
[6]Olatunde F.A, Zubairu S.N (2013): An Assessment of Facilities in Motor Parks in Minna, Niger State, Nigeria, Through Post-Occupancy Evaluation, July 2013 DOI: 10.5923/j.mm.20130307.05

MATERIALS AND METHODS

Study design and setting

The study utilized a descriptive cross-sectional design involving the use of qualitative and quantitative methods to obtain information on the assessment of sanitation facilities and environmental conditions of motor parks in Ibadan metropolis, Oyo State. Nigeria

Description of study area

Ibadan is the capital city of Oyo State, Nigeria. It was founded in the early 19th century by fleeing refugees from the old Oyo Empire, following Fulani invasion of Yoruba land (Mabogunje, 1968). Ibadan is designated as largest city in the West Africa and the most populous in Black Africa. It is mainly inhabited by the *Oyo* –a *Yoruba* sub-group with an estimated population of 1,829,187. The five (5) biggest motor parks in Ibadan, the capital city of

Oyo state are selected for the purpose of the research work., These include; Iwo Road, Sango, Beere, Dugbe and Challenge motor parks in Ibadan North East, Ibadan North, Ibadan South East, Ibadan North West and Ibadan South West local governments respectively.

Study variables

The major independent variable is motor park toilet conditions while the dependent variables of interest in this study were grouped under toilet facilities (the environmental sanitation of the toilets, available sanitary facilities and the user's hygiene practices including personal hygiene practices of market women, drivers, conductors and travelers).

Target population

The target population comprised market women in the motor parks, drivers, conductors and travelers in selected motor parks within the five (5) local governments areas in Ibadan metropolis.

Sample size calculation and sampling procedure

Sample size calculation

Comment [D5]: source

Sample size was calculated using the sample size equation

$$n = \frac{(Z\alpha + Z2\beta)^2 pq}{d^2}$$

Where n= minimum sample size

α = level of significance=5%

2 α =Standard Normal deviation=1.96

Prevalence =50 % = 0.5

p= 1- q = 0.5

d = absolute deviation = 6%

When α =5% and =20%, power=80%

(Z α + Z2β) 2 =7.8

$$n = \frac{(7.8) \times 0.5 \times 0.5}{(0.06)^2}$$

=1.95

0.0036

=541

However, a prediction of 10% non- response rate was included. Therefore, the calculated sample size was ≈ **600**

Therefore, 50% of the calculated sample were used (i.e. 300).

Sampling procedure

Simple random sampling technique was used to select motor parks surveyed and respondents interviewed for the study that include the following stages.

Step 1: Ibadan metropolis was stratified into its five (5) local government areas i.e.

Ibadan North East, Ibadan North, Ibadan South East, Ibadan North West and Ibadan South West local government area.

Step 2: One (1) major motor park was purposively selected.

Step 3: These motor parks were stratified into its constituent local government areas i.e. IBEMP, IBMP, IBSEMP, IBNEMP and IBSEMP.

Step 4: Enumeration was done to know the number of drivers, conductors, market women in the park and possible travelers within the project stipulated time, which gave a total of 600 (see table 1).

Step 5: Probability proportion to size and systematic random sampling strategies were employed in selecting half (300) of the respondents that were questioned through the administer of questionnaires.

Step 6: Interviewers visited each motor park daily and stayed for a period that covered the interviews lasted.

Table 1: Breakdown of the motor parks in the selected local governments

Comment [D6]: source

Local Govts	**Ibadan North East (IBEMP)**	**Ibadan North (IBMP)**	**Ibadan South East (IBSEMP)**	**Ibadan North West (IBNWMP)**	**Ibadan South West (IBSWMP)**	**Total**
Market	25	25	25	25	25	125

women						
Driver	5	5	5	5	5	25
Conductor	5	5	5	5	5	25
Traveler	25	25	25	25	25	125
Total	**60**	**60**	**60**	**60**	**60**	**300**

Development of instruments

Comment [D7]: source

The instruments for this study were developed using information available from extensive review of literature and instruments used in previous studies on motor park sanitation facilities. The initial proposal for this dissertation along with the instruments was subjected to a series of review by lecturers and students of the Department of Environmental Health Science. The instruments include the following.

1. **Observation Guide:** An observation checklist (appendix B) was developed to assess the sanitary provisions and hygiene-related practices of motor park toilets and users respectively. Areas assessed were location, type of toilet, environmental sanitation behaviour of the users, available sanitary facilities/conditions and employees‟ hygiene practices.

2. **Questionnaire:** A semi-structured questionnaire (Appendix C) was designed to obtain information on users‟ knowledge and experience of diseases emanated from poor sanitary conditions on toilet in motor parks as well as their perceptions of hygiene-related behaviour of toilet operators and sanitary conditions of toilet facilities. The questionnaire was divided into 5

sections. Section A which aimed at obtaining information on socio-demographic characteristics of respondents contained nineteen questions. Section B consisted of ten questions which measured users‟ knowledge of toilet-borne diseases. Information on experiences relating to toilet- and water-borne diseases was documented with the aid five questions in section C. Sections D and E described the users‟ concerns about poor sanitary conditions in our major toilets in motor parks and their perception of quality of services provided. They were consisted three and five questions respectively. The last part which is section F focused on factors influencing users‟ choice of toilets.

3. **Key Informant Interview (KII) Guide:** Two types of Key Informant Interview (KII) guide were developed to obtain information on guidelines for the establishment of toilet facilities in motor parks, their enforcement and factors influencing compliance from the view of decision-makers in the LGA/State government or donors and the executive operators of toilet establishments in the selected motor parks. Key informants were purposively selected based on their position and experience in operation of toilets in motor parks in the LGA.

4. **Focus Group Discussion (FGD) Guide:** Focus Group Discussions (FGDs) was conducted among operators of toilet establishments. The aim was to gain insight into the factors guiding establishment and operations of toilet establishments; monitoring and supervision of activities of operators of toilet premises; in-service training attendance and; factors influencing provision of sanitary facilities in public toilet establishments in the area using a developed FGD guide (appendix a).

Validity and reliability

Comment [D8]: source

Validity

A number of steps were taken to enhance the validity of the instrument used for data collection. First, the instruments were carefully scrutinized by the co-researchers, lecturers and my supervisor to ensure its content validity. Necessary corrections were made to ensure clarity and obtain the salient and crucial information of interest in respect of the study.

Second, training was done for four research assistants comprising of two males and two females who were used for data collection. The males were working as interviewers in a longitudinal study on dementia that had been using the area as study site for the past 15 years. So they had a wealth of knowledge about the area. They were supported by a female graduate and another female, a National Certificate of Education (NCE) holder. They were fluent in English and *Yoruba* languages. The training of the research assistants was conducted at the Faculty of Basic Medical and Applied Science Block C building on Thursday 6th and Friday 7th February 2020. Their training covered the scope of the background, objectives, scope and methodology of the study after which they were introduced to the data collection instruments on item by item basis. The training lasted for two (2) hours after which the research assistants were taken to the university toilet to do a mock assessment with the study instruments. After this, deliberations were made on individual recordings. Intra-observer differences were noted and discussed. This exercise enabled the researcher to assess the level of recording and observation skills of the research assistants. A copy of each of the study instruments was given to each of the research assistants to take home and read for better understanding. Issues generated were discussed the following day.

Third, the questionnaire was pre-tested on ten (10) toilet establishments in *Fiditi*, in Afijio LGA, (which was not part of the study area) which afforded the opportunity to improve on the final draft of the questionnaire used for the data collection

Reliability

To ensure the reliability of the instrument, the following steps were taken:

The questionnaire was pre-tested on ten (10) respondents in five (5) toilet establishments in *Fidit*, in Afijio LGA to ensure reproducibility. Analysis was then carried out using Cronbach‟s Alpha correlation coefficient of the SPSS (Statistical Package for Social Sciences) which afforded the opportunity to improve on the final draft of the questionnaire used for the data collection.

Procedure for data collection

Data collection took place between 12th February and 2nd March 2020. A description of the processes involved in collection for this study is provided below.

Qualitative Data Collection Procedure: Before the conduct of the FGDs, visits were made to the executives of the state Association of National Union of Road and Transport Workers (NURTW) to explain the purpose of the qualitative phase of the study and modalities for carrying out the FGDs. It was through these visits that it was suggested to carry out the discussions during zonal association meetings that took place once in a month in each of the five LGs for cooperation and active participation of toilet operators in the study area. Five FGDs were conducted, one in each of the five motor parks selected within the five LGs that constituted the study area. The discussions were held during the zonal meetings. The researcher and her team got to the venues of the meetings (which usually held at the designated office of their chairman zonal association) early. The first ten members were selected for the discussions which were conducted simultaneously as the association meeting proceeded. This approach was used due to the difficult nature of assembling motor park operators together at any other time.

Quantitative Data Collection Procedure: During this period, each of the selected toilet establishments was visited daily by two research assistants. Research assistants set out early in the morning and approached the motor park operators of the outlets to explain purpose and seek consent for the study. In situations where neither was around, repeat visits were made as no other employee was ready to give permission due to their perception that research assistants were from the health authority. During data collection, research assistants sat down in the motor park area and market women's, drivers, conductors and traveler's permission to be interviewed inside the motor parks. The first six consumers who gave their consents were interviewed in each outlet. During the period of waiting, research assistants surveyed toilet establishments to observe activities on-going within and outside, the sanitary facilities available and hygiene behaviour of toilet users and; jointly filled the observation checklist for each facility.

Data analysis

A coding guide was developed to facilitate coding and data entry into the computer. The investigator checked all the administered questionnaire copies one by one and edited them when necessary. Each questionnaire copy was coded and entered into the computer using SPSS software version 15. The data entered into the computer were subjected to descriptive (i.e mean, median and mode) and inferential (i.e. Chi-square and ANOVA) statistical treatment. Finally, information obtained were summarised and presented in tables and charts.

Qualitative information items from KII interviews with policy makers and environmental health officers at the state and LGA levels and those from FGDs with operators of toilet establishments were transcribed verbatim, translated into English and manually analyzed using the thematic-content analysis approach that involved grouping together similar themes in each transcript and identifying emerging trends and differences found across the transcripts. Qualitative data were

presented alongside quantitative interpretations using descriptive and, where possible, verbatim quotes and case illustrations.

Limitation of the study

This study was not without some limitations. One of these was that investigators depended on the information given by the interviewees. Another limitation was dearth of adequately enough studies published on the subject matter in Africa, especially Nigeria from which appropriate references could be made. Therefore, references were made mostly to publications from other continents.

Ethical consideration

The confidentiality of the respondents was ensured and protected as there was no request for names, personal addresses or any other type of identifier. Research assistants were of good conduct and did not act coercively or in any unethically unacceptable manner. Records were kept and stored in a safe place. Informed consent was obtained from the respondents before administration of the questionnaire.

Table 2: Socio-demographic characteristics of respondents

Variables	Frequency (N=300)	Percentage (%)
Age of respondents		
21-40	120	40
41-60	120	40
61 and above	60	20
Sex of the respondents		
Male	284	94.7
Female	16	5.3
Marital status of the respondents		
Single	67	22.3
Married	223	74.3
Widow	7	2.2
Separated/Divorced	3	1
Others	1	0.2
Occupation of the respondents		
Students	1	0.3

Civil servants	4	1.3
Artisans / Apprentices	32	10.7
Traders	21	7
Unemployed	85	28.3
Others/drivers	157	52.4
Levels of education of the respondents		
Never being to school	134	44.6
Primary school leaving certificate	98	32.6
Secondary (Uncompleted)	43	14.6
Secondary (completed)	19	6.2
Tertiary	5	1.6
Others	1	0.2
Religion of the respondents		
Christianity	89	29.7
Islam	184	61.3
Traditional	20	6.7
Others	07	2.3
Ethnic background of the respondents		
Yoruba	274	91.3
Hausa	4	1.4
Ibo	21	7
Others	1	0.4
How far is your house from the motor park		
Few houses away	118	39.33
Next Street	87	29
Had to take transports	95	31.67
How far is your place of work from the motor park		
Few houses away	95	31.7
Next Street	87	29
Had to take transports	118	39.3
Estimate total income per month		
< 100,000	128	42.6
Between 200,000 to 400,000	116	38.7
Above 400,000	56	18.7

RESULTS

A total of 300 questionnaires were administered and of which all are completed, returned and subsequently analyzed giving a response rate of 100%.

Respondents socio-demographic characteristics: The baseline socio-demographic characteristics of respondents are shown in Table 2. The mean respondents age was 46.5±1.5 years. Larger numbers (94.7%) of the respondents were male. Close to three-quarter (74.3%) of

the respondents were married and more than half (52.4%) of the respondents are drivers/other occupations. Larger percentage (61.3%) of the respondents are Islam, and almost (91.3%) of the respondent are Yoruba. Most (39.33%) of the respondents live in few houses away from the motor-park, larger percentage (39.3%)) of the respondents had to take transports to their place of work and higher numbers (42.6%) of the respondents had < 100,000 estimate total income per month.

Table 3: Knowledge of water borne diseases

Questions	**Yes (%)**	**No (%)**
Do you believe that people can contract diseases from toilet?	240(80)	60(20)
Everybody that used public toilet is susceptible to toilet diseases?	270(90)	30(10)
Water borne diseases can be contacted in motor park toilet	210(70)	90(30)
Do you know any way(s) by which infections can be contracted through toilet?	240(80)	60(20)
Sitting on infected water closet can cause toilet diseases	270(90)	30(10)
Do you know any ways(s) by which infections can be contracted through poor environmental sanitation conditions?	270(90)	30(10)
Water borne diseases are very common in motor park toilet	300(100)	0(0)
Do you think infections from toilet and poor environmental sanitation conditions are preventable?	300(100)	0(0)
Infections can be contacted through poor environmental sanitation conditions only	300(100)	0(0)
Infectious diseases can be contacted from both toilet and poor environmental sanitation conditions	300(100)	0(0)

Knowledge of water borne diseases: From Table 3, most of the respondents (80%) believed that people can contract diseases from toilet, almost all (90%) of the respondents reported that everybody that used public toilet is susceptible to toilet diseases, more than half (70%) of the respondents believed thatwater borne diseases can be contacted in motor park toilet, larger percentage (80%) of the respondents reported that there are many way(s) by which infections can be contracted through toilet and almost all (90%) of the respondents reported that sitting on

infected water closet can cause toilet diseases. The majority (90%) of the respondents believed that there are many ways(s) by which infections can be contracted through poor environmental sanitation conditions and all (100%) of the respondents indicated that water borne diseases are very common in motor park toilet, infections from toilet and poor environmental sanitation conditions are preventable, infections can be contacted through poor environmental sanitation conditions only and lastly infectious diseases can be contacted from both toilet and poor environmental sanitation conditions.

Table 4:Experiences relating to toilet and poor environmental sanitary conditions and diseases

Questions	**Yes (%)**	**No (%)**
Have you ever had any toilet diseases	240(80)	60(20)
It take one to two years before toilet disease manifested in the body after contacted	240(80)	60(20)
Toilet diseases affects only the driver not the passengers	210(70)	90(30)
Do you think toilet diseases are caused from the usage of the toilet	270(90)	30(10)
Do you think toilet diseases are caused from the entering a car	270(90)	30(10)
Toilet diseases affects only the passenger not the drivers	270(90)	30(10)
Toilet diseases affects both passenger and drivers	300(100)	0(0)
Toilet diseases affects everybody that used the toilet	300(100)	0(0)
Toilet diseases affect only the market women	300(100)	0(0)
Government bad behavior towards provision of toilet in motor park cause toilet disease	300(100)	0(0)

Experiences relating to toilet and poor environmental sanitary conditions and diseases:

From Table 4, larger percentage (80%) of the respondents believed that they once had toilet diseases and that it take one to two years before toilet disease manifested in the body after contacted, more than half (70%) of the respondents reported that toilet diseases affects only the driver and almost all (90%) of the respondents believed that toilet diseases are caused from the usage of the toilet, toilet diseases are caused from the entering a car and toilet diseases affects

only the passenger not the drivers.all (100%) of the respondents indicated that toilet diseases affects both passenger and drivers, toilet diseases affect everybody that used the toilet, toilet diseases affect only the market womenand Government bad behavior towards provision of toilet in motor park cause toilet disease.

Table 5:Concerns about poor environmental sanitation in toilet

Questions	**Yes (%)**	**No (%)**
Do you have concerns about poor environmental sanitary condition in public toilets	270(90)	30(10)
Appearance of the toilet establishment in the motor park is very bad	240(80)	60(20)
Motor park toilet handlers wear uniform, apron, cap or head ties	270(90)	30(10)
Neatness of toilet handlers has something to do with toilet diseases	210(70)	90(30)
Actions of toilet handlers such as spitting, sneezing, pricking nose, coughing can cause toilet diseases	240(80)	60(20)
Make ups on toilet handlers such as long finger nails, paint lips/nails can cause toilet disease	270(90)	30(10)
Location of toilet facilities from the motor park has something to do with toilet diseases	240(80)	60(20)
Location of water facility from the toilet has something to do with toilet diseases	300(100)	0(0)
Bad usage of toilet facilities can cause toilet diseases	24080)	60(20)
Poor management of the toilet facilities by the Parked Managers can cause toilet diseases	240(80)	60(20)

Concerns about poor environmental sanitation in toilet: From Table 5, almost all (90%) of the respondents have concerns about poor environmental sanitary condition in public toilets, larger part (80%) of the respondents reported that appearance of the toilet establishment in the motor park is very bad, almost all (90%) of the respondents believed that motor park toilet handlers wear uniform, apron, cap or head ties and 70% of the respondents showed theneatness of toilet handlers has something to do with toilet diseases. More than half (80%) of the respondents indicated that actions of toilet handlers such as spitting, sneezing, pricking nose, coughing can cause toilet diseases, almost all (90%) of the respondents believed that make ups

on toilet handlers such as long finger nails, paint lips/nails can cause toilet disease and 80% of the respondents indicated that location of toilet facilities from the motor park has something to do with toilet diseases. All (100%) of the respondents indicated that location of water facility from the toilet has something to do with toilet diseases and 80% of the respondents reported that bad usage of toilet facilities can cause toilet diseases andpoor management of the toilet facilities by the parked managers can cause toilet diseases.

Table 6:Perception of quality of services provider

Questions	**Yes (%)**	**No (%)**
Are there certain qualities expected of services provided in this motor park	270(90)	30(10)
Access to water is very important in maintain toilet facilities	270(90)	30(10)
Environmental sanitation around the toilet facilities and handlers are very essential	240(80)	60(20)
Nature and experience of the service provider is very crucial in handling toilet	270(90)	30(10)
Sanitary facilities and condition of the service provider environment is importance in toilet management	270(90)	30(10)
Personnel hygiene practices of the service provider is importance in toilet management	270(90)	30(10)
Toilet quality in the motor park is also importance in handling toilet facilities	240(80)	60(20)
Quality of services rendered (personnel attitude) by service provider environment is importance in toilet management	300(100)	0(0)
Toilet quality in the motor park is the responsibility of the government	24080)	60(20)
Cleaning of the toilet after usage is every users responsibilities	240(80)	60(20)

Perception of quality of services provider: From Table 6, almost all (90%) of the respondents believed that there are certain qualities expected of services provided in this motor park and access to water is very important in maintain toilet facilities, also 80% of the respondents reported thatenvironmental sanitation around the toilet facilities and handlers are very essential. Almost all (90%) of the respondents believed that nature and experience of the service provider is very crucial in handling toilet, sanitary facilities and condition of the service provider

environment is importance in toilet management and personnel hygiene practices of the service provider is importance in toilet management.80% of the respondents indicated that toilet quality in the motor park is also importance in handling toilet facilities and all (100%) of the respondents believed thatquality of services rendered (personnel attitude) by service provider environment is importance in toilet management. Almost all (80%) of the respondents indicated thattoilet quality in the motor park is the responsibility of the government and cleaning of the toilet after usage is every user's responsibilities.

Table 7:Factors influencing user's choice of toilet

Questions	**Yes (%)**	**No (%)**
Are you aware that most of the motor park has toilet	270(90)	30(10)
Location is one of the factors influence your choice of using the toilet	270(90)	30(10)
Environmental sanitation (premises, drainage, waste disposal, etc.).is one of the factors influence your choice of using the toilet	270(90)	30(10)
Toilet hygiene practices.is one of the factors influence your choice of using the toilet	270(90)	30(10)
Personnel hygiene (including dressing, health status, etc.) is one of the factors influence your choice of using the toilet	270(90)	30(10)
Toilet quality is one of the factors influence your choice of using the toilet	270(90)	30(10)
Cost of toilet usage is one of the factors influence your choice of using the toilet	240(80)	60(20)
Do you use other toilets apart from motor park toilets	300(100)	0(0)
Is it possible for the government to improve the present hygiene and serving practices of this motor park toilet	300(100)	0(0)
Is it possible for the Parked Managers to improve the present hygiene and serving practices of this motor park toilet	300(100)	0(0)

Factors influencing user's choice of toilet: From Table 7, almost all (90%) of the respondents reported that most of the motor park has toilet, location is one of the factors influence ones choice of using the toilet, environmental sanitation (premises, drainage, waste disposal, etc.).is one of the factors influence ones choice of using the toilet, toilet hygiene practices.is one of the factors influence your choice of using the toilet and personnel hygiene (including dressing,

health status, etc.) is one of the factors influence your choice of using the toilet.80% of the respondents believed that cost of toilet usage is one of the factors influence one's choice of using the toilet and all of the respondents (100%) of the respondents indicated that they used other toilets apart from motor park toilets, it is possible for the government to improve the present hygiene and serving practices of the motor park toilet and finally it is possible for the parked managers to improve the present hygiene and serving practices of the motor park toilet.

Then compress table 3 to 7 into single table to make table 8

Table 8:Poor sanitation facilities and environmental conditions of motor parks have relationship with water borne, air-borne diseases.

Questions	Yes (%)	No (%)
Knowledge of food borne diseases	270(90)	30(10)
Experiences relating to toilet and poor environmental sanitary conditions diseases	270(90)	30(10)
Concerns about poor environmental sanitation in toilet	252(84)	48(16)
Perception of quality of services provided	261(87)	39(13)
Factors influencing user's choice of toilet	276(92)	24(8)

Chi-Square Statistic

Using Chi-square statistics in research, it is commonly used for testing relationships between categorical variables. The null hypothesis of the chi-square test is that no relationship exists on the categorical variables in the population, they are independent.

From the research topic, the dependent variables are poor sanitation facilities and open defecation while the independent variable is motor park toilet facilities.

HO: There is no significant relationship between poor sanitation facilities and open defecation (OD) within the motor parks in Ibadan

HA: There is significant relationship between poor sanitation facilities and open defecation (OD) within the motor parks in Ibadan

HO: Poor sanitation facilities and environmental conditions can't cause water borne, air-borne diseases.

HA: Poor sanitation facilities and environmental conditions can cause water borne, air-borne diseases

The next thing is to calculate the expected value (E) from table 8 by multiply each roll total by each column total and divide by overall.

Table 9:Expected Values

Questions	Yes (%)	No (%)	Total
Knowledge of food borne diseases	88.6	15.4	104
Experiences relating to toilet and poor environmental sanitary conditions diseases	88.6	15.4	104
Concerns about poor environmental sanitation in toilet	88.6	15.4	104
Perception of quality of services provided	88.6	15.4	104
Factors influencing user's choice of toilet	88.6	15.4	104
Total	443	77	520

The next thing is to subtract expected from the actual, square it and then divide by expected and add it up to get chi-square figure in table 10 below.

Table 10:Chi-Square Table

Questions	Yes (%)	No (%)	Total
Knowledge of food borne diseases	371.4	13.8	385.2
Experiences relating to toilet and poor environmental sanitary conditions diseases	371.4	13.8	385.2

Concerns about poor environmental sanitation in toilet	371.4	13.8	385.2
Perception of quality of services provided	371.4	13.8	385.2
Factors influencing user's choice of toilet	371.4	13.8	385.2
Total	1857	69	1926

Therefore, Chi- Square is **1926**

From Chi-Square to p-values

To get Chi-Square to p-values, we need to get Degree of Freedom (DF)

Calculation of Degree of Freedom (a=0.05)

Multiply (row-1 by (column-1)

Therefore, (5-1) X (2-1) = 4 X 1 = 4

9.488

HO: There is no significant relationship between poor sanitation facilities and open defecation (OD) within the motor parks in Ibadan

HA: There is significant relationship between poor sanitation facilities and open defecation (OD) within the motor parks in Ibadan

HO: Poor sanitation facilities and environmental conditions can't cause water borne, air-borne diseases.

HA: Poor sanitation facilities and environmental conditions can cause water borne, air-borne diseases

In a nut shell, since Chi-Square calculated is far greater than Chi-Square table, **(i.e. 1926>9.488)**we need to reject null hypothesis (HO) and accept alternative hypothesis

Thus, there is relationship between poor sanitation facilities, environmental conditions and open defecation (OD) of motor park toilet with water borne, air-borne diseases in motor in Ibadan metropolis.

Table 11: Observation checklist for inspection of motor park toilet facilities

Questions	**Yes(%)**	**No(%)**	**Total**	**If Yes is more than No, Give Reason or stages**
Is motor park toilet approved (with Government)	282 (94%)	18 (6%)	300	Mandatory
Is the motor park toilet registered with packed manager	220 (73%)	80 (27%)	300	Non mandatory
Is the human feaces visible within the motor park toilet	18 (6%)	282 (94%)	300	Good
Description of motor park toilet (Structure) is satisfactory	283 (94%)	17 (6%)	300	Good
Sanitary facilities and condition of motor park toilet (Structure) is	290 (97%)	10 (3%)	300	

satisfactory				

Observation checklist for inspection of motor park toilet facilities: From observation checklist table (table 11), almost all (94%) of the respondents indicated that motor park toilet was approved by government because it is mandatory, more than half (73%) of the respondents indicated that motor park toilet were registered with packed manager because it is mandatory and 94% of the respondents registered that human feaceswere not visible within the motor park toilet. Almost all (94%) of the respondents indicated that description of motor park toilet (structure) is satisfactory and 97% of the respondents indicated that sanitary facilities and condition of motor park toilet (structure) are satisfactory.

Table 12: key informants guide

Questions	**Yes (%)**	**No (%)**	**Total**	**If Yes is more than No, Give Reason or stages**
Is your motor park registered / licensed with government	272 (91%)	28 (9%)	300	Mandatory
Do you motor park belong to packed manager	221 (74%)	79 (26%)	300	Non mandatory
Are you aware of Government Bye Law on Motor Park regulation	45 (15%)	255 (85%)	300	Very poor

Do the LGA environmental health officers come to your motor park for regular inspections	283 (94%)	17 (6%)	300	Good
Do you have knowledge of toilet diseases	290 (97%)	10I(3%)	300	Good
What are the major challenges facing your work as operator of toilet facilities or toilet handler				Lack of water Poor usage of the toilet by the users Government nonchalant attitude towards the provision of toilet to motor park
Suggestions for improving motor park premise and toilet facilities				Provision of water by the government and packed manager Building of more toilets to all registered motor parks in Ibadan

key informants guide: From key informants guide table (table 12), almost all (91%) of the respondents indicated thattheir motor park was registered /licensed with governmentbecause it is mandatory, more than half (74%) of the respondents indicated that their motor park belong to

packed managermotor because it is mandatory and 85% of the respondents indicated that they are not aware of Government Bye. Almost all (94%) of the respondents indicated that LGA environmental health officers come to their motor park for regular inspectionsand 97% of the respondents indicated that they have knowledge of toilet diseases.

During the key informant guide, it was revealed that lack of water, poor usage of the toilet by the users and government nonchalant attitude towards the provision of toilet to motor park among others are the challenges facing their work as operator of toilet facilities or toilet handler. Also, several suggestions were made the informants. These includes; provision of water by the government and packed manager and building of more toilets to all registered motor parks in Ibadan and Oyo State as a whole.

DISCUSSION

Public sanitary facilities are crucial infrastructure necessary for the social well-being and practical operation of a functioning city. Human dignity is directly linked to access the safety and hygienic sanitation and this formed one of the strongest indicator of a near perfect city. Ibadan being the largest city in West Africa deserves adequate and functioning toilet facilities in their various motor park. Motor park falls under publicspace and its provision should be such that it takes intoaccount the user needs and aspirations because this affectsthe success of such facilities[6]. Most of the motor parks understudy have not met the needs of the users and hence it can be implied that the motor parks areinadequate and require major transformation[6] as supported by research carried out in Garki district in Abuja titled appraisal of sanitary facilities in public areasinstitutions. In the research work, there exist deficits in the provision of basic environmental facilities in themotor parks. These include water supply, toilet facilities and

effective means ofmanaging solid waste generated[7].These deficitsare responsible for the poor environmental sanitation behaviour of users. Theabsence of enough toilet facilities for example, is responsible for urinating and defecating inavailable open space in the parks[7].

The findings from this study revealed that the general mean age of respondents from the various selected motor parks was 46.5±1.5 years and the age range was between 41-60 years, respectively. The majority of the respondents were males and the preponderance ethnic group belonged to the Yoruba and Muslim. This is anticipated in a study of this nature since it was conducted in the Southwestern part of Nigeria. Also, a higher proportion of the respondents were married and drivers with most of themlive in few houses away from the motor-park and had to take transports to their place of work. Also, high percentage of themgenerate a meagre monthly income, had < 100,000 per month.

Comment [D9]: source

Most of toilet users are susceptible to toilet diseases and water borne diseases can be contacted in motor park toilet, there are many way(s) by which infections can be contracted through toilet and sitting on infected water closet can cause toilet diseases. It was revealed that there are many ways(s) by which infections can be contracted through poor environmental sanitation conditions and this was collaborated in Adedayo et al work where high percentage of the users of motor parks were not satisfied with the facilities and majority of the motor parks were in a state of disrepair thereby needing maintenance[8]. Many peoples blamed the state government for the unhygienic environment of motor park toilets, arguing that the government fails to monitor the operators, as well as the usage of these facilities by members of the public[5].

Endnote

[5]The Punch, Healthwise (2021):Lagos motor parks public toilets always unclean, unhygienic, residents cry out. Updated: August 15, 2021. Copyright PUNCH.

[6]Olatunde F.A, Zubairu S.N (2013): An Assessment of Facilities in Motor Parks in Minna, Niger State, Nigeria, Through Post-Occupancy Evaluation, July 2013 DOI: 10.5923/j.mm.20130307.05

[7]Abel Omoniyi AFON, Olajoke ABOLADE andSimon Ayorinde OKANLAWON (2006): User's Perception of Environmental Hazards and Risks as a Tool in Public Space Management: The Case of Selected Motor Parks in Lagos, Nigeria. Promoting Land Administration and Good Governance5th FIG Regional ConferenceAccra, Ghana, March 8-11, 2006

[8]Adedayo O.F and Zubairu S.N (2013): An Assessment of Facilities in Motor Parks in Minna, Niger State, Nigeria, Through Post-Occupancy Evaluation Management 2013, 3(7): 360-367 DOI: 10.5923/j.mm.20130307.05.

CONCLUSION AND RECOMMENDATIONS

The study revealed that the poor sanitation facilities and environmental conditions and open defecation (OD) in most of the toilet in motor park in Ibadan metropolis lead to water related diseases and this was collaborated and ascertained that provision of properly managed functional public convenience facilities located in high density areas such as markets, motor parks and open spaces will consolidate sanitary efforts of the state government in respect to the mega-city concept and significant reduction in health related problems[6,7]. Recommendations include but not limited to;

a) Motor park toilet facilities should be located where it is required and in accordance with the demand. This is to ensure that high quality public sanitary is provided where a critical mass of people requires access to such facilities.

b) All sanitary facilities should be provided with the reliable and dependable source of water i.e. water board and borehole.

c) Motor park toilet should be built with cubicles size ranging between 2.0-2.5 sqm. This is a recommended standard for size or cubicles as it gives and provide good circulation, movement, alignment and easement.

d) Motor park toilets were to be made available to users at an appointed time and should have specific time of opening and closing. Toilets should be made available to users between 5am and 10pm. This gives caretakers enough time for proper maintenance.

e) Motor park toilet facilities should be built and managed in accordance with sustainable design principles. Sustainable design sanitation facilities aim to lessen their impact on the environment through energy and resource efficiency. Besides, they will improve the sanitary conditions of the environment.

f) Consideration should always be given to the inclusion of the following objectives in the design stage of any motor park toilets in the study area:

g). Minimizing of water and non-renewable resource consumption. Effective design eliminates water waste, protection against abuse and opportunities to consider re-use of water. Stormed water may be considered where practical.

SIGNIFICANCE STATEMENT

This study has shown that the poor sanitation facilities and environmental conditions and open defecation (OD) in most of the toilet in motor park in Ibadan metropolis lead to water related diseases. The study also revealed that numerous factors viz socio-economic variables, age, sex, marital status, occupation, level of education, religion, ethnic background, motor park distance from home, motor park distance from place of work, estimate total income per month, knowledge of water borne related diseases, experience relating to toilet and poor sanitary conditions an d disease, concern about poor environmental sanitation in toilet, perception of quality of service providers and factors influencing user's choice of toilet largely influence the effectively of toilet usage in motor park by communal, drivers, transporters and other stakeholders. These vital findings are hitherto unknown or under-explored by many researchers working in this field. Thus, this study has contributed to the knowledge base through the aforementioned findings and also draws attention for more research to be done on the roles of socio-economic, cultural and institutional factors on sanitation facilities and environmental conditions of motor parks in Ibadan metropolis, Oyo State Nigeria

REFERENCES

1. In Fowler R. editor (2001): Better public toilets: a providers' guide to the provision and management of 'away from home' toilets, Winchester: British Toilet Association, 2001.
2. AdakuOnyenucheya (2020):Firm rehabilitates public toilets to curb infectious diseases. Hypo Toilet Cleaner, 2022 Guardian Newspapers
3. Federal Government of Nigeria and UNICEF (2016): Making Nigeria open defecation free by 2025: A national road map. The Roadmap provides a guide towards achieving an open defecation free country using different approaches**.**
4. Centre for Disease Control and Prevention, Global Water, Sanitation, & Hygiene (WASH) (2022):Toilets & Latrines, The Need for Latrines and Toilets
   Centers for Disease Control and Prevention, National Center for Emerging and Zoonotic Infectious Diseases (NCEZID), Division of Foodborne, Waterborne, and Environmental Diseases at CDC.

5. The Punch, Healthwise (2021):Lagos motor parks public toilets always unclean, unhygienic, residents cry out. Updated: August 15, 2021. Copyright PUNCH.
6. Olatunde F.A, Zubairu S.N (2013): An Assessment of Facilities in Motor Parks in Minna, Niger State, Nigeria, Through Post-Occupancy Evaluation, July 2013 DOI: 10.5923/j.mm.20130307.05
7. Abel Omoniyi AFON, Olajoke ABOLADE andSimon Ayorinde OKANLAWON (2006): User's Perception of Environmental Hazards and Risks as a Tool in Public Space Management: The Case of Selected Motor Parks in Lagos, Nigeria. Promoting Land Administration and Good Governance5th FIG Regional ConferenceAccra, Ghana, March 8-11, 2006
8. Adedayo O.F and Zubairu S.N (2013): An Assessment of Facilities in Motor Parks in Minna,Niger State, Nigeria, Through Post-OccupancyEvaluation Management 2013, 3(7): 360-367DOI: 10.5923/j.mm.20130307.05.