



Assessment of the Factors Affecting Open Defecation among Slum Dwellers in Lokoja, Kogi State Nigeria

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

In many of Africa's emerging nations, open defecation continues to pose a serious threat to public health and the environment. 946 million people worldwide still use open defecation, and there are around 2.4 billion people without access to better sanitation. Therefore, the purpose of this study was to investigate the variables that affect open defecation among slum residents in Lokoja Metropolis. The investigation was conducted using a descriptive cross-sectional study design. Lokoja was purposefully chosen because to its metropolitan setting, abundance of slum areas, and inadequate coverage of both family and public latrines. In order to choose the five communities in the slum for the study, simple random sampling was performed. To supplement the home survey, 281 household heads filled out a standardized questionnaire with quantitative information, and in-depth interviews were used to gather qualitative information. Prior to data analysis, all the filled-out questionnaires were cleaned. They were then coded, entered into SPSS, and checked for

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completeness. Inferential statistics was used to measure the relationship between the dependent and independent variables, and thematic analysis was carried out for the qualitative portion of the study. Descriptive findings were presented as numerical summaries and tables, while inferential statistics was used to measure the relationship between the dependent and independent variables. Majority of the slum dwellers either shared latrines among the households (29.7%) or used public latrines (49.8%). At (mean difference= -0.168, p=0.005), there was a significant correlation between knowledge of open defecation and the practice of it. The study found that households without latrine facilities had greater rates of open defecation. The majority of the residents' households either shared restrooms with other homes or used public restrooms. To prevent open defecation, greater government and landlord initiatives are needed to increase toilet ownership and use at homes, as well as to build more public latrines in the study area.

Keywords: Slum; defecation; latrine; public health; environment.

1. INTRODUCTION

The globe has paid considerable attention to sanitation, or the provision of facilities and services for the safe disposal of human urine and feces, as well as the maintenance of hygienic conditions through services like garbage collection and wastewater disposal (WHO, 2010). This results from the fact that, under the Sustainable Development Goals, the international community made a commitment in the year 2000 to reduce by half the number of people without access to clean water and basic sanitation by the year 2015. (United Nations Development Programme, 2006). The provision of hygienic sanitation services to the general populace is seen as essential everywhere to promote good sanitation. In general, sanitation refers to the provision of facilities and services for the ethical disposal of human waste, according to the WHO in 2007. (urine and faeces). According to the World Health Organization, effective sanitation can be achieved by having access to facilities and services that are appropriate for the safe disposal of excreta and urine, including rubbish collection and safe wastewater disposal [1]. According to the World Health Organization, 946 million people worldwide still use open defecation, and 2.4 billion people still lack access to proper sanitation [1]. Open defecation, which is defined as the act of urinating outdoors without using a sanitation system, is well acknowledged to cause health issues. The practice of open defecation feeds the cycle of disease and poverty. According to the WHO/UNICEF JMP [1], the countries with the highest rates of open defecation also have the worst rates of child mortality under the age of 5, the worst levels of hunger and poverty, and significant wealth disparities. Open defecation has been identified as a significant worldwide health issue due to all

of its recognized effects (Sahoo et al., 2015; Spears, Ghosh, & Cumming, 2013). The Sustainable Development Goals (SDGs), which aim for the eradication of open defecation and ensuring that everyone has access to sufficient and equitable sanitation, serve as a statement from the UN affirming the significance of sanitation (UN General Assembly, 2015). In Sub-Saharan Africa, around 215 million people practice open defecation (Njuguna BMC Public Health) (2016).

As of 2019 an estimated 673 million people practice open defecation [2] down from about 892 million people (12 percent of the global population) in 2016 [3]. In that year, 76 percent (678 million) of the people practicing open defecation in the world lived in just seven countries [3]. Due to current development, particularly in Sub-Saharan Africa, the SDG goal of eradicating open defecation by 2030 requires significant speed (UNICEF/WHO 2016). Similarly, Belay et al. [4] also observed that open defecation practice remains a public health problem in sub-Saharan Africa. According to WHO/UNICEF (2012), more than half of Nigerians still use shared sanitation facilities, while 27% of the population actively participates. Meanwhile, 22.9% of the population lacks access to latrines and the best option is open defecation, while 15% of the population owns and uses improved sanitation that is not shared [1].

According to Barnard et al.(2013), at least about 20% of Nigeria's population does not currently have access to toilet facilities, making the country's open defecation rate remains frighteningly high (Open defecation is frequently still performed even when high latrine coverage levels are attained. The issue of open defecation may hinder Nigeria's efforts to achieve the SDGs for water and sanitation. Following the option of

whether to construct and/or use a toilet or not, open defecation is typically seen as an individual problem. Users may still opt to urinate in public, and a variety of technological and behavioral factors may have an impact on their choice [5], (Hulland et al. 2015); [6]. While many researches have concentrated on toilet coverage levels, there is little information on latrines and associated factors that may influence the practice of open defecation, among other things. Studying these variables is essential if policy is to be properly informed. Which circumstances specifically encourage the practice of open defecation among the peri urban community, such as Lokoja, are unclear.

The Lokoja peri urban communities are a large "urban settlement" with some areas that resemble slums. They welcome migrants from all over the nation and outside; many individuals move to the area in search of employment and in search of considerably more affordable housing compared to Lokoja urban. According to reports, public restrooms account for 63.5% of all toilet facilities in the municipality; bucket/pan and no facility (open defecation) together make up less

than 5%. (GSS, 2010). In order to implement policy-related decisions for the Sustainable Development Goal, one must have a basic grasp of the practice of open defecation. And eventually be able to set the groundwork for a successful sanitation approach. The purpose of this study is to identify the causes of the Lokoja slum dwellers' continued open defecation in spite of the availability of latrines and toilets.

2. MATERIALS AND METHODS

2.1 Study Area

Lokoja, the capital city of Kogi State is located in the middle belt of Nigeria and lies within latitude $6^{\circ} 30'N$ and within longitude $7^{\circ} 30'E$ and $8000'E$. Lokoja occupies a land area of $352.72km^2$. Lokoja shares common boundaries with Kogi Local Government area in the north, Kabba/Bunu Local Government Area in the west, Ajaokuta/Adavi Local Government Area in the east and Bassa Local Government Area in the south.

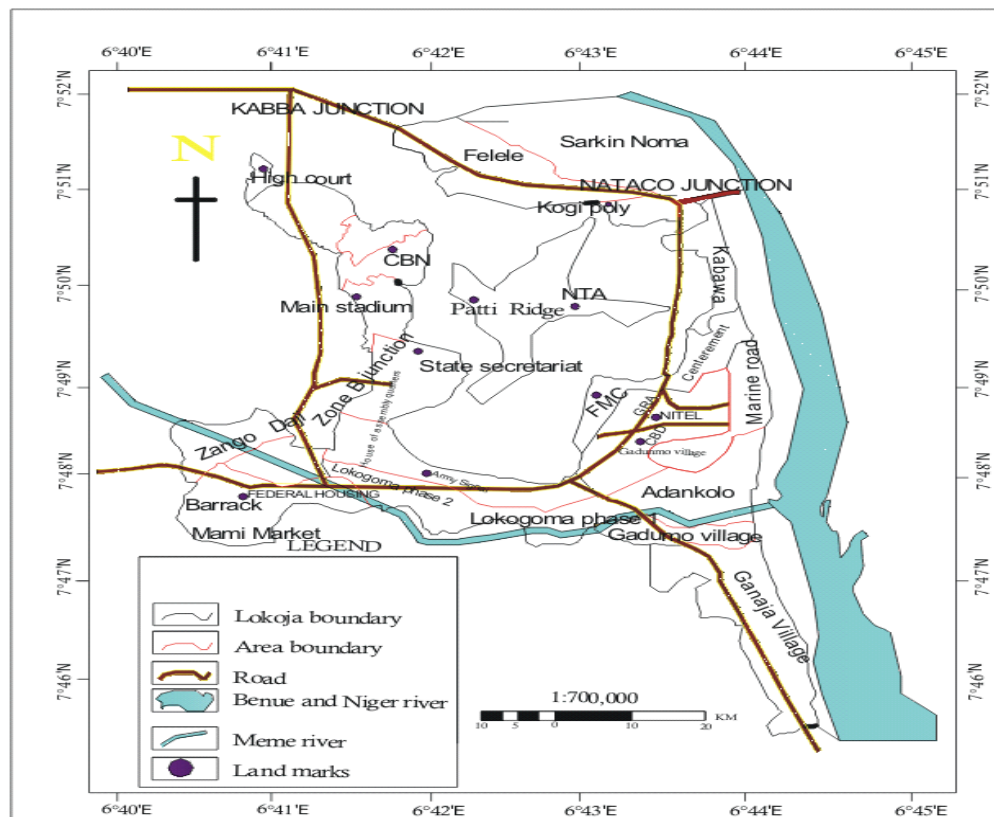


Fig. 1. Study area

Source: Department of Geography, Kogi State University, Anyigba (2019)

Lokoja and its environment are built on sandstone and ironstone. This sedimentary rock outcropping near the confluence of the Niger and Benue Rivers were first described as part of the Lokoja series. There are two formations of iron stone in Lokoja, which are Lokoja sandstone at the base overlain by the Patti formation and the Lotion iron stone. The soil ranges from fine sand, clay soil, silt soil and loamy soil. Thus, during the rainy season, a slight rain only can render the untarred streets muddy. Lokoja relief form consist of hills, maintains, spurs, low -land, which are above sea level and are characterized by convex slope. The drainage system is drained mainly by river Niger which forms the main artery of the drainage in the whole Niger trough. However, there are other streams like the meme River, which runs from Okene through Lokoja town into River Niger. According to Alatisé; (2002) in Lokoja, the onset of rainy season begins from April and ends in late October. The main monthly precipitation during the rainy season can be as high as 175mm, while in August, it can drop to 115mm due to a dry spell of two and three week duration. The mean monthly maximum and minimum temperature of Lokoja at 15cm above sea level are 36°C and 23°C; the average maximum rainfall is (229.84mm). The highest rainfall occurs in the month of August and September.

The study area (Lokoja town) is located in the heart land of Guinea savanna 'zone in central Nigeria. The vegetation is combinations of trees and grasses (wooded savannah), Fadama and forest. Also, it is an ectone belt that separates the forested south from the true savannah north. Most of these trees and grasses are locust bean, baoba, obeche, agba and elephant grasses. Lokoja is a fast-growing city both in size and population. Many of the people are civil servants, while others engage in trading some of the women are good in fish smoking, clothes weaving, tailoring, and baking of groundnut cakes and oil.

2.2 Methodology

In this study, a descriptive cross-sectional design was used. The factors influencing open defecation were the subject of a study that gathered both qualitative and quantitative data. Using a questionnaire and in-depth interviews, it examined the frequent practices of open defecation among slum dwellers as well as the causes of this predisposition. It also examined how the community felt about this issue. The

household heads and all family members (women, men, and children) in every household in Lokoja were the group that this study specifically addressed.

Given the size of this community's population, a sample was chosen to allow the study to reach a sufficient number of houses and aid in the development of pertinent conclusions. A 95% confidence interval and a 5% margin of error were used to calculate the sample size. The sample size is determined by Leslie Kish's (1979) formulas. There were 255 households in the sample. The projected total sample size is 281 with a 10% non-response rate. The study selected 5 enumeration areas in Lokoja using a simple random strategy. All willing Heads of house within each chosen area had their questionnaires filled out. Open defecation, which is defined as the habit of eliminating waste from the body through the anus outside in and around one's local community or in public due to a lack of access to toilets, latrines, or any other type of improved sanitation, was the dependent variable for the study. The following are some examples of the independent variables:

1. The location of the defecation site (improved latrine, unimproved latrine, bush/field, polythene bag, and rubbish dump), disposal of children's waste, latrine sharing, defecating outside the home, and frequency of using the household latrine while at home are all examples of open defecation practices.
2. Environmental factors, such as land tenure and bad soil, socioeconomic factors (financial restrictions), lack of access to latrines, distance from latrines, knowledge, weather conditions, and sociodemographic characteristics are some of the factors that cause people to conduct open defecation (age, sex, and education). Data was entered in to SPSS 22.0, cleaned before final analysis. For qualitative data, interview method was adopted and for quantitative data questionnaires were used to collect data. The household heads and some other adults in the households were interviewed.

To make sure that the research accurately measured what it was supposed to measure, validity considerations were considered. By making reference to the individuals who evaluated the research collection instruments' content in accordance with the study's

objectives, content validity was improved. The pretesting tools were also used to enhance validity, and the random sample technique was used to verify external validity. By limiting the study to household members, internal validity was supported. To guarantee that the study equipment used for data collection were reliable for reliable results and observations, all questions were asked, even if they were not easily understood in the local language. Only the fully completed field questionnaires were uploaded into the computer for analysis after being checked to ensure that all the items had been answered. The questionnaires were checked, coded, cleaned, and entered using SPSS version 22. Statistical factors such as frequencies and percentages were used to perform descriptive statistics on the data obtained for the study's variables. The associations between the various factors and the dependent variable were examined using cross tabulations and chi-squared tests (5% significance level). Tables, charts, and summaries of the numbers were used to convey the descriptive findings for the study. The association between the dependent and

independent variables was measured using Chi-square with p values less than or equal to 0.05 used to determine statistical significance.

3. RESULTS AND DISCUSSIONS

The background traits of the household heads are presented in Table 1. Females made up two thirds (2/3) of the Participants (66.5%). The majority of participants, who were primarily household heads, were in their mid-to-late 40s (27.1%), while 12.1% were above 59 and 7.1% were unsure of their age. Nearly two thirds (2/3) of the Participants (65.1%) identified their occupation as being more closely related to trading or commercial operations, which served as the household's primary source of income. With regard to education level, the Participants had a literacy rate of 74.7%, with up to 32.4% of the Participants having obtained a secondary education level as their primary level. 33.6% of participants had an income below the poverty line, which is between 0 and 5000 naira.

Table 1. Socio-demographic characteristics of the household heads (N=281)

Characteristic	Frequency (N=281)	Percent (%)
Sex		
Male	187	66.5
Female	94	33.5
Age group (years)		
18-28	38	12.1
29-38	67	27.1
39-48	76	23.8
49-58	46	13.5
59+	34	16.4
Don't know	20	7.1
Occupation		
Trading/Business	183	65.1
Informal employment	47	16.7
Formal employment	27	9.61
Livestock	15	5.3
Agriculture	9	3.2
Education level		
Secondary	91	32.4
Primary	90	32.0
No Formal Education	74	26.3
Tertiary	26	9.3
Income level		
0-500	95	33.6
501-1000	75	26.5
1001-1500	9	3.2
15001-2000	2	0.7
2001-2500	1	0.4
2501-3000	1	0.4
3000+	1	0.4
Others	97	35
Total	281	100.0

Authors Survey, 2022

A higher proportion 48.4% of participants use communal flush or pour toilets or latrines, which are shared by multiple homes. However, 8.1% of the homes reported not having toilets or latrines, which explains why the household members practice open defecation. As a result, they urinate in the jungle or in the fields. While this is going on, 1.1% of the households utilize bucket latrines as an alternative sort of toilet or latrine.

In some societies, compared to others, open defecation is a prevalent practice. Instead of a latrine, the activity can be performed anywhere that is open to the public. The locations may also stretch into fields, shrubs, or even forests, occasionally into ditches, and frequently even by the side of the road, notably within abandoned houses. An in-depth interview with slum inhabitants in the study region was undertaken to learn more about this practice. Plastics used for packaging, such as polythene bags, are frequently referred to as leather by the population in this study. During the in-depth interview, participants reported that people use rubber or polythene bags to urinate in before throwing the bags and other trash into the trash. Even if some members of the families claimed to be defecating in public, a sizeable percentage nevertheless did so in the latrines. Pits with a superstructure are latrines.

Since children's feces are known to contribute to the practice of open defecation and cause

problems even in households with the best sanitation facilities, the study intended to investigate how they were collected or disposed of. According to the study's findings, 42% of participants had to wash children's poop and pour the water on the ground or into gutters, especially when the kids poop in clothes. A sizeable part of the 40% engaged in behaviors that appeared to encourage open defecation, such as tossing children's feces in the trash with the trash, burying the stool or feces, or leaving them out in the open to be cleaned by rain or dried by the sun. In the meantime, 12.4% of the kids use latrines, and 8.8% of the participants rinse the kids' poop and fill the latrine with water.

The slum inhabitants in the study area's shared toilet usage was assessed. Participants in each family were questioned about whether their latrine was privately and only used by that household, or if it was shared with other houses. According to the study's findings, half of the households used public restrooms for defecation. However, it's interesting to note that 30% of all participating families claimed to have private latrines, however many shared them because of their rent agreements.

To determine the relationship between the characteristics of defecation sites and slum inhabitants' open defecation, a binary logistic regression was used. The Hosmer and Lemeshow test for determining if the model fits

Table 2. Types of toilets and the Prevalence of Open defecation

Latrine type	Frequency (N=281)	Percentage (%)
Pour or flush to any form of communal facilities elsewhere.	137	48.4
Pour-flush or Flush Ventilated Improved Pit Latrine Toilet	71	25.6
no restrooms or latrines Field, bush or bodies of water	40	14.1
Pit slab-topped bathroom	23	8.1
bucket restrooms	4	1.4
Open-pit pit latrines without a slab or platform	3	1.1
Toilets or latrines that hang	2	0.8
Pour or flush to any form of communal facilities elsewhere.	1	0.5
Total	281	100.0

Table 3. Ways of disposal of Children stool/faeces

	Frequency (N=281)	Percentage (%)
Washed and poured on ground	119	42.0
Thrown in to garbage	59	20.8
Child used latrine	35	12.4
Put or rinsed in to toilet or latrine	25	8.8
Buried	17	6.0
Left in the open	12	4.2
Others	14	5.7
Total	281	100.0

the data was significant at 0.787, demonstrating that it does. Unimproved latrine's beta coefficient was significant at -1.325. implying a negative correlation between open defecation and unimproved latrines. Exp (B)/OR = 0.26; 95% CI = -0.130 to -0.543, p 0.05. When all other factors are held constant, the likelihood of open defecation among slum residents is reduced by 74% in the case of an unimproved latrine or toilet as opposed to those with an improved latrine. This may be because, despite the fact that the latrines or toilets do not satisfy regulations, slum residents nevertheless choose to use them since they can offer some degree of privacy and are reasonably priced. To determine the connection between open defecation and its habits, a Pearson's correlation test was used. Open defecation and latrine quality are statistically significantly different (mean difference = -0.421, p=0.001).

The goal of the study looked at factors such as barriers to latrine ownership, those in charge of building latrines, the causes of households' lack of latrines, knowledge of open defecation (benefits of latrine use, risk of contracting diarrhea if a neighbor does not use a latrine, effects of open defecation, and causes of diarrhea), the average income of household

heads, and the occupation of household heads. Latrine ownership was examined in an effort to comprehend the elements that contributed to open defecation at the home level. The researcher wanted to understand what prevented people from owning latrines or toilets. According to the study, open defecation occurs when households lack their own toilet or latrine facilities for a variety of reasons, as shown in Table 6. More than half (54.7) of the barriers indicated to toilet ownership were financial in nature. It's interesting to note that only 2 people (0.7%) claimed that culture prevented them from possessing a latrine.

As shown in Table 7, household heads provided explanations for why their homes lack latrines, which leads to open defecation practices. These explanations included the following: some families lack their own land where they can build a latrine (27.3%); financial difficulties to support the costs of building a latrine (22.6%). Latrines weren't a priority, they weren't built because no one knew how, the terrain wasn't suitable, they weren't a part of their culture, there weren't enough building supplies, and other participants said they didn't know how to build or use latrines

Table 4. Logistic regression showing Association between the qualities of defecation sites and open defecation practice

Quality of latrine	B	df	Sig.	Exp (B)	95% C.I. for EXP (B) Lower Upper
Step 1 ^a					
Improved latrine	1	1	.000	0.266	0.130
Unimproved	1.325				0.543
Constant	1.307	1	.191	3.694	

Table 5. Correlation showing relationship between open defecation practice and behavior

Open defecation	achieved
Open defecation achieved	Pearson Correlatio Sig. (2-tailed)
Overall practice score	Pearson Correlation Sig. (2-tailed)
	N
	281

Table 6. Factors that are obstacles to households owning latrines

	Frequency (N=281)	Percentage (%)
Finances	153	54.7
Lack of land/space	71	25.2
Unsuitable conditions	30	10.6
Don't know	15	5.3
Lack of skills/knowledge	10	3.5
Culture	2	0.7
Total	281	100.0

Table 7. The reasons why households do not have latrine

	Frequency (N=281)	Percentage (%)
Don't want one	46	14.6
The family does not own the land	87	27.3
Don't have enough money	71	22.6
Don't have enough physical space	32	10.0
It is not a priority	9	2.9
Don't know how to construct	19	17.0
Terrain is not appropriate	3	1.9
It's not part of our culture	2	0.7
Lack of construction materials	8	2.8
Lack of knowledge / skills on how to construct or use it.	4	1.8
Total	281	101.4

As shown in Table 8, nearly all Participants—96.44%—are aware that they run the risk of developing diarrhea if their neighbor does not use a toilet facility or a latrine and defecates in public. This is in contrast to 3.56% of participants who are still unaware of this danger.

As reported in the Table 9, majority of the Participants are knowledgeable that open defecation has negative effects on them. 90.39% of the Participants are aware that open defecation causes diseases. The study is also in agreement with Duncan Mara [7] which reveals that the principal acute adverse health effect of OD is infectious excreta-related intestinal disease, of which diarrheal diseases (DD) are the most common.

The in-depth interview confirms the above and can be seen in the excerpt below by a respondent. 97% of the Participants reported

that human faeces was the principal source of diarrhea.

According to Table 11, the majority of household heads have monthly incomes of less than 20,000 Naira, as opposed to those who have smaller households yet earn more. Given their responses on the questionnaire used to obtain the data, this suggests that the majority of Participants are impoverished. However, 7.4% of households with monthly incomes under 20,000 naira engage in open defecation practices.

The association between open defecation and household median income was determined using a Pearson's correlation test. There was no statistically significant relationship between household income and open defecation (mean difference = -088, p=0.237). Average household income and latrine condition were statistically different (mean difference = 0.264, p = 0.001).

Table 8. Participant Perception and knowledge on risk of getting diarrhea if neighbor does not use latrine

	Frequency (N=281)	Percentage (%)
Yes	271	96.44
No	10	3.56
Total	281	100

Table 9. Participant knowledge on the effects of open defecation

	Frequency (N=281)	Percentage (%)
causes disease	254	90.39
causes shame	21	7.47
Don't know	6	2.14
Total	281	1000

Table 10. Respondent knowledge on the causes of diarrhea

	Frequency (N=281)	Percentage (%)
Yes	272	97
No	5	1.78
Don't know	4	1.40
Total	281	100

With awareness of open defecation, however, it was not statistically significant (mean difference = 0.044, p=0.557).

The household heads' occupations are listed in Table 13 as animal farming, agriculture, formal

work, and trading or business. However, those who work in formal employment are more likely to conduct open defecation (7.4%), followed by those who work in trading or business (6.4%) and those who work in informal employment (6.4%).

Table 11. Cross tabulation showing Association between Average income level and Open defecation

	No open	Yes Open defecation	Total	X2	P-value
HH Average Income Level	Freq (percent)	Freq (Percent)	Freq (Percent)		
0-20000	185(96.2)	7(7.4)	192(100.0)	11.75	0.190
20000-25,000	75(100.0)	0(0.0)	75(100.0)		
25,001-30,000	9(100.0)	0(0.0)	9(100.0)		
30,001-40,000	2(100.0)	0(0.0)	2(100.0)		
40,001-50,000	1(100.0)	0(0.0)	1(100.0)		
50,001-60,000	1(100.0)	0(0.0)	1(100.0)		
60,001-above	1(100.0)	0(0.0)	1(100.0)		
Total	274 (96.2)	7(3.8)	281 (100.0)		

$$X^2 (N=155) = 11.75, p=0.190, \Phi=0.192$$

Table 12. Correlation showing Association between HH Average income and Open Defecation.

		Open defecation achieved	HH Average income achieved
Open defecation achieved	Pearson Correlation	1	
	Sig. (2-tailed)		
HH Average income	Pearson Correlation	-.088	1
	Sig. (2-tailed)	.237	
	N	281	281

Table 13. Cross tabulation showing Association between HH Average income and Open Defecation

	Cross tabs Open defecation achieved	Yes Open defecation	Total	Test Results		
				X2	Phi	P-value
Occupation of the respondent	Freq (percent)	Freq (Percent)	Freq (Percent)			
Trading/Business	171(93.4)	12(6.6)	183(100.0)	0.777	0.078	0.786
Informal employment	44(93.6)	3(6.4)	47(100.0)			
Formal employment	25(92.6)	2(7.4)	27(100.0)			
Livestock	15(100.0)	0(0.0)	15(100.0)			
Agriculture	9(100.0)	0(0.0)	9(100.0)			
Total	264(94.0)	17(6.0)	281(100.0)			

$$Fishers\ exact: X^2 = (N=281) = 0.777, p=0.786, \Phi=0.078$$

Table 14. Logistic regression showing Association between knowledge and open defecation practice

Variables in the Equation 95% C.I. for EXP (B)		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1 ^a	Knowledge composite	-.420	.161	6.803	1	.009	0.657	.479	.901
	Constant	.185	1.106	.028	1	.867	1.203		

a. Variable(s) entered on step 1: Knowledge composite.

Table 15. Correlation showing Association between Knowledge and Open defecation

		Open defecation achieved	Overall knowledge score
Open defecation achieved	Pearson Correlation Sig. (2-tailed)	1	
Overall knowledge score	Pearson Correlation Sig. (2-tailed)	-.168** .005	1
N		281	281

To determine the relationship between knowledge and open defecation among slum inhabitants, a binary logistic regression was used. Knowledge's beta coefficient had a significant value of -.420. This suggests that knowledge and open defecation have an antagonistic relationship. Experiment (B)/OR=0.657; 95% CI 0.479-0.901, p<0.05. When information is present among slum dwellers who openly urinate compared to those with improved latrines, the likelihood of open defecation is reduced by 74% after adjusting for all other factors.

The association between open defecation behaviors, open defecation knowledge, and household average income was determined using a Pearson's correlation test. The slum residents' knowledge of the impacts of open defecation was much higher than that of open defecation (mean difference=-0.168, p=0.005). Although the difference between knowledge and latrine quality showed that the latter had a higher score than the former (mean difference=0.028, p=0.642), they were not statistically significant.

Children's feces pose a serious risk to the environment and to people because, like adult feces, they contain germs that can cause oral ailments like diarrhea and sanitation issues. The participants in this study practiced open defecation by tossing children's waste in the trash and putting it out in the open, as well as washing in clothing and spilling the water on the ground. In a related study, Geetha et al. (2015) discovered that children's feces significantly contributed to open defecation because household members did not properly dispose of them in the latrines, especially when they were washed in clothes and water was poured on open bear ground. They also collected and threw the feces with trash after they were collected. This finding is consistent with those made by Sultana et al. (2013), Alam et al. [8], Majorin et al. [9], Zeitlyn & Islam [10], Aulia et al. (1994),

and Tessema [11], who discovered that the most common methods of open defecation for children's feces involve washing them off of clothing and pouring them on bear ground or gutters. Similar results regarding the disposal of children's feces were reported in a study by Routray et al. [6]; frequent techniques included wiping up watery feces with cloths in water and some being disposed of in garbage.

The study identified a variety of reasons that may have led to the lack of latrines in the households. The lack of latrine facilities in many households is still mostly a result of financial issues. During the in-depth interview, participants further underlined how having financial issues has prevented them from having latrine facilities in their homes. This finding is comparable to that by Gupta et al. [12], who found that more than half of the world's population lacks access to latrines because of poverty and financial hardships. Many interviewees admitted that they lacked or never had the land or space necessary to build a toilet facility. In addition to not having any land, the terrain is not suitable for constructing the facility.

4. CONCLUSION AND RECCOMENDATIONS

The purpose of the study was to investigate the variables that affect open defecation among slum residents in Lokoja Municipal, Nigeria. The data support the assertion that open defecation is a significant sanitation issue. Open defecation is used in 9.2% of homes, with latrines-less households being more likely to engage in the activity. Financial limitations, a lack of land or space for building latrines, a lack of construction expertise or skills, a lack of building supplies, the distance between a home and a latrine, as well as household and weather conditions, are the direct causes. The study also looked at the primary locations for open defecation, including

fields or bushes, polythene bags that are known as "rubber" in the neighborhood, and garbage dumps, particularly by households without latrine facilities, those who share latrines, and those who use public restrooms. Due to the structure of their settlement, including living as tenants in rentals where all homes owned by one Landlord share the same latrines, sharing restrooms was a prevalent practice in the community. It is recommended therefore that cost of using the public latrines/toilet facilities should be at a subsidized price that everyone who do not have these facilities at their households or any other person can afford to pay and at least the usage of the facilities should be made free for children and the aged.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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