

Health literacy programme and proper solid waste disposal habits among housewives in Onitsha, Anambra State, Nigeria

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Keywords: Health literacy programme; Household solid waste disposal.

Abstract. *This paper presents a study which examines promoting proper solid waste disposal habits among housewives in Onitsha, Anambra State,*



Nigeria, in the context of a health literacy programme. Three research questions focus on different aspects of the efficacy of the programme related to understanding the dangers of improper disposal of waste, building the necessary knowledge for proper disposal, and developing a positive attitudinal change towards personal habits. The study adopted a descriptive survey design, while a simple random technique was used to select 1200 women who have been involved in the health literacy programme. A validated questionnaire with 0.72% reliability index was used to collect data from the respondents. Data collected was analyzed using a statistical package for social sciences (SPSS 25). The findings show that the community health literacy programme has achieved a high level of efficacy for each of the research question. The paper concludes with recommendations for developing the programme.

1. Introduction

Various empirical studies have shown how waste disposal and management is very poor in most municipal cities in developing countries. Nguyen Matsui and Fujiwara (2011) described how many cities face serious environmental degradation and health risks due their poorly developed municipal solid waste management system. Mamady (2015) also illustrated how indiscriminate waste disposal together with inadequate waste collection is strongly linked with the existence of unplanned settlements in cities. This study links household and community groups' waste disposal practices to residents' socioeconomic status and geographical factors such as the distance of residential areas from permitted municipal dumpsites. Authorities should be encouraged to promote environmental information and education of the public. According to Khatib, Monou, Abdul, Hafez & Despo (2010), solid waste generation (SWG) is an issue of concern everywhere in the world, particularly in urban centers. SWG is considered one of the most challenging issues faced by most developing countries that suffer from severe environmental pollution problems.

Awuah (2018) observed that waste collection systems such as communal container collection methods (waste bins) appear most common in many nations and that this kind of waste collection system is provided at dedicated points within neighborhoods for households to drop-off their solid waste. It is then expected

that trash collectors will use their trash collection vehicles to empty the waste bins and transport the waste to a designated dump site, where it is trashed, often by incineration. Awuah (2018) further explained that this trash collection method is fraught with difficulties, because most of the time the waste ends up not being collected by the authorized waste collectors, thereby leading to overflow of waste and ground dumping at collection sites.

In Nigeria, solid household waste disposal has become one of the fundamental national problems, despite environmental sanitation programmes and policies having been adopted by the government at various levels to manage it. Solid household waste, which comprises kitchen and other home-related waste, is generated daily in large quantities across urban and rural cities and the mode of disposal is a cause of considerable concern. Most residents throw away their trash in an improper manner due to their attitude towards waste as something that is no longer valuable and can be discarded anywhere convenient without paying heed to its impact on the environment and to human health in general.

Most states in Nigeria set aside either the first or last Saturday of every month as monthly sanitation days which usually start at 7am and end at 10am. Lagos and Rivers state government also set aside every Thursday from 7am to 10am as weekly sanitation for the markets and all shops, stores, and any other category of business, excluding pharmaceutical stores. However, most urban cities in Nigeria are every day littered with household generated solid waste. Pedestrian walkways become like waste dumps in most cities due to improper waste disposal habits among residents, non-availability of refuse collectors, or irregular collection habits of existing refuse collection workers.

Onitsha metropolis is one of the urban cities in Nigeria that is best known for improper household solid waste disposal. It is a densely populated commercial city where people from different parts of the county carry out their business activities, mostly as traders in the main market, and the proximity of the residential areas to the market attracts an influx of residents who in turn generate tons of solid waste which are littered on the streets daily. According to Orhorhoro & Oghoghorie (2019), Onitsha generates 84,137 tons of waste monthly, with a density of 310kg/m³, derived from a daily 0.53 kg per capita waste production. Lawal (2004) affirms that roughly two thirds of waste generated by households in Onitsha are dumped indiscriminately on the streets and in the drains, thus posing serious environmental health hazards. Places where waste are left to overflow are usually accompanied by serious air pollution due to stench caused by rotten and decayed waste, a problem that is aggravated during the rainy season. Streets in most parts of Onitsha are filled with piles of refuse due to proliferation of illegal

dumping sites despite waste management authorities concerted efforts to clear the city of refuse (Fig. 1-3).



Figure 1. Dumpsite at residential area



Figure 2. Indiscriminate dumping of waste by resident along the street



Figure 3. Dumpsite at a major road in the town

2. Solid Waste Disposal and Health Literacy

Household waste can be hazardous or non-hazardous waste which can be recycled. Waste generated at home is mostly composed of solid waste particles such as garbage, broken bottles or plates, spoiled food items, papers, cartons, different types of plastic and polythene, tins and metals, damaged home appliances, used batteries, insecticide containers, and so on. This waste generation varies, depending on location and time, and its indiscriminate disposal causes a range of environmental pollution and health problems. Solid waste discharged inside drainage systems causes a blockage affecting the flow of water, posing dangers of disease transmission by creating breeding sites for disease vectors. This is one of the major causes of ill-health among people, as well as leading to soil erosion, flooding, and other environmental hazards.

A study by Tessema (2010) shows how the proliferation of pathogens in the living areas of poor homes and neighbourhoods is an aftermath of inadequacies in the provision of sanitation facilities, inappropriate anthropogenic practices of sanitation at household level and current waste management problems. In a study by Suleman, Darko, & Agyemang-Duah (2015) high incidences of water related diseases such as diarrhea, dysentery, typhoid, and intestinal parasites are attributed to inadequate infrastructure and poor waste management practices embedded in the “throw-away” culture of citizens. The pathogens that cause these diseases lead to many debilitating and endemic diseases that mainly afflict the poorer urban households that are hidden from public view in the backyard slums of the city. Wang, Lu, Zhao, et al. (2016) also demonstrate how improper disposal of wastes creates and disseminate pathogens which can quickly spread among human and animal populations in the city. Mazhindu, Gumbo, Gondo (2012) described how waste dumped in the streets for many hours awaiting collection becomes a nuisance, forming foul-smells and leachate from the waste pile, attracting insects and rodents that become vectors of diseases. Their study also shows how high-concentrated leachate due to improper waste disposal causes environmental threats, affecting ground water and surrounding environments, and informal dumping and uncollected household waste in watersheds get carried into waterways by runoff water, often contaminating the local drinking water.

Okorie and Amadi (2017) showed how residents in most urban cities in Nigeria have very little appreciation of the value of the environment and how waste disposal habits are characterized by a lack of awareness both of environmental problems in general and of the health risks generated. The attitude of residents towards waste disposal is a major problem particularly in urban low-cost residential areas. Most of the residents find it difficult to bag their waste before disposal,

some even empty their waste into gutter as soon as it begins to rain, while others carry their refuse to designated dump site and empty it on the ground, thereby littering the whole area. According to Venes (2001), attitude can be seen as behavior based on conscious or unconscious mental views developed through cumulative experience. Altmann (2008) studied the correlation between people's attitudes and their orientation towards their social and physical environment, including themselves. Attitude is seen as having a cognitive, affective, and behavioral component. It is bipolar and is a response to a stimulus. Thus, we argue that the actions residents exhibit towards solid household waste disposal can be seen as a result of their mental disposition towards waste and require a change in behavior through fundamental educational processes such as community-based health literacy programme.

Health literacy is the ability of individuals to understand necessary health care information and being able to use this information in making appropriate health related decisions. Yilmazel and Çetinkaya (2016) observed that health literacy promotes both the health and the quality of life. This requires that healthcare professionals acquire communication and clinical skills and that individuals become involved in decision-making in the health care field. They also asserted that health literacy is based on social and cultural factors in society and serves as a mediator between individuals, the health system, the education system, and health issues. The Institute of Medicine of the National Academies (2004) defined health literacy as the degree to which individuals can obtain, process, and understand the basic health information and services they need to make appropriate health decisions.

Nutbeam (2008) identified three levels of health literacy, which are:

1. *Functional Health Literacy Level:* The level at which an individual is expected to possess the ability to apply basic health skills such as reading and understanding medication labels (cognitive skills)
2. *Interactive Health Literacy Level:* The level at which an individual is expected to use cognitive skills and operate in a social environment that supports social participation in health-related issues in the community.
3. *Critical Health Literacy Level:* The level at which an individual is able to evaluate health issues, determine the challenges and advantages of specific issues, recognize the potential benefit of a particular strategy, and offer advice at the community level.

Nutbeam (2009) further explained that at each level of health literacy, successfully completing tasks to maintain or improve health involves specific skills. These skills require a capacity for understanding health information within a given perspective or belief system, and an empowered proactive approach to achieving health related goals, which may be identified as competence. To Jensen, King, Davis & Guntzville (2010: 807) health literacy:

is an individual's ability to find and use health information. As such, health literacy could include basic skills (e.g., reading, writing, mathematics, speaking), cognitions (e.g., self-efficacy, health motivation), and environmental factors (e.g., access). Put another way, what constitutes health literacy may be situationally dependent. It is whatever an individual needs to successfully navigate their health care environment (Jensen et al., 2010: 807).

Hepburn (2012) suggested that health literacy can be improved through the provision of information, effective communication, and structured education, and that it can be regarded as a measurable outcome of health education or patient education. Improvements in health literacy can be assessed through the measurement of changes to the knowledge and skills that enable well-informed and more autonomous health decision-making. A health literacy programme for proper waste disposal is thus a health-based programme at the community level that is meant to provide residents with needed health care information on dangers associated with improper waste disposal and human health. It is meant to equip residents with adequate health literacy awareness, knowledge and skills needed to process and understand health information and services in order to be able to make appropriate health decisions.

Unfortunately, several the inhabitants of Onitsha lack awareness of what their action impacts on their immediate environment and their health at large. They are indeed often blinded by their local belief that “*dirty does no kill black man*”. This a local parlance that is generally perpetuated and nurtured by these residents and contributes to their attitude toward waste disposal. They also have the belief that anything can be thrown into gutters and canals, that it will be washed away to the river, that the river does not run dry (*orimiri anaghi ata ata*) and that their tiny household waste cannot pollute it. This explains why many drainage and canals are blocked within Onitsha.

The question of their ‘blind’ belief in “*dirty does no kill black man*” is of considerable concern and has contributed *laissez-faire* attitude towards waste disposal which - despite government environmental sanitation measures - is damaging to the

sustainability of the environment, human health, and life in general and requires a re-orientation of the residents' awareness and action through appropriate educational programmes. Through the Anambra State Waste Management (ASWAMA) programme, the government has adopted different measures to improve residents' attitude toward waste disposal, and among the measures is community health education programme. This has introduced residents, largely housewives, to knowledge on waste management and disposal, health risks associated with improper waste disposal, and the effects of improper waste disposal on the environment. This research aims to investigate the extent to which the community health literacy has influenced waste disposal habits of housewives in Onitsha.

3. The Research Questions and Methodology

The purpose of this study is to examine the influence of health literacy programme on proper household solid waste disposal habits among housewives in Onitsha. The study focuses on women, since waste disposal is still considered exclusively one of their roles in society. The specific research questions are designed to ascertain:

1. The extent to which the health literacy programme has introduced housewives to the health-related dangers associated with improper household waste disposal habits in Onitsha.
2. The extent to which health literacy programme has equipped housewives with requisite knowledge of proper household waste disposal in Onitsha.
3. The extent to which health literacy programme has orientated housewives in Onitsha towards a positive attitudinal change as regards proper household waste disposal habits.

The study adopted a descriptive survey design, since it only focused on soliciting information from women living in different households in the area where the study was conducted. The population of the study is 4000 women from 20 streets within Onitsha metropolis where indiscriminate waste disposal is more evident (see figure 4 for a map of the area of study).



Figure 4. Maps showing Onitsha Metropolis.

A simple random technique was adopted to select 60 women each from the 20 streets, which gave a total of 1200 housewives. The women were selected from those who have been involved in the health literacy programme in the area studied. The instrument used for data collection was a researcher designed questionnaire called the “Health literacy and Proper Solid Waste Disposal Habits among Housewives Questionnaire”. The instrument was face validated by two experts in measurement and evaluation from the department of Adult and Non-Formal Education, University of Port Harcourt while the content validity was carried out by psycho-statisticians in Faculty of Education in University of Port Harcourt. The instrument has a reliability index of 0.72%. The instrument was designed on a four-point modified Likert scale. Data collection was carried out by the researcher with the help of two trained research assistants. Data collected was analyzed through descriptive statistics using a statistical package for social sciences (SPSS 25). A decision on each research question was based on a criterion mean of 2.5. Any mean score that is equal to or greater than 2.5 (the criterion mean derived from the four-point Likert scale) is accepted as a positive response (high extent) while any mean score lesser than 2.5 is a negative response (low extent).

4. Results

4.1 Research Question One

To what extent has the health literacy programme introduced housewives to the health-related dangers associated with improper household waste disposal habits in Onitsha?

S/N	Statements	X	SD	Decision
1	You learnt that throwing waste around can create favorable conditions that will lead to the survival and growth of microbial pathogen which are responsible for airborne disease such as cholera.	2.80	0.818	High Extent
2	You learnt that uncollected solid waste can also obstruct storm water runoff, resulting in the forming of stagnant water bodies that become the breeding ground of disease.	2.70	0.705	High Extent
3	You learnt that direct dumping of untreated waste in rivers, seas, and lakes results in the accumulation of toxic substances in the food chain through the plants and animals that feed on it and when we catch these animals and consume them we will be infected with disease such as liver problems.	3.09	1.092	High Extent
4	You learnt that burying or improper disposal of hazardous waste components such as empty insecticide containers can result in explosion and injury to passersby.	2.82	0.750	High Extent
5	You learnt that waste plastic water bottles break down to release a harmful component which hurts our reproductive capabilities, causes liver dysfunction and weight loss issues.	2.90	0.920	High Extent
6	You learnt that rainfall easily mixes with toxic liquid substances and seeps into the water streams to end up in nearby water bodies which affects the quality of water in your area.	2.83	0.872	High Extent
7	You learnt that harmful greenhouse gases are created from decomposing waste and that the gases cause lots of health challenges.	3.08	1.004	High Extent
8	You learnt that heaps of waste that litter the streets are breeding ground for diseases carrying mosquitoes which spread sickness and death among the living population.	2.97	0.942	High Extent
9	You learnt that landfill gases such as smoke (carbon) and methane are cancerous.	2.97	0.947	High Extent
10	You learnt that smoke that is emitted from landfills and refuse dumps creates respiratory viability problems in humans.	2.89	0.923	High Extent

11	You learnt that landfill explosion of cans put people nearby at constant risk.	2.74	0.734	High Extent
12	You learnt that when we come in contact with waste, it causes skin irritation and blood infection.	2.91	0.995	High Extent

Table 1. The responses to items 1-12 gave mean scores and corresponding standard deviations that demonstrate positive responses. The results thus indicate that the community health literacy programme has achieved to a high extent the objective of introducing housewives in Onitsha metropolis to the health-related dangers associated with improper household waste disposal habits.

4.2 Research Question Two

To what extent has the community health literacy programme equipped housewives with necessary knowledge concerning proper household waste disposal in Onitsha?

S/N	Statements	X	SD	Decision
13	Through the community health training programme on waste management, you have learnt how to sort you household waste to minimize waste you generate daily.	2.65	0.949	High Extent
14	You bag your waste properly now and dispose it to waste trucks at appropriate time due to awareness of dangers associated to improper waste disposal.	2.55	0.605	High Extent
15	You no longer pour your waste into gutters when it is raining due to knowledge of dangers associated with the act you learnt from the health literacy programme.	2.76	1.010	High Extent
16	You no longer throw your waste on the floor of the pedestrian walkway along the street due to awareness on implication of indiscriminate dumping on waste on the environment.	2.55	0.548	Low Extent
17	You now practice local recycling of waste in your home to reduce waste generated.	2.57	0.740	High Extent
18	You practice re-use of bottles, polythene bags, and other items that I usually threw away due to the input you got from the community health education programme.	2.58	0.751	High Extent
19	Pollution education will improve habit of people of not discharging solid wastes into drainages and other water ways within and outside your area.	2.95	1.035	High Extent

20	You sort out cans from my waste due to awareness of it been an explosive item that is injurious to human life.	2.83	0.964	High Extent
21	You do not bury your broken bottles, plates, and glasses in the ground due to your knowledge of the negative impact of such act on the environmental sustainability.	2.69	0.658	High Extent
22	You keep to the time that the government has stated for throwing of refuse, to put your waste in the waiting waste van to avoid dumping it on the ground.	2.60	0.791	High Extent

Table 2. The responses to items 13-22 gave mean scores and corresponding standard deviations that demonstrate positive responses, with the sole exception of item 16, which implies that indiscriminate dumping may remain a problem. The results indicate that the community health literacy programme has achieved to a high extent the objective of equipping housewives with requisite knowledge of proper household waste disposal in Onitsha. The mean scores are generally slightly lower than for research question 1.

4.3 Research Question Three

To what extent has the community health literacy programme orientated housewives in Onitsha towards a positive attitudinal change as regards proper household waste disposal habits?

S/N	Statements	X	SD	Decision
23	Through the community health education programme, your attitude toward dumping solid wastes at designated dumpsites has improved	2.80	1.050	High Extent
24	Your attitude to seeing dirt as what cannot kill a black man change due to the input you got from the community health literacy programme	2.81	0.788	High Extent
25	You no longer participate in roadside waste dumping due the input you got from the community health education programme	2.91	1.033	High Extent
26	You now regard my immediate environment as a place that requires nurture and care due to the awareness you developed through the community health literacy programme	2.73	0.806	High Extent
27	Your attitude toward maintenance of clean environment has improved due to experience you got from the community health literacy programme	2.79	0.866	High Extent

28	Your attitude to throwing waste into gutter when it rains has been changed due to the input you got from the community health literacy programme	2.79	0.888	High Extent
29	You now participate in programme that contribute to the beautification of the environment	3.13	1.044	High Extent
30	You participate in weekly environmental sanitation exercise due to the input you got from the community health literacy programme	3.12	1.041	High Extent
31	You regularly speak to neighbors about the need to keep our environment clean by not dumping our waste on the floor, walkways and streets	2.88	0.746	High Extent
32	You champion the cause of bagging waste before disposal in your neighborhood	2.80	0.884	High Extent

Table 3. The responses to items 23-32 gave mean scores and corresponding standard deviations that demonstrate positive responses, without exception.

The results indicate that the community health literacy programme has achieved to a high extent the objective of orientating housewives in Onitsha towards a positive attitudinal change as regards proper household waste disposal habits. The mean scores are once again generally slightly lower than for research question 1.

Discussion and conclusions

Okorie (2016) and Okorie and Amadi (2017) argued that the provision of environmental sanitation, pollution, hygiene, and community health education programmes would help to create awareness of proper waste disposal habit among residents and demonstrate good sanitary behavior and practice of responsible waste disposal, as well as the importance of protecting the environment. The findings of this study show that the community health literacy programme has to a largely high extent successfully introduced housewives to the health-related dangers associated with improper household waste disposal habits.

The study also shows that community health literacy programme has equipped housewives with basic necessary knowledge concerning proper household waste disposal such as sorting of household waste to minimize waste generated daily, bagging of waste, and disposing them at appropriate time, practicing of local recycling at home to reduce waste generated, and other measures. The results also reveal that community health literacy programme has orientated housewives towards a positive attitudinal change as regards proper household waste disposal habits, that women are aware that waste should be dumped properly at

designated site at the appropriate time stated by authorities in charge of waste collection, and that the widespread belief that dirt cannot kill a black man has changed due to the input they received from the community health literacy programme.

Further confirmation that women's attitudes towards their immediate environment are gradually changing can be seen in the way that they now speak to neighbors about the need to keep their environment clean by not dumping our waste on the floor, walkways, and street roads. To consolidate on these results, it will be necessary to create incentives for housewives to broaden attendance of such programmes, to provide periodic follow-up training programmes to maintain and further promote what has already been achieved, and to develop health literacy programmes concerning appropriate waste disposal habits for all members of society so that the burden of responsibility does not permanently remain with women alone.

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