ENVIRONMENTAL SANITATION PRACTICES AMONG HEADS OF HOUSEHOLD IN ENUGU SOUTH LOCAL GOVERNMENT AREA

Ojide R.N.*, Ekengwu B.A.*, Njoku P.N.*, Ugwuoke A.C.*.Erietta O.E.*, Gbaduo C.*
[*]Department of Public Health, Madonna University Nigeria, Elele, River State
[**]Department of health Promotion and Health Education
Nnamdi Azikiwe University Awka Anambra State

Abstract
Poor maintenance of environment is becoming a major threat to the health of households leading to breeding grounds for diseases, discharge of poisonous substances and air pollution. This study determined environmental sanitation practices among heads of households in Enugu South Local Government Area. The study was guided by four research questions and three hypotheses. The study employed descriptive survey research design. The population of this study was 254,200 heads of households and 400 participated in the study. Multistage sampling procedure was used to select the participants. Structured questionnaire titled: Environmental Sanitation Practices Questionnaire (ESPQ) (r=0.84) was used as instrument for data collection. Data were analyzed using mean, standard deviation, t-test and Analysis of Variance (ANOVA) statistics. Results showed that heads of household had poor level of environmental sanitation practices (2.29±0.25). Heads of household male (2.220±0.32), female (2.25±0.29),18-30years (2.22±0.33), 31-35years ((2.24±0.25), 36years and above (2.20±0.01), none formal education (2.16±0.33), primary education (2.20±0.29), secondary (2.29±0.31), tertiary education (2.25±0.31), civil servants (2.14±0.33), traders (2.27±0.27), artisan (2.21±0.34) and housewife (2.24±0.27) had poor environmental sanitation practices. There was no significant differences in the level of environmental sanitation practices based gender (t-val=1.647, P=0.100) and age (F-val=0.594, P=0.553) but significant differences exist based on level of education (F-val=3.057, P=0.025) and occupation (F-val=3.199, P=0.023). The study concluded that heads of household in Enugu South LGAs had poor environmental sanitation practices. The study therefore, recommended among others that professional bodies like School Health Educators and Professionals Association in Nigeria in collaboration with Ministry of Environment in Enugu State should plan programames and interventions to create awareness on the need to practice good environmental sanitation among heads of household.

Introduction
Poor maintenance of environment is becoming a major threat to the health of households. For example, Ahmed (2021) reported that the situation led to the multiplication of pathogens like cholera and diarrhea, providing a good breeding site for disease vectors like mosquitoes (which may cause malaria fever), flies (which may transmit diarrhea infection) and rodents that can easily cause food contamination illnesses such as Lassa fever, salmonella species (bacteria of typhoid fever) among others. This scenario call for environmental sanitation practices. Environmental sanitation generally includes the provision of facilities and

services for the safe disposal of waste, the maintenance of hygienic conditions and the prevention of diseases (World Health Organization, 2017). Environmental sanitation is the control of all those factors in man's physical environment which exercise or may exercise a deleterious effect on physical development, health, and survival. It could also be seen as the principle and practice of effecting healthful and hygienic conditions in the environment to promote public health and welfare improve quality of life and ensure a sustainable environment (Alabi, 2010).Environmental sanitation practices refer to residents' involvement in provision, utilization, and maintenance of environmental sanitation facilities and services and adherence to environmental legislation (Daramola, 2015). Environmental sanitation practices is a set of actions or a fundamental process of collecting and safely disposing all kinds of waste within the environment with the intention of protecting and promoting the individual quality of life (Ahmed, 2021). The practices play a key role in improving human health and environmental pollutants that have specific diversity which can put at risk all physical, mental and social health of human being. Such practices involves proper collection of waste into garbage bags, properly sanitize toilet facilities, remove stagnant water around the house, put waste in the appropriate location, disposal of human excreta, prior disposal of household wastewater, and refuse (Maren,2024).

These environmental hygiene practices may be influenced by some demographic variables such as gender, age, level of education and occupation. Raudsepp (2021) found that women were significantly more likely than men to be concerned with environmental problems. Females have been consistently shown to have higher environmentally conscious and practices than male. The common reason advanced for gender differences is the different socialization patterns between boys and girls. Reddy, Kusuma, Pandav, Goswani, and Krishnan (2017) reported that both male and female Households of Sugali Tribe of Chittoor District, Andhra Pradesh, India have water and sanitation hygiene practices for under-five Children, and there is no significant difference in the practice. Musa, and Haque (2016) found poor environmental sanitation in the university's student male hostel in Nigeria. As regards age, Hothur, Arepalli, and Doddoju, Veera, (2019) found no significant difference in the water, sanitation and hygiene among residents of Parla Village, Kurnool district, AndraPradesh. Noufal, Yuanyuan, Maalla and Adipah (2020) noted that household no matter the age group have low environmental sanitation practices. Kalu, Nwaka, Nwogu and Obidike (2024) found that household waste disposal choices varies by age in the environment and that quite a significant different exist by age especially among younger household compared to older ones of 50 years.On occupation, Poague, Blanford and Anthony (2022) found low water, sanitation and hygiene in schools in low- and middle-income countries. Pradhan, Sinha, Satapathy, Swain and Mishra, (2018) found no significant difference in the household water treatment and storage practices based on occupation and that the household have low practice. Ministry of Natural Resources and Environment (2019) revealed significant differences in the level of environmental sanitation practices based on occupation among household, that civil servants have high environmental sanitation practices compared to farmers because in their offices government have procured the waste bin and mandated them to use them. Severally researchers has pointed at level of environmental sanitation practices, for instance, Ahmad (2021) reported

good environmental sanitation practice among households in Bauchi State, Nigeria. Sridhar, Okareh and Mustapha (2020) reported that household in Some Selected LGAs in Kaduna State, Northwestern Nigeria have low practices on Water, Sanitation, and Hygiene. Nwobi (2022) study indicated low Hostel sanitation practices for improved health status. United Nations International Educational Fund (2018) documented that approximately a third of the world's population have low environmental sanitation practices and lack adequate sanitation with about a quarter of that figure not privy to portable water supply, which is the cause of death of nearly 800 children worldwide.

In Nigeria, Nwadi, Attah, Ugwu, Nwakpadolu, and Ezekoye (2023) reported waste disposal system in the environment was very poor, resulting in provision of personal and portable garbage bins for disposing of their waste by household anytime they want. Households are a group of people living together in a common residence or apartment as consuming units in a physical environment. The daily household activities and consumptions practice are bases of waste generation. In Enugu South Local Government Area, the researchers observed that decayed organic wastes such as food remnants, leaves and animals and non-decayed inorganic wastes such as tins, cans, synthetic wrappings plastic containers, glasses and cellophane bags are littered in many places. Most at times many household use personal portable buckets to ease themselves rather than make use of the sanitary toilet facilities. These practices could lead to easy spread of infectious diseases. This concern has motivated this study on environmental sanitation practices among heads of household in Enugu South Local Government Area of Enugu State. In Enugu State, precisely Enugu South Local Government Area, the rate at which disease outbreaks occur is a great worry. Like in most other part of the country, there are recent time increase of outbreak of Ebola disease and Lassa fever, which might have been related to poor environmental sanitation practices Also, the incessant outbreaks of Cholera, malaria and Typhoid fever in the various communities are an evidence of poor sanitation even as accumulated wastes contribute heavily in the breeding of mosquito, spread of malaria and other diseases.

Methodology

This study adopted the descriptive survey research design. This research design is the type of design which aims at collecting data and describing them in orderly manner, the characteristics or facts about a given population. The study was conducted in Enugu South Local Government Area of Enugu State using heads of household. Enugu South LGA is located in the Southeastern part of Nigeria and has its headquarters in the city of Enugu, the capital of Enugu State. It has severally wards namely: Uwani, Ogui, Achara Layout, Asata and New Heven. Enugu South LGA is a major commercial and administrative center in Enugu State with several businesses, industries and government offices located within its borders. The population of this study was 254,200 heads of households. The sample size of 400 heads of household selected using Taro Yamane formula for the determination of sample size participated in the study. Multistage sampling procedures were used to select the participants. In the first stage the researcher stratified the LGA into existing twenty (20) political wards. Stage two (2) was the selection of five (5) political wards involved in the

study through simple random technique of balloting without replacement namely: Amaechi-Uwani, Ogui, Achara Layout, Asata and Akagbe Ugwu. The third stage involved selection of 80 heads of household from each of the five wards in the study through systematic random sampling technique during monthly sanitation programme. This was done in each of the five wards yielding a total sample of 400 participants.

Structured questionnaire titled, Environmental Sanitation Practices Questionnaire (ESPQ) was used as instrument for data collection .The instrument consisted of 16-items meant to elicit information on the level of environmental sanitation practices. The questionnaire contained two sections A and B. Section A contained three items (1-3) on demographic data of the respondents. Section B contained 13 items 1-13 which elicited information on environmental sanitation practices. The respondents were required to indicate on a 4-point scale of Always, Often, Sometimes and Never. Validity of the instrument was established using three experts in the Department of Public Health, Madonna University, Elele. The reliability test for the instrument was carried out on 30 heads of household in Enugu North LGA in Enugu State. Cronbach Alpha computation was 0.84 of the instrument was obtained. Five trained research assistants assisted the researchers in the distribution and collection of the questionnaire. Out of 400 copies distributed, 384 representing 96% return rate was retrieved and used for data collection. Data were analyzed using mean and standard deviation to answer all the research questions while t-test statistic was used to test the entire hypotheses. The entire hypotheses were tested at 0.05 alpha levels

Results

The results of this study were presented in the following table according to the research questions and hypotheses that guided this study

Research Question 1: What is the level of environmental sanitation practices among heads of household in Enugu South Local Government Area of Enugu State?

Table 1: Level of environmental sanitation practices among heads of household in Enugu South Local Government, Enugu state

S/N	Items	$\bar{x}$	SD	Decision
1	Use containers to collect refuse to store the waste	2.98	0.99	High
2	Segregate household waste before disposal	2.14	1.03	Low
3	Dispose waste into garbage bags	1.88	0.86	Low
4	Put waste in the appropriate location	2.00	0.86	Low
5	Sanitize environment to promote healthy condition of the environment	1.89	0.85	Low
6	Treat sewage, garbage and excreta before proper disposal	2.00	0.83	Low
7	Transport the waste into Government provided dumb site	2.02	0.89	Low

8	Dumb wastes in Government provided site	1.05	0.85	Low
9	Properly sanitize toilet facilities	2.83	0.86	High
10	Use incinerator machine to burn household waste	2.08	0.97	Low
11	Remove stagnant water around the house	2.55	1.03	High
12	Weed and clean your surrounding	2.96	1.01	High
13	Participate in community sanitation exercise	2.53	1.08	High
	Overall	2.22	0.31	Low

Result on table 1 showed that heads of household in Enugu South Local Government Area of Enugu State scored 2. 50 and above on item 1, 11,12 and 13 but score below 2.50 criteria set for this study on all other items. Overall (2.22±0.31) is below 2.50 criteria set for this study. This means that heads of household in Enugu South Local Government Area of Enugu State had low environmental sanitation practices (2.22±0.31).

Research Question 2: Is there gender difference in environmental sanitation practices among heads of household in Enugu South Local Government Area of Enugu State?

Table 2: t-test analysis on gender difference in environmental sanitation practices among heads of household in Enugu South Local Government, Enugu State

S/N	Items	Gender						
		Male		Female				
		x	SD	x	SD	t-val	F-val	Decision
1	Use containers to collect refuse to store the waste	2.92	0.97	3.04	1.01	1.226	0.221	NS
2	Segregate household waste before disposal	2.09	1.06	2.19	1.06	1.015	0.311	NS
3	Dispose waste into garbage bags	1.02	0.85	1.84	0.88	1.031	0.407	NS
4	Put waste in the appropriate location	1.99	0.87	2.01	0.85	0.179	0.858	NS
5	Sanitize environment to promote healthy condition of the environment	1.83	0.86	1.95	0.85	1.365	0.173	NS
6	Treat sewage, garbage and excreta before proper disposal	1.92	0.82	2.06	0.83	1.478	0.140	NS
7	Transport the waste into Government provided dumb site	1.97	0.88	2.07	0.89	1.105	0.270	NS
8	Dumb wastes in Government provided site	1.06	0.90	2.04	0.80	0.208	0.536	NS
9	Properly sanitize toilet facilities	2.85	0..86	1.81	0.85	0.208	0.693	NS
10	Use incinerator machine to burn household waste	2.05	0.99	2.12	0.96	0.725	0.469	NS
11	Remove stagnant water around the house	2.56	1.02	2.54	0.03	0.121	0.904	NS
12	Weed and clean your surrounding	2.94	1.08	2.99	0.96	0.486	0.627	NS
13	Participate in community sanitation exercise	2.48	1.17	2.59	0.99	0.958	0.339	NS
	Overall	2.20	0.32	2.25	0.29	0.647	0.100	NS

Data on Table 2 indicated that overall male (2.20±0.32) and female (2.25±0.29) were below 2.50 criteria set for this study. This suggest that both (2.20±0.32) and female (2.25±0.29) heads of household in Enugu South Local Government Area of Enugu State have low level of environmental sanitation practices. Furthermore,. Overall (t-val-0.647, P-val=0.100) is not significant at P=0.05. This means that the hypothesis which stated that there is no significance difference in the level of environmental sanitation practices among heads of household in Enugu South Local Government Area of Enugu State based on gender is thus, accepted.

Research Question 3: Is there difference in the level of environmental sanitation practices among heads of household in Enugu South Local Government Area of Enugu State based on age?

Table 3: Summary of analysis on difference in environmental sanitation practices among heads of household in Enugu South Local Government, Enugu State by age

S/N	Items	Age								
		18-30years (n=95)		31-35years (n=176)		36years and above (n=111)		F-val	P-val	Decision
		x	SD	x	SD	x	SD			
1	Use containers to collect refuse to store the waste	2.97	0.92	3.02	1.10	2.92	0.88	0.309	0.734	NS
2	Segregate household waste before disposal	2.14	0.05	2.23	1.08	2.00	0.90	1.745	0.176	NS
3	Dispose waste into garbage bags	2.07	0.84	1.83	0.95	1.81	0.73	2.957	0.053	S
4	Put waste in the appropriate location	1.72	0.75	2.04	0.75	2.17	1.05	7.413	0.001	S
5	Sanitize environment to promote healthy condition of the environment	1.91	0.84	1.84	0.81	1.93	0.94	0.432	0.650	NS
6	Treat sewage, garbage and excreta before proper disposal	2.02	0.92	1.94	0.74	2.07	0.88	0.856	0.426	NS
7	Transport the waste into Government provided dumb site	1.90	0.82	2.02	0.92	2.11	0.88	1.454	0.235	NS
8	Dumb wastes in Government provided site	1.87	0.80	2.14	0.85	2.06	0.88	3.080	0.047	S
9	Properly sanitize toilet facilities	1.88	0.87	1.89	0.88	1.69	0.80	2.128	0.120	NS
10	Use incinerator machine to burn household waste	2.11	1.01	2.07	0.96	2.08	0.97	0.059	0.943	NS
11	Remove stagnant water around the house	2.99	0.96	2.52	1.05	2.64	1.05	0.675	0.510	NS

12	Weed and clean your surrounding	3.15	0.98	2.99	0.98	2.76	1.06	3.955	0.020	S
13	Participate in community sanitation exercise	2.57	1.03	2.60	1.15	2.78	1.01	1.498	0.225	NS
	Overall	2.22	0.33	2.24	0.26	2.20	0.36	0.594	0.553	NS

Table 3 showed that heads of household within age bracket 18-30yrs, 31-35years and 36years and above in Enugu South Local Government Area score above 2.22,2.24,2.20 were below 2.50 criteria set for the study. On the hypothesis, significant differences were not observed on all the items except on item 3,4,8 and 12. Furthermore, overall (F-val= 0.594, P-val=0.553) indicate no significant difference in the environmental sanitation practices by age. This implies that the hypothesis is accepted.

Research Question 4: Is there difference in environmental sanitation practices among heads of household in Enugu South Local Government Area of Enugu State based on occupation?

Table 4: Summary of analysis on difference in environmental sanitation practices among heads of household in Enugu South Local Government, Enugu State by occupation

		Occupation										
S/N	Items	Civil Servants (n=74)		Traders (n=130)		Artisan (n=98)		Housewife (n=80)		F-val	P-val	Dec.
		x	SD	x	SD	x	SD	x	SD			
1	Use containers to collect refuse to store the waste	3.02	1.03	3.00	1.06	2.88	0.90	3.02	0.95	0.419	0.740	NS
2	Segregate household waste before disposal	1.94	0.99	2.36	0.98	2.25	104.	183.	1.03	5.784	0.001	S
3	Dispose waste into garbage bags	2.01	0.81	1.69	0.89	1.89	081.	2.07	0.88	0.404	0.008	S
4	Put waste in the appropriate location	1.59	0.68	2.06	0.81	2.13	089.	2.11	0.95	7.597	0.000	S
5	Sanitize environment to promote healthy condition of the environment	1.74	0.77	1.90	0.85	1.81	090.	2.10	0.86	2.590	0.053	S
6	Treat sewage, garbage and excreta before proper disposal	1.79	0.70	2.23	0.79	2.08	097.	1.71	0.69	3.797	0.000	S
7	Transport the waste into Government provided dumb site	1.85	0.78	2.95	0.83	2.04	091.	2.27	0.99	3.381	0. 018	S

8	Dumb wastes in Government provided site	1..95	0.86	1.20	0.89	2.04	083.	1.91	0.78	2.323	0.075	NS
9	Properly sanitize toilet facilities	1.82	0.81	2.90	0.94	1.82	086.	1.73	0.75	0.656	0.580	NS
10	Use incinerator machine to burn household waste	1.74	0.82	2.11	1.00	2.14	094.	2.28	1.04	4.431	0.004	S
11	Remove stagnant water around the house	2.54	1.08	2.61	1.02	2.40	097.	2.65	1.05	1.039	0.375	NS
12	Weed and clean your surrounding	3.06	0.96	3.03	0.94	2.76	110.	3.01	1.06	1.797	0.147	NS
13	Participate in community sanitation exercise	2.71	1.06	2.52	1.05	2.52	1.15.	2. 41	1.07	1.033	0.378	NS
	Overall	2.14	0.33	2.27	0.27	2.21	0.34	2.24	0.29	3.199	0.023	S

Table 4 revealed that heads of household who civil servants, traders, artisans and housewife in Enugu South Local Government Area score above 2.50 criteria set for this study on item 2.14,2.27, 2.24 were below 2.50 criteria set for the study. On the hypothesis, significant differences were not observed on significant differences on all other items. Furthermore, overall (F-val= 3.199, P-val=0.023) indicated significant difference in the environmental sanitation practices by occupation. This suggested that the hypothesis which stated that there is significance difference in the level of environmental sanitation practices among heads of household in Enugu South Local Government Area of Enugu State based on occupation is hence, rejected.

Discussion of findings

Table 1 showed that heads of household in Enugu South Local Government Area of Enugu State had low environmental sanitation practices (2.22±0.31). The low practices found attest to the observations of the researchers that many household in Enugu South Local Government Area dumped wastes in the open space on the street at close proximity to the houses and public places and some were dumped very close to the river, while others were dumped right into the river. Also, congestion of waste in the households, roads, market places, often littered around. These practices could lead to the easy spread of infectious diseases among communities. It can pose a serious threat to the communities and lead tothe incessant outbreaks of Cholera, malaria and Typhoid fever in the various communities since it is evidence that poor sanitation contribute heavily in the breeding of mosquito, spread of malaria and other diseases. Also the outbreaks of Lassa fever with its accompanied spread and fatality may also be connected to poor sanitation. Also, Ahmed (2021) reported that the situation has leads to the multiplication of pathogens causing diseases like cholera and diarrhea, providing a good breeding site for disease vectors like mosquitoes (which may cause malaria fever), flies (which may transmit diarrhea infection) and rodents that can easily cause food contamination illnesses such as Lassa fever, salmonella species (bacteria of typhoid fever) among others.

The finding in this study agreed with other researchers like Sridhar, Okareh and Mustapha (2020) who reported that household in Some Selected LGAs in Kaduna State, Northwestern Nigeria have low practices on Water, Sanitation, and Hygiene. Nwobi (2022) study which indicated low Hostel sanitation practices for improved health status. UNICEF (2018) which documented that approximately a third of the world's population have low environmental sanitation practices. Also, in Nigeria, Nwadi, Attah, Ugwu, Nwakpadolu, and Ezekoye (2023) reported environment sanitation practices to be very poor. However, the finding disagree with Ahmad (2021) who reported good environmental sanitation practice among households in Bauchi State, Nigeria.

Result on table 2 indicated that both male (2.20±0.32) and female (2.25±0.29) heads of household in Enugu South Local Government Area of Enugu State have low level of environmental sanitation practices. Furthermore, no significant differences were observed on the level of environmental sanitation practices among heads of household in Enugu South Local Government Area of Enugu State based on gender ($P>0.05$). This finding was surprise based on the report of Raudsepp (2021) who found that women were significantly more likely than men to be concerned with environmental sanitation practices. This is because females have been consistently shown be more environmentally conscious and practices than men based on the socialization patterns between boys and girls. However, the finding is in line with Reddy, Kusuma, Pandav, Goswani, and Krishnan (2017) whose study indicated that both male and female households of Sugali Tribe of Chittoor District, Andhra Pradesh, India had water and sanitation hygiene practices for under-five children, and there was no significant difference in the practice. Data on table 3 showed that heads of household within age bracket 18-30yrs, 31-35years and 36years and above in Enugu South Local Government Area had low environmental sanitation practices. Moreso, no significant difference in the level of environmental sanitation practices by age (F-val= 0.594, P-val=0.553). This finding was in agreement with Hothur, Arepalli, and Doddoju, Veera, (2019) who found no significant difference in the water, sanitation and hygiene among residents of Parla Village, Kurnool district, AndraPradesh. Noufal, Yuanyuan. Also, Maalla and Adipah (2020) who noted that household no matter the age group have low environmental sanitation practice. The finding disagree with Kalu, Nwaka, Nwogu and Obidike (2024) whose study found that household waste disposal choices varies by age in the environment and that quite a significant different exist by age especially among younger household compared to older ones of 50 years. Table 4 revealed that heads of household who are civil servants, traders, artisans and housewife in Enugu South Local Government Area had low environmental sanitation practices. This finding supported the finding of Poague, Blanford and Anthony (2022) who found low Water, sanitation and hygiene in schools in low- and middle-income countries and Pradhan, Sinha, Satapathy, Swain and Mishra, (2018) whose finding revealed no significant difference in the Household water treatment and storage practices based on occupation and that the household have low practice. But, when ANOVA statistic was computed result showed that there was significant difference in the environmental sanitation practices by occupation ($P<0.05$). This finding led credence to Ministry of Natural Resources and Environment

(2019) which revealed significant differences in the level of environmental sanitation practices based on occupation among households.

Conclusion

The study concluded after the findings of this study that that heads of household in Enugu South Local Government Area of Enugu State had low environmental sanitation practices. When demographic variables of the respondents were compared, result showed that no significant differences exist in the level of environmental sanitation practices based on gender, age and occupation.The following recommendations were made:

1. There is need to create awareness and sanitation set as a priority in national and local government by the state government using Public Health Educators in the Local Government Area
2. Environmental Sanitation Officers in collaboration with Ministry of Environment in the Local Government Area should organize seminar/workshop on environmental sanitation practices to both male and female residents in the area
3. Professional body like School Health Educators and Professionals Association in Nigeria should liaise with Ministry of Environment in Enugu State to educate all the heads of households in Enugu South LGAs on the need to practice environmental sanitation no matter their different occupation.
4. Environmental Health and Sanitation Department in the area with the collaboration with Environmental Protection Agency should embark on effective behavioural change to both young and older heads of household in the level of environmental sanitation practices

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