
Assessment of the Use of Dustbin on Solid Waste Management Practices in Public Secondary Schools in North-Eastern States, Nigeria

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ABSTRACT: *This paper investigated used of dustbin collection method of solid waste management practice in public secondary schools in North Eastern States of Nigeria. One research question and one Hypothesis was formulated. A descriptive survey research design was used in this study. The population for the study comprised the entire public secondary schools in North Eastern States, Nigeria with a population of 18,595 (eighteen thousand, five hundred and ninety-five). The sample size used for this study was three hundred and seventy-seven (377) respondents. The researchers used simple random sampling technique to select three states in the North Eastern States, Nigeria. Six (6) public secondary schools were selected from the three (3) selected states. Data collection instrument was research developed questionnaire; duly validated by expert of Health Education and has a reliability index of 0.84. Out of three hundred and seventy-seven questionnaire copies that were administered, three hundred and forty-nine were duly completed and returned for analysis. Percentage/ frequency count was used to describe the demographic characteristics of the respondents; chi-square was used to test the Hypothesis at significant level of 0.05. The finding for this study revealed that, public secondary schools in North Eastern States, Nigeria significantly practiced the used of dustbin collection method of solid waste management practice in their schools. It was recommended among others that North Eastern State governments and pubic secondary school administrators should collaborate with NGOs and Ministry of Health to double their effort on creating awareness for the utilization of dustbin method practice to reduces the danger of hazards of solid waste.*

KEYWORDS: dustbin collection method, solid waste, public schools

INTRODUCTION

Every school generates solid waste arising from routine activities such as class work, sweeping, serving of food, and bush cutting. The common types of solid wastes found in various schools in less-developed countries include paper, grass, nylon, sachet water bags and biscuits cartons, lollypops, ice cream, and sweet or candy wrappers, sugar cane, maize cobs, and groundnut shells (Shobeiri, Omidvar & Prahallada, 2007). Other forms of solid wastes may also be found on school premises, and these may not have even been generated directly by pupils and teachers. Age, gender, educational status, and amount charged for waste collection services had been identified as a common use of dustbin common method of solid waste management in highly populated schools in African countries (Ajani, 2020).

However, what obtains today based on observation, Public secondary schools in Northern Nigeria solid waste are dumped which have sprung up all over the schools, Rubbish, ash, garbage, animal carcasses and droppings are dominant in the school. These reduce the environmental quality and results in creating a convenient breeding ground for vectors of diseases like malaria, dysentery, respiratory tract infections, diarrhea and cholera, these debasing the aesthetic value of the schools with accompanying health risks; which subsequently affect the students and teachers' perception and learning performances.

Use of dustbins collection practice is method that involved large bucket with lids or wooden boxes, which has covered house to collect dry refuse vegetable peeling, burners, fruit skin, papers, glasses, broken bottles, green leaves etcetera. Use of dustbin in school's communities consider user-based dustbin that can stimulate waste-reduction efforts and reduce existing tax burdens. A waste container is a container for temporarily storing waste, and is usually made out of metal or plastic. Some common terms are dustbin, garbage can, and trash can. "Garbage" may refer to food waste specifically (when distinguished from "trash") or to municipal solid waste in general. In 1875, the first personal rubbish bins were introduced in Britain to create a regulated system of trash collection (Vinod & Venugopal, 2010).

There are various styles of dustbin, designed for specific uses. Household dustbins tend to be small, so that they can fit in a variety of places, while curbside bins are larger, allowing people to transfer rubbish from indoor dustbins into larger outdoor ones for periodic collection. In addition to basic dustbins for home use, it is also possible to see especially large versions and dumpsters for industrial use Smyth, Sara, (2014). Many people use the term "dustbin" to refer specifically for a container for unwanted garbage, differentiating a dustbin from a recycling container or a green waste bin. In many communities, growing concerns about the generation of waste materials have led to a diversity of dustbin options, encouraging people to recycle goods whenever possible, rather than tossing them in the garbage to be burned or buried in a landfill. One interesting side effect of this is the shrinking of dustbins; in many areas, dustbins are much smaller than recycling and green waste bins, to encourage people to reduce the amount of garbage they create (Anachuna, 2015).

Statement of the Problem

One of the greatest problems facing developing countries is the unhealthy disposal of solid wastes which result from human activities for survival. The poor state of waste management in the schools in African countries are caused by inadequate health education awareness inadequate, facilities, poor funding, poor implementation of policies, wrong lifestyle.in schools, inadequate living standards and increase enrolments of school children due to government policies in developing countries increase the quantity and complexity of generated solid waste in schools. If the waste is accumulated, it may lead to degradation of the urban schools' environment, stress on limited natural resources, and various health issues. Globally, most public schools are facing a high level of pollution. The situation in developing countries schools including Nigeria is more acute, partly because of the lack of adequate solid waste disposal facilities and people's negative attitude towards the environment. There is strong evidence which suggests that individual or group awareness and attitudes towards waste generation and management is critical in the effort to respond to the waste management challenges (Shendell, 2015).

The negative attitude towards the schools' environment also presents itself in the educational institutions aggravated by constant changes, not just in curriculum content but also school subjects. For example, health education as school subject has replaced hygiene where students were once taught sanitation of the environment, which provides opportunity through which the act of waste management and sanitation can be, learnt (Oyerinde, 2016). However, Poor solid waste management practices in Public Secondary Schools in Nigeria reduce the environmental quality and results in creating a convenient breeding ground for vectors of diseases like malaria, dysentery, respiratory tract infections, diarrhea and cholera, these debasing the aesthetic value of the schools with accompanying health risks

It is against this aforementioned that, this study investigated use of dustbin method of solid waste management practices in Public Secondary Schools in North Eastern states, Nigeria.

Therefore, the study was attempted to answer the following research question

✓ Do Public Secondary Schools in North Eastern states, Nigeria practice solid waste management?

Hypotheses

❖ Use of dustbins, is not a significant method of Solid Waste Management practice in Public Secondary Schools in North Eastern states, Nigeria.

METHODOLOGY

Descriptive research survey design was used for the study; the design is suitable to gather information for the research, for the purpose of describing research variables. The population for this study comprises all public secondary schools in North Eastern States an estimated population of 18,595 in thirty-six (36) schools where by six (6) schools were selected from the three states of North East, Nigeria. Sources: (Adamawa, Bauchi, Borno, Taraba and Yobe state ministry of Education, 2015). The sample was selected using Krejcie and Morgan, (1970). In their table for "Determining Sample Size for Research

Activities. The selected sample size for the purpose of this study was three Hundred and seventy-seven (377). Since the population of this study was 18, 595. Simple random sampling method was used to select three (3) states out of the six (6) states in the study area. This was achieved through using slips of paper and the representative of the states were asked to pick the pieces of paper, those that pick 'yes' were part of the sampled schools and those that picked 'no' were not part of the schools conducting the research.

To achieve the purpose of the study, a researcher developed questionnaire was used to find out the use of dustbin method of solid waste management practices in Public Secondary Schools in North Eastern States, Nigeria, this questionnaire comprises two (2) sections, Section 'A' was designed to find out the demographic information of the respondents, and section 'B' was also designed to determine the use of dustbin method of solid waste management practices. Similarly, four points (4) modified Likert scale response mode was adopted to collect data for the study and the rating scores were as follows: Strongly agree = 4 points; Agree = 3 points; Disagree = 2 points; strongly disagree = 1 point. To ensure that the instrument measures what it is supposed to measure, face and content validity of the instrument was done by the experts in the field of health education, Department of Physical and Health Education, Bayero University Kano. The necessary corrections, suggestions and comments by all these experts were taken care of before the administration of the instrument. The reliability of the developed questionnaire was tested using test re-test reliability method with the aid of Correlation coefficient statistics. A pilot study was conducted using 40 samples of both staff and students of Government College Secondary School, Birnin Kudu North Western State Geo- political zone, other than the schools in focus. After two weeks of first administration, the same instrument was administered on the same participants again. Results obtained from the first and second tests were subjected to statistical analysis of correlation (r) using Pearson product Moment Correlation coefficient and a reliability (r) = 0.84 was established. The researcher used frequency count and percentage to analyze the demographic data of the respondents while the inferential statistics of Chi-square was used to test the Hypothesis. The decision criteria were set at 0.05 alpha levels.

RESULTS

This contain presentation of results of analysis done on the data collected via questionnaire distributed to sampled respondents in Public Secondary Schools in North Eastern States of Nigeria.

Table 1: Response Rate to the Study

School Name	Questionnaire Administered		Questionnaire Returned	
	Population	Percentage	Population	Percentage
	N	%	N	%
G.S.S. Gamawa	86	22.8	76	21.5
G.D.S.S Toro	31	8.2	21	6
G.S.S.Potaskum	80	21.31	80	22.7
G.D.S.S. Bade	79	120.89	79	22.4
G.D.S.S. Dukku	62	16.42	54	15.3
G.D.S.S. Akko	39	10.33	39	11.1
Total	377	100%	349	99%

H₀: Use of dustbins, is not a significant method of Waste Management practice in Public Secondary Schools of North Eastern States, Nigeria

Table 2: Ch-square Summary of Respondents on Use of Dustbins in Public Secondary Schools of North Eastern States, Nigeria

Dustbin	Observed	Expected	df	χ^2 Value	Sig.
Strongly Disagreed	5587.3				
Disagreed	73	87.3			
Agreed	99	87.3	3	29.670	.000
Strongly Disagreed	122	87.3			
Total	349				

χ^2 Cal =29.670, df = 3 (P < 0.05) χ^2 tab =7.82.

The statistics shown in Table 2 with respect to Use of Dustbin Method Practices indicated a calculated chi-square value of 29.670 with degree of freedom of 3, critical value of chi-square when assessed using 0.05 alpha is 7. 82. According to the decision rule for testing hypotheses, the null hypothesis four that say Use of dustbins, is not a significant method of Waste Management practice in Public Secondary Schools of North Eastern States, Nigeria is rejected.

DISCUSSION

The finding of the study indicated that, public secondary schools in North Eastern States, Nigeria practice the use of dustbin method of solid waste management in their schools. The finding is also consistent with the study conducted by Subramani and Omidvar, (2005) on school's solid waste management practice use of dustbins method among students in selected secondary schools in India, where he reported that, schools value the use of dustbin as a method of their solid waste disposal practice because is more simple and easy to carry out in the school. The finding also revealed that, different size skip containers are used as reservoir for the school solid waste, and generated empty cartons, robber bucket are also used as daily class room dustbins.

CONCLUSION/RECOMMENDATIONS

Public secondary schools in North Eastern States, Nigeria practiced use of dustbin as method of their solid waste management. Based on the findings and conclusions drawn, the following recommendations were made:

1. The public school's administrators of North Eastern States, Nigeria and their Ministries of Education should work on a proposal to improve and maintained use of dustbin method of waste management practice in school curriculum to sensitize the younger generation about managing solid waste in a hygienic and scientific manner.
2. North Eastern States Governments and their Ministries of Education should develop a mission of assisting schools by establishing an integrated systems model where academics, administration, and facilities work collaboratively to improved awareness about the value of dustbin method of solid waste into their organizational philosophy, planning, and implementation

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