

Status of Sanitation Facilities and Factors Influencing Faecal Disposal Practices in Selected Low-Income Communities in Ibadan, Nigeria

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Abstract Safe disposal of faeces has become a very important issue as a result of its significant implication in the quality of life of people in our society. This paper examined the status of sanitation facilities and factors influencing faecal disposal practices in selected low-income communities in Ibadan, Nigeria. The study adopted a cross-sectional design and utilized a 3-stage sampling technique to select streets, households and 221 respondents who participated in the study from Yemetu. A semi-structured questionnaire was used to collect information on respondents' socio-demographic characteristics, knowledge of safe faecal disposal and faecal disposal practices. Sanitary conditions of toilets were observed using a checklist. Descriptive statistics, Chi-square, and logistic regression were used to analyse data and level of significance was set at 0.05. Respondents' mean age was 31.1 ± 12.1 years, monthly income ranged between ₦2,000 and ₦125,000. Eighty-two percent had toilet facilities in their houses while 55.6% used Yemetu stream as an alternative place to defecate. About 90.1% of the respondents with toilets shared the facility with other families. Majority (64.5%) had good knowledge of safe faecal disposal, 55.2% had poor faecal disposal practice. Practice of safe faecal disposal was found to be statistically significant with educational status ($p < 0.05$) and monthly income ($p < 0.05$). Respondents who have toilet facility within houses were 6 times more likely to practice safe faecal disposal (OR = 6.318, CI = 2.704 - 14.759). Observation revealed that shared toilet facilities was the dominant disposal practice in the community and were not in a good sanitary condition. Practice of safe faecal disposal was poor and sanitation facilities were not in good sanitary conditions. Availability of toilet facility within homes improves safe faecal disposal practice. The study suggests the provision of more toilet facilities through empowerment programs by necessary stakeholders in order to improve the status of sanitation in the community.

Keywords: Yemetu community, faeces disposal, knowledge, sanitary condition, practices

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1. Introduction

Sanitation according to World Health Organization (WHO) is the provision of facilities and services required for safe disposal of human faeces and urine [1]. Sanitation could also be described as the practice of effecting conditions that are healthful and hygienic to the environment and also to promote health of the public, improve quality of life and ensure environment that is sustainable [2]. Sanitation provides platform for proper and adequate disposal of animal and human faeces in order to protect the health of the public and that of

the environment. United Nations declared sanitation, a fundamental human right and lack of access to it left many communities vulnerable to its impact on health, dignity, education and economy [3].

Improved sanitation facility is the facility that separate excreta from human contact hygienically, and is only used by members of one household: toilets flushing to sewer systems or septic tanks, ventilated improved pit (VIP) latrines, pit latrines with a slab, and composting toilets [4]. The 2017 Joint Monitoring Programme (JMP) established JMP service ladder as a benchmark for comparing the sanitation service levels across countries. The JMP ladder build on the already established improved/unimproved classification of sanitation facilities by classifying the

sanitation service into Safely managed, Basic, limited, unimproved and open defecation [5]. To achieve safely managed sanitation service (SDG 6.2), it is required that people use improved sanitation facilities which are not shared with other households, and the excreta produced should either be: treated and disposed in-situ, stored temporarily and then emptied and transported for treatment off-site, or transported through a sewer with wastewater and then treated off-site. In the case where excreta from improved sanitation facilities are not safely managed, then people making use of those facilities will be classified as using basic sanitation services while people using improved facilities that are shared with other households will be classified as having limited service.

About 61% of the world population (4.5 billion people) lacked access to safely managed sanitation services, 2.1 billion people used either basic toilets or latrine, 600 million shared toilets among several households, 856 million people used poorly constructed latrines or buckets, and 892 million still practiced open defecation [5]. About 63% or 700 million people of sub-Saharan Africa lacked access to improve sanitation making the region to have the lowest sanitation coverage globally [4]. About 30.1% of household in Nigerian used improved sanitation facilities that were not shared with other households of which 25.1% are in rural areas and 36.6% in urban areas, while 39.9% and 15.5% of households from rural and urban did not have access to sanitation facilities and thereby practiced open defecation [6].

A poorly constructed and maintained sanitation facilities can contaminate water sources and transmit waterborne diseases [7]. Indiscriminate disposal of faeces directly into the environment has been implicated in the breeding of vectors that contaminates food, water, or hands of humans and transmit diseases through the fecal-oral routes [8,9]. About 280,000 annual diarrhoea deaths as a result of poor sanitation has been reported across the globe and the death of about 2800 people daily due to illnesses related to inadequate sanitation, unsafe water and poor hygiene in Africa [10]. In Nigeria, cases of cholera, dysentery, typhoid fever, and helminthic infestation are reported to be rampant [11]. Furthermore, about 2,771 cases of cholera including 124 deaths were reported in various regions of Nigeria communities in the year 2013 and were all attributed to poor and inadequate sanitation [12]. Maintaining healthy sanitary conditions' such as safe collection, removal, or disposal of human excreta is an effective and sure way to prevent human contact with faeces and outbreak of faecal related diseases [13]. Provision of decent and safe toilet is very important not only as a means of responding to nature's call but also an opportunity to improve individual and communal economy as investment in sanitation reduces cost of health care, boosts tourism, and improves children education while lack of decent and safe toilet exposes children to water and sanitation related diseases and expose women to sexual abuse of various kinds as they resort to open defecation. This study was aimed to examine the status of sanitation facilities and factors influencing faecal disposal practices

among residents of Yemetu communities in Ibadan, Nigeria.

2. Materials and Methods

2.1. Study Area

This study was carried out in Yemetu Communities of Ibadan North Local Government, Ibadan, Oyo State (Figure 1). Ibadan North Local Government Area is located approximately on longitude 8°5" East of the Greenwich meridian and latitude 7°23" North of equators. According to 2017 population projection, the local government was estimated to have a population of 417,399. Yemetu community is one of the typical old community in Ibadan with highly congested indigenous areas with poor housing facilities. Residents of this community belong to the lowest income group earners in Ibadan. Environmental quality is also very poor in this area with very narrow roads, unacceptable refuse littering, and poor drainage.

2.2. Study Design

This is a cross-sectional study that utilizes a pre-tested, semi-structured questionnaire and observational checklist to collect data. The questionnaire was used to assess the sanitation status, knowledge, and practices of respondents on safe faeces disposal while the checklist was used to observe the sanitary conditions of toilets. The instrument was pretested in Oje community. This is a community in Ibadan North East LGA, within Ibadan metropolis with a similar characteristic with the selected study area. The instrument produced a reliability coefficient of 0.75 using Cronbach alpha. Male and female adults of Yemetu community were recruited to participate in the study.

2.3. Sample Size Estimation

The sample size estimation was determined based on the 15.5% proportion of urban households in Nigeria that practice open defecation [6]. Based on this proportion, the sample size was estimated using the formula:

$$n = \frac{Z\alpha^2 p(1-p)}{d^2}$$

$$n = \frac{1,96^2 \times 0.155(1-0.155)}{0.05^2}$$

Where $Z\alpha$ = A standard score at 95% confidence interval = 1.96

P= proportion of urban households in Nigeria that practice open defecation = 15.5%

d = degree of precision = 0.05

n = 201.

The minimum sample size for this study was 201 with an additional 10% non-response rate (20) to give a total of 221. Therefore, the sample size used was 221.

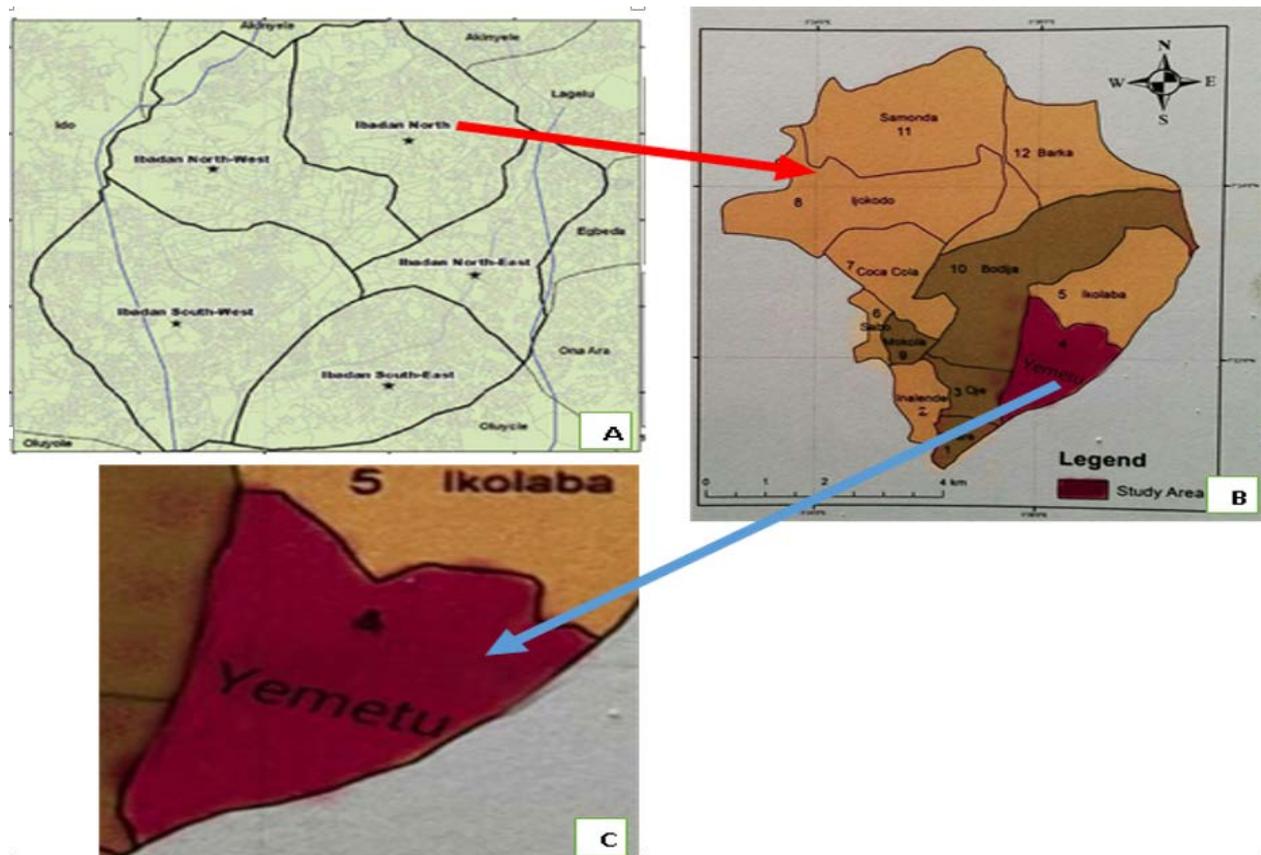


Figure 1. Map of Study area (A-LGAs within Ibadan metropolis; B-Ibadan North LGA; C-Yemetu community)

2.4. Study Population and Sampling Technique

A 3-stage sampling technique was used to select streets, households and 221 respondents from Yemetu who participated in the study. The study population were inhabitants of Yemetu community who were eighteen years and above and have lived in the community for more than a year. This was achieved by first requesting for the respondents ages and the number of years spent in the community before questionnaire administration. At the planning stage of the study, the estimated population of Yemetu community could not be retrieved from the National Population Commission (NPC) therefore, the study resorted to house by house enumeration. This enumeration was achieved by stratifying Yemetu community into three different groups according to the three major streets in the community. The streets are Yemetu barracks, Yemetu Oja and Yemetu Alawada with total number of 255, 304 and 1128 houses respectively making a total of 1687 houses in the community at large. The 221 respondents from the sample size calculation were proportionately allocated among houses in the three streets with Yemetu Barracks, Yemetu Oja and Yemetu Alawada having 50, 60 and 111 respondents respectively. A systematic random sampling was adopted in selecting eligible houses where respondents were picked to participate in the study. The sampling started by selecting a house from the sampling frame through balloting and then every 7th house in the sampling frame was selected until the sample size was achieved. Then one respondent was picked from each of the eligible houses to participate in the study.

2.5. Data Collection Methods and Instrument

Prior to the commencement of the study, the head of the community (Baale) was contacted in order to seek for permission to carry out the study in the community and consent was granted. Data were collected using interviewer-administered questionnaire and observational checklist. The questionnaire was prepared in English and translated to local language (Yoruba language) to ensure clarity. The questionnaire contained, 18-point knowledge scale and 16-point practice scale questions on safe faecal disposal. The instrument for data collection was pre-tested in Oje community within Ibadan metropolis. The data collection task was accomplished by four (4) research assistants who hold National Certificate of Education (NCE) and were conversant with questionnaire research. Also, they were trained about the objectives of the study and how to conduct themselves modestly during the interview.

2.6. Data Management and Analysis

Data collected were checked for completeness and sorted daily. Data were entered and analyzed using SPSS (Statistical Package for Social Science) version 20. The total knowledge score ranged from 9-18 and scores less than 11.4 were regarded as poor knowledge. The practice score ranged from 6-16, scores less than 9.8 were rated as poor practice of safe faecal disposal. Analysis included descriptive statistics such as frequencies, percentages, and mean. Comparison of categorical variables was done with chi-square test and logistic regression at 5% level of significance.

2.7. Ethical Considerations

The study was approved by the University of Ibadan/University College Hospital Joint Ethical Review Board. Informed consent was obtained from the head of the community, household head, and the participants that were interviewed before the commencement of the study. Written informed consent was obtained from individuals that voluntarily agreed to participate in the study before the interviewing process was commenced. Data were treated with utmost confidentiality and only used for the purpose of the research.

3. Results

3.1. Socio-demographic Characteristics of Respondents

The socio-demographic profile of respondents as shown in Table 1 revealed that respondents' mean age was 31.1 ± 12.1 years and 58.8% of the respondents were female. About eleven percent of the respondents did not have formal education, 19% had primary education while 34.8% and 35.3% had secondary and tertiary education respectively. Several (45.2%) of the respondents were self-employed, while 23.4% were unemployed. The monthly income of the respondents ranged from NGN 2000 to 125000 with the mean income of NGN 28701 ± 2571 and 57.5% earned less than twenty thousand Nigerian Naira (NGN) monthly.

3.2. Knowledge of Respondents on Safe Faecal Disposal

Knowledge of the respondents on safe faecal disposal is presented in Table 2. It was shown that 83.7% of the respondents stated that discharge of faeces directly into the surrounding environment increases human contact with faecal matter, while 90% said that when faeces is not properly disposed of, it could lead to outbreaks of infectious diseases. Majority (81.0%) of the respondents revealed that inadequate maintenance of toilet facilities can result in unsafe faeces disposal. Eighty percent of the respondents were aware that open defecation is not a normal practice while 89.1% said that presence of toilet facilities in a house is an antidote to open defecation. Majority (81.9%) stated that disposing faeces directly into the environment increases human contact with faeces while 85.5% knew that disposing faeces into the stream can have a negative effect on aquatic animals.

Furthermore, knowledge score of safe faecal disposal was presented in Figure 2. The mean score was 11.4 ± 1.5 and 64.5% of the respondents had good knowledge of safe faecal disposal.

3.3. Faecal Disposal Practices of respondents

Table 3 presents respondents' practice of safe faecal disposal. The table revealed that 45.7% of the respondents reported that they practice open or stream defecation at nights. Several (44.3%) of the respondents reported that their children usually make use of the toilet facilities in the house, while 23.1% and 25.7% reported usage of bush and nearby stream respectively. About 55.6% of the respondents reported that they had practiced stream defecation at a particular time while 26.3% of those who had practiced stream defecation reported that they always dispose of their faeces inside the stream. Majority (67.3%) of the respondents reported that they were not satisfied with their defecation practices. Furthermore, the practice score of respondents towards safe faecal disposal was presented in Figure 3. The figure revealed that 55.2% of the respondents had poor practice towards safe faecal disposal.

Table 1. Socio-demographic characteristics of respondents

Socio-demographic Characteristics	Frequency	Percentage
Age (Years)		
18-20	49	22.2
21-30	76	34.4
31-40	56	25.3
41 and Above	40	18.1
Mean \pm SD = 31.1 ± 12.1		
Gender		
Male	91	41.2
Female	130	58.8
Educational Status		
No formal	24	10.9
Primary	42	19.0
Secondary	77	34.8
Tertiary	78	35.3
Employment Status		
Government Employed	37	16.7
Self Employed	100	45.2
Private Employed	32	14.5
Unemployed	52	23.4
Monthly Income		
< 20000	127	57.5
20000-39000	45	20.3
40000-59000	22	10.0
60000-790000	10	4.5
> 80000	9	7.7
Mean \pm SD = NGN 28701 \pm 2571		

*1 USD = 360 NGN.

Table 2. Respondents' Knowledge on safe faeces disposal

Knowledge statement	Frequency	Percentages
Open/field defecation is normal	176	79.6
Availability of toilet facilities in a house discourages open defecation	197	89.1
Lack of maintenance of household toilet can result into open/field defecation	179	81.0
People who defecate in the open put the entire community at risk of diseases	199	90
Availability of toilet in a house promotes safe disposal of faeces	179	82.4
Disposal of faeces into streams is as a result of Inadequate toilet facilities	181	81.9
Presence of toilet facilities in homes promote safe Disposal of faeces	180	81.4
Disposal of faeces directly into the environment increases human contact with faeces	181	81.9
Aquatic organisms are destroyed as a result of excreta disposal into the stream	189	85.5

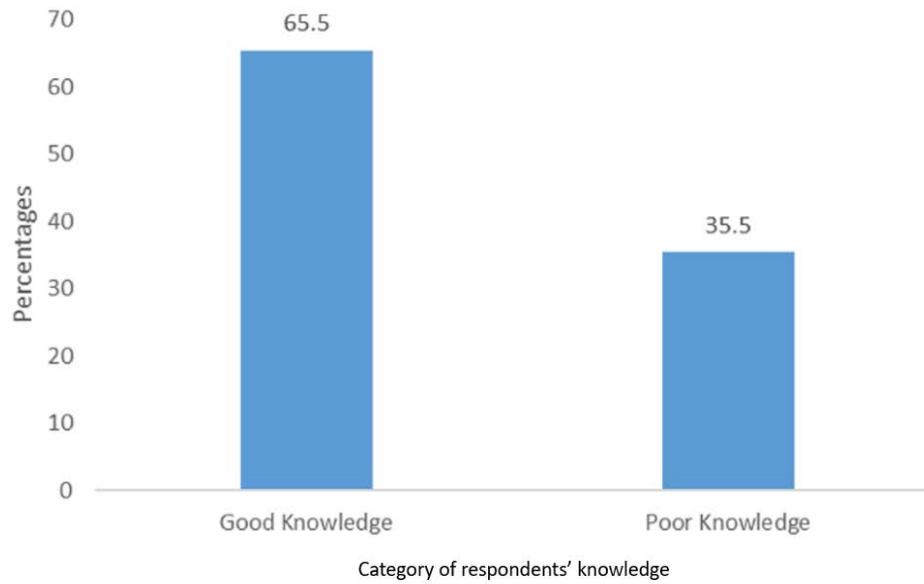


Figure 2. Category of respondents' knowledge of safe faecal disposal practice

Table 3. Respondents' faecal disposal practices

Faecal disposal practices	Frequency	Percentage
Period of the day open defecation is mostly practiced		
Morning	71	35.6
Afternoon	41	18.7
Night	100	45.7
Children preferred place for defecation		
Household toilet	98	44.3
Bush around house	51	23.1
Nearby stream	57	25.7
Neighbour's toilet	15	6.9
Ever disposed faeces into the nearby stream	123	55.6
How often faeces is being disposed into the stream		
Always	35	29.3
Sometimes	53	43.1
Rarely	34	27.6
Not Satisfied with current defecation practice	148	67.3

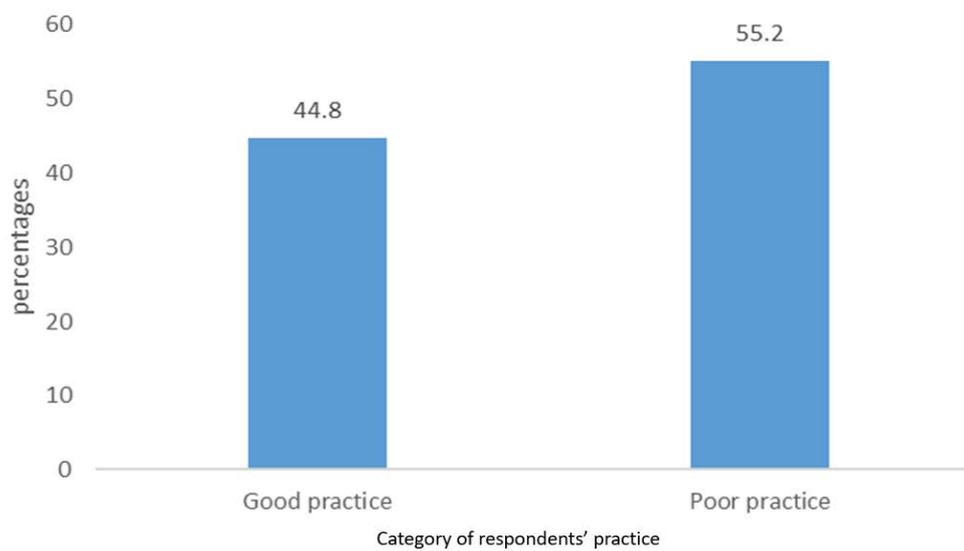


Figure 3. Category of respondents' practice of safe faecal disposal

3.4. Status of Respondents' Sanitation Facilities and Services

The status of respondents' sanitation facilities according to Table 4 showed that 82.4% of the respondents reported that they had access to toilet facilities in their houses while 55.6% claimed using the nearby stream or bush as an alternative place for toilet. About 65.0% of the respondents reported using water closet connected to septic tanks, while 90.1% shared their toilet facilities with other families in their house. More than half (53.5%) of

the respondents reported sharing toilet facilities with about five families in their house and 63.8% reported that their house is within five-minute distance to a major stream in the community. Figure 4 presents the sanitation services available at Yemetu community. It was found that 68.8% of the respondents were using limited sanitation services, 17.6% of the respondents' still practiced open defecation, while some 8.2% were using basic sanitation services. Only 5.4% of the respondents still use un-improved sanitation service while none used safely managed sanitation services.

Table 4. Status of respondents' sanitation facilities

Sanitation facilities	Frequency	Percentage
Presence of toilet in the house	182	82.4
Use of stream/bush as alternative to toilet	123	55.6
Reasons for not having a toilet		
No money to build	18	46.3
No material to build	10	25.5
Cost of maintenance	6	15.4
Open defecation tradition	5	12.8
Type of toilet in use		
Water closet connected to septic tank	118	65.0
Water closet not connected to septic tank	2.0	1.0
Pit latrine with slab	50	27.5
Pit latrine without slab	11	6.0
Bucket latrine	1.0	0.5
Toilet shared with other families	164	90.1
Use the available household toilet	166	91.3
Reason for not using toilet facilities at home		
Toilet unsafe	3	18.7
Toilet not clean	6	37.5
Toilet requires maintenance	4	25.1
Number of people sharing one toilet facility		
<5 people	77	46.5
>5 people	87	53.5
Availability of water facilities in home		
Yes	80	43.7
No	103	56.3

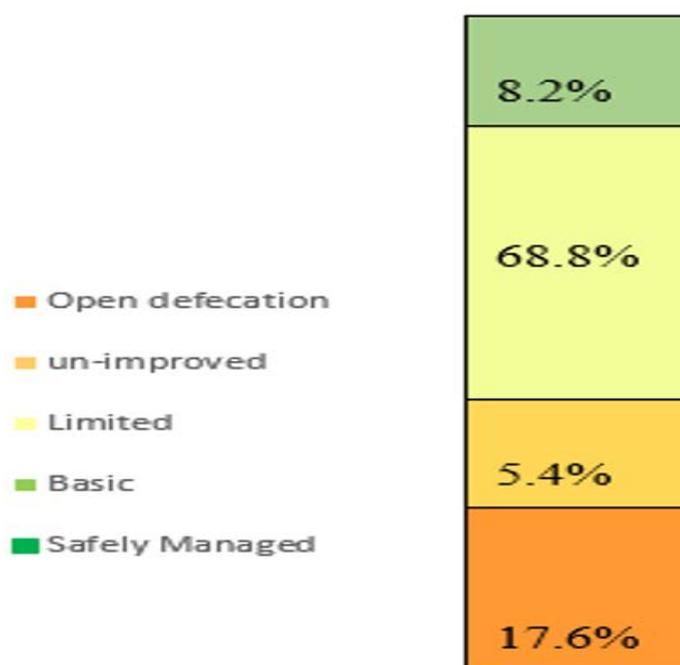


Figure 4. Sanitation services available in Yemetu community

3.5. Association between Respondents' Socio-demographic Characteristics, Sanitation Status and Practice of Safe Faecal Disposal

The association between respondents' socio-demographic characteristics and practice of safe faecal disposal are presented in Table 5. It was revealed that there was no association between respondents' age and practice of safe disposal of faeces ($P > 0.05$). The study also revealed that practice of safe faecal disposal was found to be statistically significant with respondents' educational status ($P < 0.05$) and monthly income ($p < 0.05$). Table 6 presents the association between sanitation status and practice of safe faecal disposal. It was found that no association existed between respondents that shared toilets ($P > 0.05$), number of people sharing one toilet facility ($P = 0.05$), availability of toilet facilities ($P > 0.05$) and practice of safe faecal disposal. However, a statistically significant association

existed between the distance of respondents' houses to nearby stream ($P < 0.05$), availability of toilet facilities in the home ($P < 0.05$) and practice of safe faecal disposal.

3.6. Factors Influencing Safe Faecal Disposal Practices

Factors influencing faecal disposal practices of respondents using the logistic regression model are presented in Table 7. Information from the table revealed that respondents with toilet facilities in their houses were six times more likely to practice safe faecal disposal compared to their colleagues that have no toilet facilities in their house (OR = 6.318, CI = 2.704 - 14.759). Also, respondents that are within walking distance of >5 minutes to the nearby stream are two times more likely to practice safe faecal disposal compared to those who are within walking distance of < 5 minutes (OR = 2.565, CI (1.417 - 4.642)).

Table 5. Association between socio-demographic characteristics of respondents and practice of safe faecal disposal

Socio-demographic characteristics	Practice of safe faecal disposal		χ^2	p-value
	Good (%)	Poor (%)		
Age (Years)				
<20	17(7.7)	31(14.5)	4.081	0.253
21-30	39(17.6)	38(1.7)		
31-40	23(10.4)	33(15.9)		
41 and above	20(9.0)	20(9.0)		
Educational status				
No formal education	15(6.8)	9(4.1)	10.871	0.012*
Primary education	22(10)	20(9.0)		
Secondary Education	38(17.2)	39(17.6)		
Tertiary Education	24(10.9)	54(24.4)		
Monthly income				
>20000	67(30.3)	59(27.1)	16.552	0.002*
20000-39000	21(19.5)	25(10.9)		
40000-59000	6(2.7)	16(7.2)		
60000-79000	4.0(1.8)	6(2.7)		
80000 and above	1.0(0.5)	16(7.2)		

* Statistically significant.

Table 6. Association between sanitation status and practice of safe faecal disposal

Sanitation status	Practice of safe faecal disposal		χ^2	p-value
	Good (%)	Poor (%)		
Toilet shared with other families				
Yes	72(32.8)	127(57.8)	0.454	0.501
No	10(4.4)	12(5.5)		
Number of people sharing one toilet facility				
>5 People	32(14.5)	49(22.2)	1.449	0.227
<5 People	67(30.3)	73(33.0)		
Availability of water facilities in the home				
Yes	39(17.5)	58(26.2)	0.319	0.572
No	44(20.2)	80(36.1)		
Presence of toilet in the house				
Yes	68(30.8)	114(51.6)	23.046	0.000*
No	31(14.0)	8(36)		
Distance of house to nearby stream				
>5 minute walk	51(23.1)	89(40.7)	11.721	0.001*
<5minute walk	21(21.7)	25(14.5)		

* Statistically significant.

Table 7. Logistic regression of sanitation status and practice of safe faecal disposal

Factors	OR	p-value	95% CI	
			Lower	Upper
Availability of toilet facilities in house				
No	RC	RC	RC	RC
Yes	6.318	0.000	2.704	14.759
Distance of house to nearby stream				
<5 minute walk	RC	RC	RC	RC
>5 minute walk	2.565	0.002	1.417	4.642

* RC = Reference category.

3.7. Onsite Observation of Respondents' Sanitation Facilities

Table 8 presents the findings of onsite observation. The table revealed that 84% of the houses had toilet facilities installed, 42.5% of the houses had their toilets detached from the main building. Majority (75.4%) of the toilets were roofed, 61.3% had a concrete/ tiled floor, 39.6% had their toilets connected to septic tank while 20.7% had leaking septic tanks. Forty-two percent of the houses had

water facilities installed, 82% of the toilets were shared among household, while 21.6% of the houses had hand washing facilities in their toilet. More than half (57.5%) of the houses had putrid odour coming out of their toilets, presence of vectors such as cockroaches, rats and flies were noticed in 52.8% of respondents' houses. Some 50.9% houses had presence of faeces on the floor, slab or surrounding, 36.7% of the toilets had clean floor. About 38% of the houses had their toilets connected directly to the nearby stream as shown in Plate 1.

Table 8. Onsite observation of respondents' sanitation facilities

Facilities	Frequency	Percentage
Presence of toilet facilities in the house	90	84
Toilet detached from main building	45	42.5
Presence of roof in toilet	80	75.4
Presence of concrete/tiled floor	65	61.3
Toilet connected to septic tank	42	39.6
Toilet shared with others	87	82.0
Septic tank filled up	20	18.8
Septic tank leaking	22	20.7
Availability of water facility in house	44	41.5
Presence of hand washing facilities	23	21.6
Presence of putrid odour in toilet	61	57.5
Presence of vectors e.g. cockroaches, rats and flies	56	52.8
Presence of faeces on the floor, slab or surrounding	54	50.9
Floor of toilet clean	39	36.7
Toilet directly connected to the stream	41	38.6



Plate 1. Plate showing faecal discharge into the nearby stream. [A: Faecal Discharge from neighbouring household into Yemetu stream, B: Pipe connected from household toilet to Yemetu stream, C: Discharge of faeces into Yemetu stream from houses that lack septic tank]

4. Discussion

This study was conducted to examine the status of sanitation facilities and factors influencing faecal disposal practices among residents of Yemetu communities in Ibadan, Nigeria. The socio-demographic characteristics of the study revealed that above two-third of the study participants had primary education and above. Education is seen as an important tool that brings about behavioural change, and through which the risk of taking or not taking a particular action can clearly be communicated. The study concurs with study reported by Osumanu and others [14] where education was found to be a major factor determining the faecal disposal practice of the respondents. Furthermore, it was reported that knowledge and attitudes are learned response sets [15] which can be modified or changed through education. The employment status of the respondents revealed that a little below half of the respondents were self-employed while more than half of the participants earned less than 20000 NGN, an equivalent of 56 USD per month. This is very small amount of money for a family and provision of own sanitation facility could be difficult. Thus household could tend to be using any other available sanitation disposal facilities, which might not be a safe method of faeces disposal. Several studies have reported similar findings that households with better wealth status were more likely to have improved sanitation facilities that might motivate them to dispose of faeces safely [16,17].

The findings of this study also established that majority (64.5%) of the respondents had good knowledge of safe faeces disposal. This is in agreement with the study reported by Sah and others [18] where about 58% of the respondents had good knowledge of sanitation. Knowledge about a particular issue has been described as an important factor that determines and shapes the behavior, and practice of people in a community [19]. The study found respondents' practice towards safe faeces disposal poor. The poor practice could be as a result of over half (55.6) of the respondents still disposing their faeces into the major stream along the community. This is because they see the stream as an alternative place to defecate apart from using the household toilet. However, the stream might be a source of water supply to other communities downstream. People who depend on this source are likely to be exposed to water and sanitation related diseases. Unsafe disposal of faeces has been associated with increase in risk of diarrhoeal diseases in some settings [20] as well as markers of environmental enteropathy and impaired growth in children [21]. Our finding corroborates the finding of another study [22] where Sanitation and hygiene situations were said to be worse in areas with rivers than in other areas.

Findings from the status of respondents' sanitation facilities revealed that majority (82.4%) of the respondents had toilet facilities in their houses although most of them reported sharing their toilet facilities with other families living within the same house. About 53.5% of the respondents reported sharing one toilet facility with more than five families within their house. This indicated that most families did not have access to single household toilet, they have to share with other families within their

house. Shared toilet facilities could lead to unsanitary condition of toilets due to the fact that not many users are devoted to keeping shared toilets clean. Most (65.0%) of the respondents reported that their toilets were connected to septic tanks but field observation revealed that some of the toilets were not connected to septic tank but were channeled directly to the nearby stream for the discharge of faeces. This indicated that people were not using improved sanitation facility, there is exposure to human excreta which could be dangerous to human health. This contradicts the report of some studies that the goal of improved sanitation is to hygienically separate human excreta from human contact and therefore reduce exposure to fecal contamination [23,24]. Findings from field observation also revealed presence of putrid odour in most (57.5%) of the toilets. Presence of odour in a toilet could be responsible for the reasons why many users decline using their toilets. Similar study reported by Sahiledengle and others in Ethiopia [25] revealed that 52.5% of the sanitation facilities in the study area were unclean, had foul smell, and need repair which was consistent with the findings of our study. Other things witnessed in their toilets includes the presence of vectors like cockroaches, flies and rats. The presence of vectors in the toilets indicate unhygienic and unsanitary conditions. A sanitary toilet should be free from vectors, odour and every other thing that can bring inconvenience to the user. Our findings concur with other study conducted by [26] where presence of flies were found in and around the latrine. Our study concluded that limited sanitation service (by JMP definition) was the most dominant in the community. This shows that the community is still far from achieving the Sustainable Development Goal (SDG) 6.2 where it is expected to achieve safely managed sanitation by the year 2030. The study found practice of safe faecal disposal to be associated with income and educational status. This shows that safe faecal disposal practice is enhanced by both income and educational status. Our study agrees with similar study reported by [27] where education and income of respondents were also found to be significantly associated with practice of sanitation.

This study identified two factors (distance of respondents' house to nearby stream and availability of toilet facilities in house) to be responsible for the faecal disposal practice of respondents. Respondents that have toilet facilities in their houses were six times more likely to practice safe faecal disposal compared to their colleagues that have no toilet facilities. This shows that when respondents have toilet facilities, there is likelihood that excreta will be kept away from human contact which makes it a safe practice. But if they lack toilet, there is high tendency that they dispose their faeces in open places where residents will easily have contact with them. Also, respondents that were within walking distance of more than five minutes to the major stream in the community were two times more likely to practice safe faecal disposal compared to those who were within walking distance of five minutes. This shows that respondents within five-minute distance to the stream within the community found the stream accessible and quick to pass their faeces unlike those whose houses were in a far distance.

5. Conclusion

The findings of the study revealed that respondents had adequate knowledge regarding safe disposal of faeces but the practice was poor. The poor practice was linked to a significant number of respondents in the study that were still disposing their faeces into the major stream along the community. The study also found high proportion of the respondents having toilet facilities but almost all the toilets were being shared among households, and were not in good sanitary conditions which make them not convenient for users. Limited sanitation service was found to be the dominant service in the community. The study further identified two factors (availability of toilet facilities and distance of respondents' house to the nearby stream) affecting faecal disposal practice of the respondents. The study suggests adequate and timely sanitary inspection of the household toilets by relevant local authorities and provision of more toilet facilities through empowerment of house owners by necessary stakeholders in order to improve access to adequate and safe sanitation facilities in the community.

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Conflict of Interest

No conflict of interest declared.

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