PROVISION OF HUMAN WASTE DISPOSAL FACILITIES IN NKANU WEST LOCAL GOVERNMENT AREA OF ENUGU STATE

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Abstract

The research was aimed at determining the levels of provision of human waste disposal and hand washing facilities in Nkanu West Local Government Areaof Enugu state. Two research questions were posed to guide the study while only one null-hypothesis was formulated and was tested at .05 level of significance. A cross-sectional survey research design was used for the study. The sample for the study comprised 381 household heads. Questionnaire was utilized to generate data from the respondents. Frequencies and percentages were used to analyze the responses and also to answer the research questions posed to guide the study. Chi-square statistic was used to test the association between gender and types of toilet facilities provided. Results from the study indicated a high level of provision of toilet facilities (74.5%) in the area. However, there was very low provision of wash hand basin (24.4%) in the area. The Chi-square test showed that there was no significant associationbetween gender and types of toilet facilities provided in Nkanu west LGA (cal.c^2= 2.78< tab.c^2=3.84, df=1,p.<.05).Based on the findings it was recommended that relevant authorities should enforce sanitation laws in the areato make the LGA open defecation free. Furthermore,

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health education should be vigorously carried out on need for households to provide toilets and wash hand basins.

Key words: Domestic waste, Toilet, Open defecation

Introduction

To maintain health man must dispose human waste safely. For human waste to be described as safely disposed of, it should not contaminate surface soil or sources of water supply. Additionally, animals should not have access to human waste. Most importantly, human beings should not handle fresh faeces or urine. Thus human waste means and includes faeces and urine of human beings. It is often referred to as excreta. Kar (2011) indicated that more than 1 billion persons across the globe have no toilets. Munanya and Ajayi (2013) disclosed that 45 million Nigerians actually defecated in bushes. The practice of defecating in bushes was mostly found among poor inhabitants of rural Nigeria. Nkanu West LGA belongs to such rural settings (Nnamani &Ejike, 2013).However, the problem of indiscriminate disposal of human waste was also found in urban areas of Nigeria. For instance, Amadi (2007) observed that 23 per cent of the population in Aba used methods of faecal disposal deemed to be unhygienic. In terms of access to toilet facilities, there were also disparities among the 36 states in the country. For instance National Bureau of Statistics-NBS (2009)showed thatin year 2005 the percentages of households with unconventional toilets in Lagos and Edo states were relatively low (27.70% &30% respectively) compared to the proportion of those that have unconventional methods in Zamfara (87.10%)and Kaduna states (85.40%).The inadequacies of human waste disposal was even more alarming in Nigerian schools where there was only one toilet to 500 students compared to the international standard of one toilet for 50 students (UNICEF/ water Aid Nigeria, 2008).

In Enugu state, where Nkanu West Local Government Area is located, the situation was also bad since 67 per cent of households had no conventional toilet for the safe disposal of their excreta (NBS, 2009). Available data from Ministry of Education Enugu,

(2012) also indicated that the secondary school students'to toilet ratio of 2,617: 1 was unsatisfactory. This is a source of serious worry since the school is expected to serve as a model to the entire community in all developmental projects. The implication of the absence of toilet facilities in the communities and public institutions exemplified by the schools is that the people defecated in their surroundings. This is termed open defecation (OD). According to UNICEF Nigeria (2005), open defecation implies passing excreta in open lands, bushes, farms, road sides, compounds and bodies of water.The practice of indiscriminate defecation in the environment is dangerous.

This is because since human waste gives out offensive odour and is unsightly, its presence in the environment is repugnant. Moreover, open defecation encourages flies breeding. Flies are vectors of diarrheal diseases. The worst environmental health implication of indiscriminate faecal disposal occurs- and it is common in Nigeria- when excreta contaminates water, food or touches human hands. This is because human waste contains an array of pathogenic organisms (Alakija, 2000;Akinsola, 2006; UNICEF/BERWESSA, 2007). Shehu and Sheshi (2005) observed that dysentery, cholera, typhoid fever and helminthic infestation were common in the country. Munanya and Ajayi(2013) strongly believed that the 2,771 cases of cholera with 124 deaths reported in different parts of Nigeria in 2013 alone were as a result of absence of toilets. Similarly, the estimated 150,000 deaths especially among children in the country due to diarrhea were attributable to poor human waste disposal (UNICEF/ Water Aid Nigeria, 2008).The prevalence of diarrheal diseases occasioned by improper human waste disposal is a global issue. Water Aid (2013) noted that as many as 700,000 children die every year from diarrhea while Cunningham and Cunningham (2012) were of the view that inadequate sanitation and its concomitant water pollution contributes to the ill-health of more than 1.2 billion persons annually throughout the world.These mortalities and morbidities are regrettablesince they could have been

prevented by appropriate human waste disposal. In truth provision of toilets would significantly reduce diseases transmitted through faeco-oral route. Ashiru (2007) revealed that Nigerian households without a toilet were three times more likely to suffer from gastroenteritis than those who provided and were properly using toilets. In the same vein, according to Gupta (2007), the prevalence of diarrhoea in an Indian village that was declared open defecation free was only 7 per cent compared to 38 percent prevalence rate in a village with only 29 per cent users of toilet.

Apart from the disease burden of poor human waste disposal, they also have socioeconomic consequences. According to Kar (2011), lack of separate toilet facilities for women is one of the gender discriminatory practices which are common in the developing countries. Ashiru (2007) reported that lack of toilet facilities in schools,particularly for girls,diminished motivation for school attendance for such children. UNICEF/ Water Aid Nigeria (2008) also indicated that absence of toilets for the girls in schools were a major cause of gender imbalance in schools' enrollment, performance and retention. Olaniyan (2011) confirmed that male enrollment in secondary school was higher (54%) than that of female (46%) in the country. Perhaps, that could be why many Nigerian girls marry before the age of 15 with its associated health and socio-economic implications (NBS, 2009). Separate toilet for women is essential not only for them to ease themselves but also for their menstrual hygiene if they are expected to compete with men and contribute to national development.

In terms of finance the cost of improper disposal of excreta might be huge too. These could be in the forms of health care cost of treatment of faeco-oral diseases. The costs could be indirect too. For instance, UNICEF/ Water Aid (2008) observed that 10 million productive days would be gained in Nigeria if access to both water and sanitation rises to 100 per cent. Therefore, it is obvious that sanitation improvement in general and improvement in human waste disposal, in particular, is key input for poverty

alleviation and overall national development. It is not surprising that sanitation improvement was made one of the millennium development goals (MDG). The target of the goal is to halve by 2015 the population of people without suitable access to basic sanitation. As per Nigeria, it implies that 70 percent of Nigerians are expected to have access to sanitation by 2015.

In an effort to attain this lofty target of providing safe human waste disposal for about 90million Nigerians, the different levels of government in the country and partner agencies adopted community-led total sanitation (CLTS) as the best approach (Oko-Williams, Lambongang, Bundle, 2011). According to Kar and Chambers (2008), in CLTS communities are facilitated to conduct their own appraisal and analysis of open defecation and take their own action to become open defecation free (ODF). The aim of CLTS is to stimulate communities to stop OD and to build latrines with local materials and to use them. CLTS has a problem especially among the vulnerable in the society. Fawziand Jones (2010) identified the disabled, elderly, women, widowed and sick among others as vulnerable in CLTS adoption. This is because they were either so poor, pregnant, physically impaired or lack the confidence to participate in building toilets. Ashiru (2007) also showed that poverty contributed to poor sanitation among Nigerian. However, Nwimo, Ogbuji and Nwana(2000) earlier showed that traditionally women were involved in sanitation more than men.

Human waste disposal is a serious environmental health problem confronting humanity in the 21stcentury. Enugu State Rural Water Supply and Sanitation Agency-ENRUWASSA (2014) identified safe excreta disposal as one of the key issues of sanitation and environmental health generally. The Agency stated that sanitation included the provision of facilities in the form of construction of latrines for safe disposal of human waste. Sridhar (2007) also posited that human excreta are managed through the provision of different toilet systems. Toilet as used

in this study includes latrine and water carriage systems of excreta disposal. It ensures that human waste does not contaminate the environment and provides privacy to the user.

CLTS also focuses on behavioral change to ensure sustainable improvement in toilet provision and use. This is because UNICEF Nigeria (2005) had earlier on identified lack of knowledge as the main cause of OD in Nigeria in general and Nkanu West Local Government Area might not be different. Similarly, Chinagorom (2010) showed that ignorance was part of why mothers did not dispose babies' faeces in toilets nor wash hands after disposing the babies' excreta in Enugu state.

The work was conducted in Nkanu West Local Government Area of Enugu state.The LGA was chosen because the people might be utilizing different methods of toilet facilities for the disposal of human waste but no study has been conducted to ascertain their extent of provision. According to NBS (2008), in 2007 more than 59 percent households in Nigeria used pit, 0.2 used pails, 17.7 per cent used water closet and the rest (22.8%) used other methods for their human waste disposal. But did the national data represent the realities on ground in Nkanu West LGA? Additionally, what is the level of provision of wash hand basins in the LGA?Therefore, the present study was set out to find out these.

Research Questions

1. What was the level of provision of toilet facilities in Nkanu West Local Government Area?

2. What was the level of provision of wash hand basins close to the toilets in Nkanu West Local Government Area?

Research Hypothesis

One null research hypothesis postulated to guide the work was tested at .05 level of significance.

$H0_1$ There is no significant difference in the provision of toilet facilities in the households headed by men and women.

Method

The cross-sectional survey design was utilized for the study. According to McMurtry (2005), the design does a good job of providing data on the characteristics of a cross-section of a given population at a particular point in time. The population for the study was estimated to be 37,878 households in Nkanu West LGA. The total household was arrived at by estimating the population of Nkanu West for year 2013using the 1991 head countas the baseline (National Population Commission, 1991).The result was divided by the average household size of (5.10) for Enugu state(NBS, 2009).

The sample for the study comprised 381 (female=218: male=163) heads of households in Obe-Agbo community. The participants were selected in three stages. Stage one involved the stratification of Nkanu West LGA into13 towns. Stage two was the selection of Obe town through simple random sampling technique by balloting. Stage three was the selection of Obe-Agbo through cluster sampling technique. Stage four involvedsampling of the 381 respondents from Obe-Agbo community. The sample size of 381was considered adequate since it is in accordance with Cohen, Manion and Morrison's (2011) recommendations. The instrument for data collection was a12-item Provision of Domestic Waste Disposal and Hand Washing Facilities Questionnaire (PDWDHWFQ). The instrument was validated by Public Health Education experts and pretested on 18 heads of households in Ugbawka community in Nkanu East LGA for clarity of language before it was used. The split-half method of odd and even scores was correlated using the Spearman Rank Order statistic. The correlation coefficient obtained was .78. Frequencies and percentages of the responses were used to answer the research questions posed to guide the study.In accordance with criteria set by World Health Organization-WHO (1997), response of 50 percent and above was considered to be high level provision of facility. Chi-square statistic was utilized in testing the hypothesis at .05 level of significance at degree of freedom = 1.

Results

Table 1

Responses on Types ofToilet Facilities Provided in the Households Based on gender

	Male		Female		Total	
Type of facility	f	%	f	%	f	%
Water closet	44	27.0	17	7.8	61	16.0
Pour flush	13	8.0	23	10.6	36	9.4
Ventilated improved pit (VIP) latrine	14	8.6	8	3.7	22	5.8
Traditional pit latrine	92	56.4	50	22.9	142	37.3
Dig cover	13	8.0	10	4.6	23	6.0
Total	176	80.7	108	62.6	284	74.5

Table 1 show that 284 (74.5%) households provided toilet facilities. A total of 142 (37.3%) households provided traditional pit latrine while 16 (5.8%) households provided ventilated improved pit (VIP) latrine.It further shows that 61 (16.0%) households had water closet whereas 9.4% of the respondents provided pour flush system for excreta disposal.

Table 2:

Provision of Wash hand Basin close to Toilet Facility according to gender (n=351)

Wash hand basin available	Yes	No	Total
Responses	f(%)	f(%)	f(%)
Male	40 (24.5%)	123 (75.5%)	163(100%)
Female	53 (24.3%)	165 (75.7%)	218 (100%)
Total	93(24.4%)	258 (75.6%)	381(100%)

Table 2 shows that 93 (24.4%) had wash hand basins. Forty(24.5%) households headed by men provided wash hand basin while 53 (24.3%) household headed by women had wash hand basin.

Table 3:

Summary of c^2 values verifying the Hypothesis of No significant Difference in Provision of Toilet Facilities in Nkanu West LGA by Gender

Toilet facilities	cal.c^2	df	c^2 critical	p	Decision
Water closet	3.30	1	3.84	.05	Not significant
Pour flush	0.04	1	3.84	.05	Not significant
VIP	0.26	1	3.84	.05	Not significant
Pit latrine	10.09	1	3.84	.05	Not significant
Dig and cover	0.09	1	3.84	.05	Not significant
Average	2.78	1	3.84	.05	Not significant

Table 3 shows that there is no association between gender and type of toilet facility provided (cal.c^2= 2.78< tab.c^2=3.84, df=1,p.<.05).

Discussion

Findings from Table 1 showed a higher(74.5%) than criterion level of provision of toilet facilities in Nkanu West Local Government Area. The finding was consistent with Chinagorom (2010) that 68.1 percent of mothers in Enugu state disposed their babies' faeces in toilet facilities. Result showed that37.3 per cent households provided traditional pit latrine compared to the national record of 59% (NBS, 2008).The apparent inconsistency between the finding of the study and the national data on use of pit latrine could be due to the geology of the area that did not support deep pit construction. In Nkanu West, pit collapses easily because of the loose soil formation which made the method unpopular in the area. The agreement between the finding of the present study (16.0%) and national data (17.7%)on low level provision of water systems of domestic waste disposal could be accounted for by water shortages in the country generally and Nkanu West in particular. Scarcity of water coupled with the loose soil formation could, therefore, be responsible for relatively high adoption of pour flush system of excreta disposal in the locality. The pour flush is a new excreta disposal

technological option promoted by UNICEF Nigeria (2005) that require less water than the water closet and does not need deep soil excavation like the pit latrine.

The high level of households (25.5%) that had no toilet facility corroborated UNICEF Nigeria's report that open defecation was rampant in Nigeria at a whole. This might also be in agreement with NBS (2008) where 22.8 percent households were reported to be using other (unspecified) methods of faecal disposal nationally. Probably, the 'other methods' included defecating in the surroundings.

Findings from Table 2 showed that only 24.4% of the households had hand washing facilities close to their toilets. The score was below the cut-off percentage of 50. The result disagreed with Chinagoro (2010) who indicated that 47.8% of mothers in the state washed hands after cleaning up baby and disposing its feaces. The inconsistency could be because of the higher concern for sanitation and health issues shown by women (Nwimo, Ogbuji, and Nwana, 2000). Perhaps, it could be because women often washed babies' soiled 'nappies' after such clean ups and that was assumed to be washing of hands after disposing of babies excreta. The focus of the present study on the wash hand basin being placed close to the toilet could have accounted for the disparity.

Table 3 indicated that there was no association between gender and provision of toilet facilities in the area ($cal.c^2= 2.78 < tab.c^2=3.84$, $df=1, p.<.05$). This disagreed with Nwimo, Ogbuji, and Nwana (2000); Ashiru (2007) that women were more concerned about sanitation and health than men. The gender balancing could beas a result of higher economic capability of men as heads of householdsthan women that counteracted women's concern about sanitation. It should be noted that for a woman to assume the role of head of household in the area of the study it means that the family had lost its traditional breadwinner. Thus the finding accorded with Ashiru (2007) that poor sanitation was linked to poverty. Fawzi and Jones (2010) as well showed that vulnerable members

of the society were less likely to participate in provision of toilet facilities. The vulnerable group in this context could be the widows who were heads of their households.

Implication for Health Education

The implications of these findings are that many members of the households defecated in open places. This has grave health effects since diarrheal diseases are easily spread under such circumstances. The high level of households without wash hand basin was also dangerous. The large number of those who did not provide wash hand basin suggeststhat manypeople did not wash their hands after visiting the toilets. These have serious health effects too since diarrheal diseases spread easily particularly through hands contaminated with faeces. The absence of wash hand facilities portends danger in this era of national preventionmeasures against Ebola virus disease (EVD). The provision of wash hand basin will facilitate hand washingat critical times and reduce incidences of both faeco-oral and contact diseases generally.

Conclusions and Recommendations

Based on the findings, the following conclusions were reached.

1. The extent of provision of toilet facilities in Nkanu West LGA was high.

2. The extent of provision of wash hand basin close to toilet in Nkanu West LGAwas low.

3. There was no association between gender and kinds of toilet facilities provided in Nkanu West LGA.

Based on the conclusions, the following recommendations were made.

1. Efforts should be sustained by relevant authorities to make sure that every household in the LGA provides conventional methods of faecal disposal. This is because diarrheal disease outbreak could still occur from even only one household that defecates in the open. To that effect, Environmental health officers

from the LGA should strictly enforce relevant laws on provision of toilet facilities in premises. Furthermore, public health education could be intensified to sensitize the people to utilize effectively the toilet facilities provided.

2. Public health education should be organized in the communities on the need for placing wash hand basin near toilet in the LGA. Such placement will probably motivate the household members to wash hands after visiting the toilet.

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