PSYCHO-DEMOGRAPHIC VARIABLES AND SENIOR SECONDARY SCHOOL STUDENTS' PERCEPTION OF SOLID WASTE MANAGEMENT IN CALABAR METROPOLIS CROSS RIVER STATE, NIGERIA

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Abstract

The research investigated Psycho-demographic variables and senior secondary school students' perception of solid waste management in Calabar Metropolis of Cross River State, Nigeria. To achieve this purpose, two hypotheses were formulated to guide the research. Literature review was done according to the variables under study. The survey inferential design was adopted for the study, and the sample consisted of five hundred (500) respondents who were selected using stratified and simple random sampling techniques. The stratification was based on the students' gender (male and female). The questionnaire titled Psycho-demographic variables and students' perception of solid waste management assessment scale (PVSPSWMAS) was the instrument used for data collection. The reliability estimate of the instrument was established through the Cronbach alpha reliability estimates method. Independent t-test is the statistical analysis techniques adopted to test the hypotheses at 0.05 level of significance, with relative degree of freedom. The results of the analysis revealed that students' attitude and gender significantly influenced their perception of solid waste management. Based on the findings, it was recommended among others that students' should develop positive perception towards solid waste management by doing so. They can dispose of the waste so generated by them.

Keywords: Psycho-demographic variables, perception, solid waste management, students' attitude and gender.

Introduction

Certain factors in the environment affect life, growth and development. One of these is solid waste matter. The solid waste itself could be regarded as any useless, unwanted or discarded material that is not liquid or gas. In most instances it is often irritating, nauseating and sometimes stinking.

The concept of solid waste is seen as any substance that remain as a residue or an incidental by-product of the processing of a substance and for which no use can be found by the organisms or systems that produce it. Solid waste management has emerged as one of the greatest challenges facing state and local government environmental protection agencies in Nigeria. The volume of solid waste being generated has continued to increase at a faster rate in our roads, schools, rivers and other open space than the ability of waste management agencies to tackle this problem in recent times (David, 2010).

The discovery of a major toxic waste dumped by a foreign company at Koko town near Warri in Delta State, Nigeria in 1987) led to the establishment of the Federal Environmental Protection Agency (FEPA) by decree No. 58 of 1988. FEPA regulates the collection, treatment and disposal of solid and hazardous waste from municipal and industrial sources, and makes Environmental Impact Assessment (EIA) mandatory for any major development project likely to have adverse effect on the environment Hodgets (2007). However with proper environmental management and awareness, solid waste like any other wastes can be turn to wealth.

Improper and insanitary disposal of solid waste has serious implication for the environment and public health. The ugly sites and odours from heaps of refuse dumps greatly diminish aesthetic quality of the environment and tourism. Cuts and other injuries can be sustained from open refuse dumps which also provide shelter and breeding ground for rodents, housefly, mosquitoes and other vermin. Solid waste could be garbage, ashes, rubbish, dead animals, industrial refuse, special waste or sewage treatment residues, majority of these waste are quite hazardous which some like rags, food items and leaves are quite biodegradable and are usually taken care of by nature. The total solid waste generation within the European Union and the Europe free trade area increased by nearly 10% between 1990 and 1995, while economic growth has been about 6.6% in constant prices. Half of solid waste comes from manufacturing, construction and demolition activities while municipal waste and waste from other sources contribute about one six of the total (Nnaemeka, 2002).

The throwaway attitude of students in senior secondary school has become a very alarming issue even with the increasing provision of dumpsters at designated positions and the surrounding environment including increasing awareness towards the effects of solid waste and its related health impacts, thereby casing attendant effects of so many health related challenges like cholera and influx of malaria pandemic (Ojong, 2015).

Ibanga (2009), revealed that to a large extent, attitude of people towards sold waste management and disposal could be determined by gender differences between male and female. The male sometimes tend to assume less responsibility towards the perception of solid waste management and sanitation functions to female. This role differentiation could influence their attitude to solid waste management. He also added that attitude towards solid waste management could be seen as an embodiment of character for both individuals. Gender relations can be to show concern over improvement and maintenance of the environment in order to improve the quality of the human habitat and thus improve man's quality of life. In most African societies, the females are usually referred to as the other gender or the weak gender. On the basis of this classification, the females have been given the crumbs from the master table

(Oluyemi-Kusa, 2003).Who are these masters? Oluyemi-Kusa (2003), that these masters are men, who have appropriated the position of leadership. Such appropriation has led to unequal treatment of both sexes. Social differentiation by gender, in many respects brings about untold environmental problems especially in solid waste management.

Solid waste management, in all its ramifications is a planned system of effectively controlling the production, storage, collection, transportation, processing and disposal or utilization of waste, in a sanitary aesthetically, acceptable and economic manner (Udofia, 2005). Solid waste management remains one of the most daunting challenges as a result of industrialization and rapid population growth in many cities. The concern of the Federal Government led to the Promulgation of the National Environmental Sanitation decree of 1985 towards maintaining a clean and healthy environment for the past twenty years, consequently the last Saturday of every month was declared as Environmental Sanitation day, during which individuals and groups would clean their surroundings (Osuji, 2010).

The various solid waste management techniques according to Udofia, (2005) are as follows: (1) Open dumping, (2)Ocean/sea dumping, (3)Incineration, (4)Sanitary land filling (5) Compositing, (6) Encapsulation and, (7) Systemic waste management which is sub-divided into (a) Recycling, (b) Utilization and, (c) Recovery. For the purpose of clarity, the context of this study, the open dumping method of solid waste management will be explained because it affects Calabar Metropolis directly. Open dumping method of solid waste disposal is one and the oldest most commonly used methods. It involves dumping of waste at designated open spots where they are left to decay. The major shortcoming of this method is that it only removes the waste from its source to a new location where it still creates environmental problems. It also constitutes a nuisance to residents at the vicinity of the dump sites. Open dumping does not only act as a medium for vector breeding but also leads to environmental pollution (Akpan, 2012).

In Calabar, the government and its agencies of Cross Waste (Cross River State Waste Management Agency and CUDA (Calabar Urban Development Authority) have taken it upon themselves to give a face-lift to the city as the cleanest and greenest in the entire country. To this end, the main waste management authorities in Calabar Metropolis (Cross Waste and CUDA) which are all located at the metropolis have been directed to take charge of managing all the waste so generated within the municipality and its environs. The authorities have actually tried to live up to their expectation, even with the dwindling nature of the economy, by improving upon the aesthetics of the metropolis. However, this has not been so feasible in the Calabar South Local Government and the Calabar Municipality Local Government.

For CUDA (2005), the waste management system (WMS) which takes care of generated waste is faced with a lot of technical problems ranging from lack of appropriate technical equipment, professional waste managers, technical staff and finance. Since the inception of Calabar South, there has been tremendous increase in the population of the area, thus contributing to increase in the volume of generated waste, and if government does not come to adequately cater for the waste management system, then the situation would be worse for the Local Government Area. (Smith, 2014).

The last fifty years have seen a rapid increase in the rate of demographic growth due to the medical advances and substantial increase in agricultural productivity, particularly from the 1960s. The population pattern of less developed regions of the world in recent years has been marked by gradually declining birth rates and sharp reduction in death rates. This transition from high birth and death rates to low birth and death rates is often referred to as demographic transition (Human population control, 2010).

Anijah-Obi (2001), pointed out that rapid population growth is a global problem because it brings undue pressure on scarce resources and adversely affects the environment and the well-being of the society. Furthermore, she noted that, the urban populations have more than doubled from 17 to 37 percent between 1950 and 1995 and this has continued till date. She further adds that, the United Nations (UN) projections show that by 2025, 60 percent of the world's population will live in urban areas in developing countries.

In Nigeria, as Sule (2004) observed, urban population has witnessed an alarming rate of rural-urban migration in the past four decades, especially after the Nigerian civil war of 1967-1970. The author further asserted that the city of Calabar, the Cross River State capital is a typical example. Rapid population growth rates and commercial activities increase have meant higher consumption and increasing rates of waste generation which have now become a problem in terms of environmental pollution in Calabar metropolis. The recent result of the 2012 National census released by the National Population Commission (NPC) puts Nigeria population at 166.2 million, with an annual average growth rate of 2.35 percent. However, report from the Population Reference Bureau (2005) gave Nigeria's population as 153 million, making it the 8th most populous nation on earth and most populous in Africa. Now its current population is 170 million in (2014). This report places Nigeria as the fastest growing nation while the current world population estimate is 7 billion people in (2014) and 8 billion for (2024).

An attitude is a stable set of mental views and assessment about some idea, object, or person. It is an evaluation of objects to indicate like or dislike toward them, or a positive or negative reaction toward a person, idea or object (Cumming, 2017).

To Obot (2014), the attitude of citizens to solid waste management in our cities and schools is highly determined by citizens' disposition towards life in general. In this regard, it is those who have been part of the process of conceiving, articulating and implementing solid waste disposal policies who appreciate and identify more with the programme. Lawal, Aniah, Uche and Animashaun (2009), observed that majority of the people hardly show interest in proper waste disposal/management. The urban dwellers consume different products whose wastes, particularly solid are emptied into the streets (via road potholes and gutters).

NEST (Nigerian Environmental Study and Action Team) (2005), noted one of the factors affecting people's attitude towards adequate awareness is on the part of the people. In support of the above (Ayang, 2000), posits that this source led to the throwing of house hold refuse and materials at any available space to be collected latter, (if at all) by the garbage trucks most times, the refuse block roads, causing floods during rainy season and even make the road impassable.

Ahmed (2013) said the inability of a city to provide enough personnel and waste disposal tools or equipment for the evaluation of solid waste depends on its level of development. How rich or poor (small and big) a city is contributed to the efficient or inefficient management of solid waste in the city.

NEST (2005), considered the structure of most Nigerian cities as a factor that affects solid waste management. A typical Nigerian city is made up of a traditional inner core and modern section. Very often no forms refuse disposal is available for the traditional core areas because of lack of access to these areas (Sule, 2001). Though this source went further to assert that if people's attitudes are positive they could join hands together at least points by which the solid waste management vans could not reach and evacuate them.

Etim (2014), maintained that positive attitude towards the management of waste by students will lead to improvement in public health and general cleanliness of a place, while negative attitude of the students on the other hand will lead to deterioration in public health and general cleanliness of a place. He also added that the major reason why experts advocate proper solid waste management is to enhance the healthiness of the environment.

Bose (2016), pointed out that uncontrolled and incomplete combustion of solid waste materials could result in the release of undesirable pollutants into the atmosphere such as sulphur dioxide, nitrogen oxide and other toxic pollutants that are destructive to living organisms in the environment. These pollutants are responsible for acid rain, ozone layer depletion and green house effects and diseases that attack humans today. Since undesirable attitude towards solid waste management is dangerous, it is left for people to take the issue of solid waste management seriously.

Bose (2016), asserted that inefficient management of solid waste resulting from poor attitude to waste disposal causes, among others, one fundamental problems affecting human health and the entire ecosystem in general. Waste water of all sorts, this source added as well as garbage, rubbish, ashes, dead animals, industrial wastes constitute deadly affront to human health by their internal composition of viruses and disease causing micro-organisms.

Obot (2014), in her study on attitude towards environmental sanitation shows that psychologically, "Ego" involvement through public participation reduces friction, resentment, resistance, rejection and confrontation. This is largely confirmed by the attitude of students towards solid waste management in our cities and schools. In this regard, it is those who have been part of the process on conceiving, articulating and implementing solid waste management/disposal polices who appreciate and identify more in the programme. A complementary strategy to well-educated Nigerians is the development of an effective environmental education programme, capable of helping them to capture awareness of the environment, and thus concluded that such education should also help them to develop skills for proper solid waste management and to correct any abuse to our environment.

Voblan Nur (1999), carried out a study to determine people's attitude towards change from disposing solid waste into the Jakarta-Bay, Indonesia, which had hitherto suffered great damage. This bay receives fresh water from 13 rivers, which cross the Jakarta metropolis where around 20 million people live. From the result of analysis, it was found that with modern system of incinerators at different locations in the city, people still love disposing their generated waste into the rivers. To some it is due to proximity, to others they do not have money to buy land for landfill disposal. Other yet say the fees charged per household for disposing at the incinerators are too high. As the result of the obstinacy among the Jakarta people, the United Nation international congress on environmental education and training (UNICOET, 1989) in collaboration with national and international scientific organization started organizing campaigns to enhance attitudinal change amongst the people, and at the same time collecting data on the status of the coral reef in the Jakarta bay. Ten years later (in 1995), the UNICOEET organized the secondary workshop to re-evaluate the people's attitude towards alternative means of solid waste disposal into the rivers, and at the same time collecting more data on the coral reefs of the bay. It has been found that in addition of serious statutory provisions, the people are now showing serious concern for their bay, and also are fully involved (about 80%) in solid waste disposal, management by method of incineration.

To Anijah–Obi (2011), if Nigeria could embark on serious mass literacy programmes for change of attitude amongst its citizens, then most of our citizens would be able to overlook some of our social, religious and cultural beliefs and activities (like consumption patterns) which for now still stand on our way only receiving it into practice as it is done in developed nations.

These findings are in support of Lawal, Aniah, Uche and Animashaun (2011) who found in their study that majority of Nigerians still lack interest in the phenomenon of solid waste management. This lack of interest has caused the people to cultivate perpetual negative attitude towards solid waste management in particular. NEST (2005) also agrees with the findings of this hypothesis by asserting that lack of interest and awareness on the part of students and the citizens which could cause them to develop perpetual negative attitude towards solid waste management. NEST therefore advocates for mass awareness campaigns by the government in the form of advertisement via the TV, Radio and the print so as to sensitize citizens to be aware and always cultivate positive attitude towards solid waste management.

The findings also agrees with Etim (2014), who asserted that if people cultivate positive attitude towards solid waste management, there is also an improvement on the health and aesthetic beauty for the place in question, while negative attitudes on the part of the people would lead to deterioration of public health.

Freeney (2010), maintained that gender denotes the qualities associated with men and women or boys and girls that are socially, culturally and biologically determined. Gender issues have come to occupy a place of pride in international policies. In the international development agenda of the twenty first century, outlined in the Millennium Development Goals (MDGs), gender is prominent.

Ekpenyong (2006), from the research conducted about gender and participation, observed that gender is a social construct that establishes and differentiates status and roles between boys and girls particularly in the way they contribute to, participate in and are rewarded by the economy and the prevailing social systems.

Freeney (2010), asserted that one obvious issue concerning government deliberate policies and programmes is its varied implication for men and women in society. Gender concerns involve women as well as men. Hence, understanding gender means understanding the opportunities and constraints as they affect both men and women. Therefore, for the objective of solid waste management to be achieved, men and women must have understanding of aesthetics and cleaner environment and the desire to change their perceptions towards solid waste management.

According to Tony (2006), solid waste management can be of different types, such as primary treatment, secondary and tertiary treatment. Primary treatment involves the use of screens to filter out large debris through a sedimentation tank, for the suspended solids to settle as sludge. The secondary treatment uses a biological process to breakdown wastes. The Tertiary treatment requires series of specialized chemical and physical process to reduce the quantity of one or more of the pollutants remaining after primary and secondary treatments through precipitation, absorption and electro dialysis or reverse osmosis. The actualization of this laudable knowledge requires active involvement of men and women in the society. This shows that a number of gains are likely to result positively when men and women or boys and girls are jointly participating in the management of solid waste.

Ancient Yoruba Sages believed that neither the man nor the woman was a perfect being (Oluyemi-Kusa, 2003). What this proverbs stress is that men and women are complementary partners in progress. Around the world, men have been found dominating

the economy, social institutions and waste disposal/management. Potentials of women are often underutilized and their contributions are undervalued.

In 1998, a national policy on women was designed to protect women against all forms of discrimination. This policy was as a result of several years of resolutions by the United Nations, African Union (AU) as well as the non-governmental organizations (NGOs).

Anijah-Obi (2011), asserted that women are the producers of food, fetchers of water, collectors of fuel wood and other responsibilities, such as healthcare, child bearing, sanitation, participation in agricultural and pastoral production, among others. She further added that women are in constant interaction with the environment and by implication bear greater responsibility for it protection and destruction. This assertion clearly points to the fact that female gender has the acceleration needed to promote development and solid waste management if given a chance.

Gender discrimination is one of the major causes of conflict in school or work organization. Women or girls cannot be regarded as subordinate, passive and quiescent members of society. In many instances, it is precisely that their subordination and roles as nurturers and care givers within the community that makes women so determined and committed to struggle for peace and society justice. Oluyemi-Kusa (2003), observed that men tend to go into negotiations expecting one side to win and other loses whereas women look for points of commonality and are less afraid to compromise. This admirable trait of talk to finish distinguishes the female gender. In many instances, when talk breakdown on the big issues and the men walk out the women are left at the table.

From his research on gender, peace and conflict in Africa, Oluyemi-Kusa (2003), found out that women organizations played difficult but critical roles in the campaign for peace during Liberia's bloody civil war as well as cases of civil war in Sierra Leone, Ruanda and Guinea. He argues that because of the significant roles played by women peace, democracy have been consolidated in those countries.

From the foregoing, it is clear that men cannot work alone and men and women can involve in a complementary way more actively in development, economy and in solid waste management. Men and women have different needs and this consideration has not received adequate attention among development planners. This calls for gender mainstreaming of the centre of development, economic and solid waste management (Hodgets, 2007).

According to Oluyemi-Kusa (2003), Nigeria for example, is already involved in gender mainstreaming. It ratified the convention on the elimination of all forms of discrimination against women in 1985 and is currently domesticating the convention. He further stated that the creation of the ministry of women affairs, the formulation of the national policy on women and the establishment of special units at the Federal, State and Local government levels attest to government's commitment to gender equality and social justice.

In his address at the 2011 partnership funded mentorship summit for African women in Abuja, the Nigerian president Goodluck Ebele Jonathan observed that in the country of present, there are many competent and credible women who have built capacities in Thousands of lives and contributed immensely to building of the civil, public and private service sectors. He further stressed that, women had championed debt relief, grown the stock exchange, waged war against fake drugs, ensured justice and human rights, among others (Newswatch magazine, May, 16, 2011). Apart from the above assertion by the president of Nigeria.

In a study conducted by Okpokwasili and Oguegbue (2006) on gender and perception towards solid waste management, a well validated instrument of 32 items was administered to the respondents. Data collected were analyzed using independent t-test analysis. The result of the analysis revealed that the approach to the solid waste management/disposal in the developed world is called Integrated Waste Management (IWM). According to them, integrated waste management consists of hierarchical and co-ordinate set of actions that reduce pollutions seeks to maximize recovery of reusable and resizable materials and protects human health and the environment.

It has been noted, however that human exposure to solid waste leads to impairment of the immune system. As pointed out by Sridhar (2006), wastes collectors showed elevated incidence of pulmonary diseases which are probably related to exposure to biological active agents, volatile compounds or mold spores.

There is great need for proper waste disposal to avoid the outbreak of epidemics. There is need for the government to take adequate measure on proper solid waste managers to register waste collectors in the metropolitan cities to provide them with vaccination for hepatitis A and B, tetanus, typhoid and provision of annual medical examination. All these forms will ensure adequate solid waste management if gender issues is taken into consideration.

Statement of the problem

One of the major problems confronting the citizens of Calabar Metropolis of Cross River State is solid waste management. The need for people to develop positive attitudes and participate actively in effective solid waste management has become imperative in view of the littering and unhealthy condition of our environment in the last decade.

Despite all efforts by government and waste management agencies towards evacuation of solid waste from residential and commercial areas over the years, the volume of waste generated and the manner in which it is being disposed remain a source of concern to various stakeholders in the field of environmental protection and management. One of the ways adopted by the waste management experts and authorities is the provision of additional refuse bins and formulation of stern penalties for those who litter the environment; this has only yielded little positive outcomes.

A serious environmental menace occurred in the month of November and December (2018),where the entire Calabar metropolis of Cross River State was filled up with solid waste constituting an eye sore to both visitors and inhabitants including schools, residential locations and open streets and its effect were visible in flood disasters, road blockage and ill-health. Some of the major factors identified as contributing to this deplorable state of affairs are lack of adequate storage bins for appropriate disposal of waste, lack of environmental awareness, the indiscriminate throwaway habit of students, negative attitudes posed by most of the students and younger students dumping waste on road gutters and on the grounds.

The senior secondary school students usually poses this non-challant attitude of throwaway solid waste which to them they will in turn use the junior students to dispose such waste which is not a very good positive attitude to solid waste management, this has led to dirty environment within the classes of these secondary school students which is really a challenge that has to be provided with a solution as tis study progresses.

Purpose of the study

1. Determining the influence of students' attitude on perception of solid waste management in Calabar metropolis.
2. Examining how students' gender influences their perception of solid waste management in Calabar metropolis.

Statement of hypotheses

1. The attitude of students' does not significantly influence their perception of solid waste management in Calabar metropolis.
2. There is no significant difference between male and female students in their perception of solid waste management in Calabar metropolis.

Methodology

The research design adopted for this study was survey inferential design which is a sub-category of descriptive survey research design. Survey Inferential Design Involves the collection of data to accurately and objectively describe existing phenomena. This approach is employed to obtain a picture of the present conditions of particular phenomena.

Kerlinger & Lee (2000), describes the survey inferential design as that which is directed towards determining the nature of a situation as it exists at the time of investigation. He further described it as a type of research that studies large and small populations by selecting and studying samples chosen from the population to discuss the relative incidence, distribution, interrelation of sociological and psychological variables.

The area selected for this study is Calabar metropolis, the choice of this area was based on the fact that the researcher had lived and associated themselves for a considerable longtime knowing every nook and cranny of the local government area and so knows very well the extent to which waste is generated and managed in the area. Calabar metropolis comprises two local government areas namely; Calabar Municipality and Calabar South.

The target population of this study consisted of all senior secondary school class two (SS 2) students in public secondary schools of Calabar Metropolis, in the 2017/2018 academic session. The number of senior secondary school students in SS2 in the entire Calabar Metropolis population is 2,848 students.

Table 1: Distribution of students in senior secondary schools (SSII) by sex and Local Government areas in Calabar Metropolis of Cross River State.

S/N	L.G.A	No. of Sec. Schs.	No. Of students in SS II		Total pop. Of students
			Male	Female	
1	Calabar Municipality	15	767	1168	1935
2	Calabar South	7	373	540	913
	All totals	22	1140	1,708	2,848

Source: Cross River State Secondary Education Planning, Research and statistic unit, April 2019.

The sampling techniques adopted in this study were stratified and simple random sampling process. The area was stratified into two (2) local government area, Calabar

Municipality and Calabar South, for even distribution, ten (10) secondary schools were used for the study, six from Calabar Municipality and four from Calabar South local government using 46% of the total schools selected by the use of folded paper bearing odd and even numbers.

The sample for this study comprised the student (SSII) in selected public secondary school in Calabar Metropolis. A total of five hundred (500) senior secondary (SSII) students drawn from two Local Government Areas of Cross River State, made up the sample for the study.

Table 2: Distribution of sample in selected schools with their gender.

S/NO	L G.A	Study Schools	Gender Male	%	Female	%	Sample
1	Calabar Municipality	1	23	11.5	31	10.3	54
		2	21	10.5	29	9.7	50
		3	18	9.0	30	10	48
		4	16	8.0	28	9.3	44
		5	17	8.5	32	10.7	49
		6	18	9.0	32	10.7	50
2	Calabar South	7	19	9.5	31	10.3	50
		8	22	11.0	29	9.7	51
		9	21	10.5	28	9.3	49
		10	25	12.5	30	10	55
	All totals	10	200	100	300	100	500

Source: Field survey, 2019.

The instrument used for the study was the structured questionnaire titled Psycho-demographic Variables and Students' Perception of Solid Waste Management Assessment Scale (PVSPSWMAS) with two sections: A and B. Section A dealt with demography data on sex, age, educational qualification, occupation, class size, school name, type of class enrolled, etc.

Section B had thirty three (33) Likert type items to measure Psycho demographic variables and senior secondary schools students' perception of solid waste management. Respondents were required to tick just one answer: strongly agree (SA), agree (A), disagree (D), and strongly disagree (SD), to measure the extent to which the respondents agree or disagree with them.

Presentation of results

Hypothesis one

The attitude of students' does not significantly influence their perception of solid waste management in Calabar metropolis.

The independent variable in this hypothesis is students' attitude and this was categorized into positive and negative. The dependent variable in the hypothesis is perception of solid waste management (PSWMT). To test the hypothesis, data for the two variables were extracted from the data chart bank and arranged according to each variable.

The data were then summarized into means (x) and standard deviations (SD) and then finally subjected to statistical analysis using the independent t-test statistical technique or tool. The analysis was done and the result presented as shown in table 3.

Table 3: Independent t-test analysis of the influence of students' attitude towards their perception of solid waste management in Calabar metropolis (N=500).

S/No	Depdt var.	Students' attitude (SA)	N	$\overline{x}$	SD	df	t-cal
1.	PSWMT	Positive Att	224	25.83	4.06	498	-6.93*
		Negative Att	276	28.45	4.38		
		Totals	500	27.15	4.22		

*Significant of the group at p<.05, df=498, crt. t=1.960

As could be observed from table 3, the calculated t-value of -6.93* was higher than the critical t-value of 1.960, needed for significance at 0.05, with 498 degrees of freedom. The null hypothesis was therefore rejected. This means that students' attitude significantly influence their perception of solid waste management. However, the more negative students' attitude towards the environment the higher the volume of solid waste generated (see table 3 for X_2 =28.45, X_1, 25.83, t= 6.93), from that the more negative students are in their attitudes towards the environment, the more it is difficult to manage the environment and the more it is difficult to manage the generated solid waste.

Hypothesis two

There is no significant difference between male and female students in their perception of solid waste management in Calabar metropolis.

The independent variable in this hypothesis is students' gender and this was categorized into male and female. The dependent variable in the hypothesis is perception of solid waste management (PSWMT). To test the hypothesis, data for the two variables were extracted from the data chart bank and arrange according to each variable.

The data were then summarized into means (X) and standard deviations (SD) and then finally subjected into statistical analysis using the independent t- test statistical analysis using the independent t-test statistical technique or tool. The analysis was done and the result presented as shown in table 4.

Table 4: Independent t-test analysis of the influence of students' gender on their perception of solid waste management in Calabar metropolis (N = 500).

S/NO	Depdt. var.	Students gender (SG)	N	$\overline{X}$	SD	Df	t-cal
1.	PSWMT	Male	200	80.84	4.14	498	-4.142*
		Female	300	100.29	5.62		
		Totals	500	90.57	4.88		

*Significant of the groups at P<.05, df = 498, crt. t = 1.960

The result in table 4 indicated that, the calculated t-value of -4.142 was higher than the critical t-value of 1.960 needed for significant at 0.05 level with 498 degree of freedom. The null hypothesis was therefore rejected. This means that, there is a significant difference between male and female in their perception of solid waste management in Calabar Metropolis.

Conclusion

Based on the results of the analyses of each research hypothesis of the study, the following conclusions were made:

The attitudes of students' significantly influence their perception of solid waste management in Calabar metropolis. The more positive students' attitude towards the environment, the lower the volume of solid waste generated and the better the management of generated solid waste.

Students' gender significantly influences their perception of solid waste management in Calabar metropolis. This is because when waste is managed along the sex roles or by virtue of gender difference were female students are allowed to play predominant roles,

Recommendations

Based on the conclusion of the study, the following recommendations were made:

1. Awareness should be created to students' that can change students' negative attitude and interest for positive results since positive attitude facilitates successful academic learning culture.
2. Gender politics should be avoided and every individual should be given equal opportunities for efficient management of solid waste to avoid its attendant health menace.

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