SOCIOCULTURAL DETERMINANTS INFLUENCING OPEN DEFECATIONPRACTICE AMONG RESIDENTS OF KADUNA STATE, NIGERIA

AHMAD MOHAMMED and HUSSAINI I. M

Department of Human Kinetics and Health Education, Ahmadu Bello University, Zaria Kaduna State, Nigeria

hussainimran4535@gmail.com

Abstract

This study assessed the socio-cultural determinants influencing open defecation practice among residents of Kaduna State, Nigeria. To achieve this purpose, descriptive cross –sectional survey research design was used. A total sample of 450 residents of Kaduna State were selected from the population of 9,451,509 through multi-stage sampling procedures of stratified, simple random, systematic and proportionate sampling techniques. The instrument used for data collection was researcher's structured questionnaire. Out of the 450 copies of questionnaire distributed, 438 (97.3%) were valid for analysis in this study. Descriptive statistics of frequencies and percentages were used to describe the socio-demographic information of the respondents; mean and standard deviation were used to answer the research questions posed by the researcher, while inferential statistics of independent t-test was used to tests the formulated hypothesis one and analysis of variance (ANOVA) was used to tests the formulated hypothesis two. For all tests level of significance, a probability level of 0.05 was used. The results revealed that open defecation is prevalent in Kaduna State with 178 (40.6%) of the respondents' that practiced it; 15 (3.4%) in urban areas and 163 (37.2%) in rural areas with 21 (4.8%) of the households with no latrine. The practice is significantly influenced ($p < 0.001$) by place of residence ($t = 13.356$), and level of education ($F = 1.289$). Based on the results, conclusions were drawn that place of residence, level of education are significant determinants influencing open defecation practice among residents of Kaduna State, Nigeria. It was recommended that community-led total sanitation programme should not be mainly focused in urban areas alone; the Federal and States Government with Non-Governmental Organizations should put more emphasis in rural areas as open defecation is more prevalent in remote areas. State Ministry of Health and Local Governments Areas should organize health education and promotion activities to educate community members about the negative impacts of the practice on their health, environment and living standard, and also teach them on the importance of hygiene. In addition, members of the community should be trained as peer educators so that they can talk to their own people in the language they understand. Also, Behavioural Change Communication on open defecation practice should also be intensified in primary/secondary schools, informal schools such as Qur'anic schools, market places and motor parks.

Keywords: Sociocultural determinants, open defecation, households, Kaduna, Nigeria

Introduction

Open defecation refers to the act of passing excreta in open air locations instead of in hygienic, covered locations. Open defecation creates a conducive environment for pathogens that thrive in fecal matter and cause diseases such as diarrhea, typhoid, cholera, schistosomiasis and many other neglected tropical diseases to spread. The significance of sanitation to safeguard human health is irrefutable and has important public health dimensions and the basic needs of people such as safe drinking water, improved hygiene and sanitation must be fulfilled for a dignified life of human being.

Human waste disposal is a highly sensitive, almost taboo topic across all cultures and circumventing this sensitivity has contributed to the failure of many programmes aimed at preventing the practice of open defecation.

This is because open defecation is associated with disgust that is elicited when people are closely confronted with human feces in public places and this contributes to its complex phenomenon. The phenomenon does not just occur in the rural areas of Nigeria but also in the cities, and among the educated class in public institutions,

business and residential areas. When communities have no access to safe human waste disposal facilities, the environment becomes a risky place where diseases are transmitted.

United Nations International Children Emergency Fund (UNICEF, 2018) defined open defecation as depositing human excreta outside designated place such as fields, forests, bushes and water bodies. Those who still practice open defecation 90% reside in rural areas of the three regions; sub-Saharan Africa, Central Asia and Southern Asia (World Health Organization & UNICEF, 2017). Open defecation, therefore, remains the predominant norm and poses one of the biggest threats to the health of not only children but also adults.

In some rural communities in Nigeria, people delight in defecating openly in rivers and lakes which also serves as a source for drinking water, thereby denying self of safe and clean water as well as sanitary environment (Ngwu, 2017). Most of the people practicing this act have grown up seeing family members, peers, and others in the community defecate in the open and as such see this practice as habitual, natural and part of a daily routine. Norms and practices held from childhood tend to stick and become a way of life such that even where the facilities are available, the practice of open defecation seems to remain the preferred option (Connell, 2014). The growth of this practice is also attributed to the ever-increasing population and the absence of sanitation facilities in most homes in the cities, thus resulting in the people finding alternatives to answer the call of nature.

The wealth or social status of an individual in a society relates to open defecation practice. Improved sanitation owners are usually wealthier than those who engage in open defecation. High income earners because of their social status are more concerned about hygienic ways of disposal of waste as compared to low-income earners. Osumanu and Kosoe (2013) while studying the economic factors that encourage open defecation explained that a financial constraint poses two challenges to ending open defecation. Low-income earners who are house owners because of financial constraint did not provide household toilets facilities within their premises, and secondly, where these facilities are not available at home and public toilets are provided, inability to afford fees charged by public toilet operators could drive them towards defecating in the open. The implication of this is that where a household cannot afford to construct toilet facilities and individuals cannot afford the fees for the use of a public toilet, it only leaves one alternative, open defecation.

O'Reilly, Dhanju and Goel (2017) reports that remoteness (being away from built up areas), access to water, subsidies, and race and income inequalities influences the prevalence of Open Defecation in the study area. The case of Nigeria is not different as Abubakar (2018) argues that the regional variation in Nigeria, differences in vegetation, topography and water bodies presents a possible explanation for higher incidence of open defecation in the South West and North Central regions due to their proximity to forests which offers more opportunity and cover for the practice, unlike in the North where the savannah vegetation could discourage the practice.

In Nigeria, households in which the heads are educated beyond secondary education were the least to practice open defecation (Abubakar, 2018). This is attributed to the fact that the more-educated households are more informed regarding health and environmental threats of open defecation. To add credence to the above, WHO in its 2015 survey found that the proportion of the population practicing open defecation seems to decline with increasing levels of education (WHO, 2015).

Though open defecation is predominantly a rural phenomenon, it is estimated that 8.22% of the urban population in sub-Saharan Africa practice open defecation (World Bank, 2015). The practice of open defecation in urban areas needs attention because research has shown that detrimental health impacts (particularly for early life health) are more significant from open defecation when the population density is high. For instance, the same amount of open defecation is twice as bad in a place with a high population density average vis-a-vis a low population density average (Institute of Development Studies, 2015).

The practice of open defecation has had huge environmental and health implications for all citizens in Nigeria. The effect is not only limited to those in the rural areas or those practicing it in the urban areas but poses a great challenge for all and sundry. Orilomoloye (2015) explained that agents of disease or pathogens such as bacteria, viruses, parasites etc. which are passed out in feces if not properly disposed off contaminate the sources of drinking water supply. He argues that it has been

scientifically established that one gram of feces may contain as many as 10,000,000 viruses, 1,000,000 bacteria, 1,000 parasite cysts and 100 worm eggs (Rose, Parker, Jefferson & Carmel, 2015).
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The rise in health-related problems in some communities across Kaduna state is worrisome. The absence of hygienic practices and poor access to clean water for use in many parts of the state is a cause for concern resulting to countless deaths of children, adults and many preventable diseases. Most communities in rural part of the state and some urban areas are bedeviling with serious health challenges as a result of inappropriate disposal of human waste such as diarrhea, typhoid, and cholera amongst other infectious diseases, despites achieving open defecation free status in many local government areas of the State. Apart from the health effects of open defecation, the environmental challenges its poses in terms of polluting water ways is also a cause for concern. Open defecation not only deteriorates the quality of drinking water but also makes the water unfit for drinking purposes. Closely related to the health problem is the impact of this practice on women and girls because of the need for privacy during sanitary activities.

In Nigeria about 230 children under the age of five die daily, about 90% caused by diarrhea, which makes the country second to India in contributing to under–five mortalities in the world (WHO &UNICEF, 2014). In sub-Sahara Africa, 200,000 children under the age of five die from diarrhoea annually, while the numbers dying from cholera within the region are similarly high because of poor sanitation, hygiene practices, and unsafe water supplies (WHO, 2014). Those countries where open defecation is most widely practiced have the highest numbers of deaths of children under the age of five, as well as high levels of under nutrition and large disparities between the rich and poor (WHO & UNICEF, 2015).

Methods and Materials

A descriptive cross –sectional survey design was used. The design was adopted because it gives a snapshot on actual situation at a point in time, it is cheap, quick and easy to analyze. The design is used because the information needed is already in existence with the respondents and does not require any form of manipulation of the independent variables by the researcher. Mugenda and Mugenda (2003), observed that cross sectional survey design is concerned with gathering of facts or obtaining pertinent and precise information concerning the current status of a phenomenon and drawing of possible conclusions.
The population for this study comprised of 9,451,509 (Kaduna Bureau of Statistics, 2020). The target population for this study was 929,256 people sampled from six (6) local government areas of each senatorial zone of Kaduna State, Nigeria. A total sample size of 450 residents of Kaduna State were selected through multi-stage sampling procedures of stratified, simple random, systematic and proportionate sampling techniques. The instrument used for data collection was researcher's structured questionnaire. Out of the 450 copies of questionnaire distributed, 438 (97.3%) were valid for analysis in this study. Descriptive statistics of frequencies and percentages were used to describe the socio-demographic information of the respondents; mean and standard deviation were used to answer the research questions posed by the researcher, while inferential statistics of independent t-test was used to tests the formulated hypothesis one and analysis of variance (ANOVA) was used to tests the formulated hypothesis two. For all tests level of significance, a probability level of 0.05 was used.

Results and Discussion

Research Question One: Does place of residence influence open defecation practice among residents of Kaduna State, Nigeria?

Table 1: **Mean scores of the responses on place of residence influencing open defecation practice among residents of Kaduna State.**

Item	Mean	Std. Dev.
Rural	2.92	1.19316
Urban	1.76	0.61436
Aggregate mean	**2.34**	

Decision mean 2.5

Table 1 shows the mean score of the responses on place of residence influencing open defecation practice among residents of Kaduna State. The aggregate mean score of the items is 2.34 which were found to be below the benchmark score of 2.5. This implies that place of residence does not influence open defecation practice among residents of Kaduna State.

Research Question Two: Does level of education influence open defecation practice among residents of Kaduna State, Nigeria?

Table 2: **Mean scores of the responses on level of education influencing open defecation practice among residents of Kaduna State.**

Item	Mean	Std. Dev.
Non Formal school	2.04	1.0244
Primary school	2.5	0.92250
Secondary school	2.2	0.91807
Post Secondary school	1.6	0.71139
Aggregate mean	**2.2**	

Decision mean 2.5

Table 2 shows the mean score of the responses on level of education influencing open defecation practice among residents of Kaduna State. The aggregate mean score of the items is 2.2 which were found to be below the benchmark score of 2.5. This implies that level of education does not influence open defecation practice among residents of Kaduna State.

Hypothesis One: Place of residence is not a significant determinant influencing open defecation practice among residents of Kaduna State.

Table 3: Independent t-test analysis of place of residence as a determinant influencing open defecation practice among residents of Kaduna State.

Variable	Mean	Std Dev.	Df	t-value	Sig.	Decision
Rural	2.9189	1.19316	436	13.356	.001	Rejected
Urban	1.7542	0.61436				

> 0.05

Table 3 shows that place of residence significantly influences open defecation practice among residents of Kaduna State. This is because the calculated p-value of 0.001 is lower than the 0.05 level of significance. This implies that place of residence does influenced open defecation practice among residents of Kaduna State. With this, the null hypothesis which states that place of residence is not a significant determinant influencing open defecation practice among residents of Kaduna State is hereby rejected.

Hypothesis Two: Level of education is not a significant determinant influencing open defecation practice among residents of Kaduna State.

Table 4: ANOVA Result of Level of Education and Open Defecation Practice among Residents of Kaduna State.

Model	Sum of Squares	df	Mean Square	F	Sig.	Decision
Between Groups	29.846	3	9.949	11.289	.000	Rejected
Within Groups	382.473	434	.881			
Total	412.320	437				

Table 4 shows that level of education significantly influences open defecation practice among residents of Kaduna State. This is because the calculated p-value of 0.001 is lower than the 0.05 level of significance. This implies that level of education does influenced open defecation practice among residents of Kaduna State. With this, the null hypothesis which states that level of education is not a significant determinant influencing open defecation practice among residents of Kaduna State is hereby rejected.

Table 5: Scheffe Post Hoc Test on Differences among the Residents of Different Levels of Education on Open Defecation Practice in Kaduna State.

					95% Confidence Interval	
(I) Education	(J) Education	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Non-formal	Primary	-.42675*	.10486	.001	-.7210	-.1325
	Secondary	-.14287	.13520	.773	-.5223	.2366
	Post Secondary	.41983	.16971	.108	-.0565	.8961
Primary	Non-formal	.42675*	.10486	.001	.1325	.7210
	Secondary	.28387	.12985	.190	-.0806	.6483
	Post Secondary	.84657*	.16549	.000	.3821	1.3110
Secondary	Non-formal	.14287	.13520	.773	-.2366	.5223
	Primary	-.28387	.12985	.190	-.6483	.0806
	Post Secondary	.56270*	.18620	.029	.0401	1.0853
Post Secondary	Non-formal	-.41983	.16971	.108	-.8961	.0565
	Primary	-.84657*	.16549	.000	-1.3110	-.3821
	Secondary	-.56270*	.18620	.029	-1.0853	-.0401

*. The mean difference is significant at the 0.05 level.

Table 5 shows a multiple comparison test using Scheffe's method to determine the influence of the level of education on open defecation practice of residents in Kaduna State. Primary education recorded a significant difference between post-

secondary and non-formal education ($p < 0.05$). More so, there is significant difference between primary education and secondary education ($p < 0.05$). No significant difference was recorded among groups with $p > 0.05$.

Discussion

Hypothesis one results indicates a statistically significant difference in open defecation between rural and urban households, revealing a wide disparity between the proportions of rural 163 (37.2%) and urban households 15 (3.4%) that practiced open defecation. This corroborates the findings of Abubakar (2018) that open defecation is least practiced in Urban areas of North-west Nigeria.

Hypothesis two findings reveals that level of education of household head is significantly related to the level of open defecation in Kaduna state. The result showed heavy reliance on open defecation by households head with primary education (20.8%), followed by those with non-formal education (13.2%), and secondary education (5.9%). As expected, households in which the heads are educated beyond secondary education were the least to practice open defecation (0.7%). Those who practiced open defecation, 84% of them were not educated beyond primary school level. A probable explanation is that more-educated households are more informed about latrine adoption which is in accordance with the study conducted by Thiga and Cholo (2017), to determine the extent and perceived effects of open defecation among residents of Thika East subcounty which states that among the 32 respondents with no formal education, 11(34.4%) of them were defecating in neighbors' toilet while 8 (25%) were defecating in the field and out of the 57 respondents with Secondary education, 54 (94.7%) had their own latrines with only 3 (5.3%) defecating in their neighbors' latrines. The education level of household head is important because decision about latrine adoption is made largely by household heads.

Conclusion

On the basis of the results, the following conclusions are drawn:

1. Place of residence has influence on open defecation practice among residents of Kaduna State.
2. Level of education has influence on open defecation practice among residents of Kaduna State.

Recommendations

On the basis of the conclusion drawn, the following recommendations were made:

1. Community-led total sanitation programme should not be mainly focused in urban or sub-urban areas of the State alone, the Federal and States' Ministries of Water Resources and Health, Local Government Authority and Non-Governmental Organizations should put more emphasis in rural areas to curtail the menace as open defecation is more prevalent in remote areas.
2. State Ministry of Health and Local Governments Areas should organize health education and promotion activities to educate community members about the negative impacts of the practice on their health, environment and living standard, and also teach them on the importance of hygiene. In addition, members of the community should be trained as peer educators so that they can talk to their own people in the language they understand. Also, Behavioural Change Communication on open defecation practice should also be intensified in primary/secondary schools, informal schools such as Qur'anic schools, market places and motor parks.

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