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FACTORS INFLUENCING CONSUMER PREFERENCE FOR CERAMIC SANITARY WARE IN SOUTH-WEST, NIGERIA

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Inordinate disposal of human waste is considered outdated, offensive and unacceptable in most civilized communities, because it disrupts environmental order. Different Sanitary wares products have been designed to hygienically dispose human fecal waste by separating man from disease causing filths. This paper examined the performance of Ceramic Sanitary Ware (CSW) in terms of user preference when compared with other waste management alternatives and factors influencing their choice. Questionnaires were administered to end-users of CSW to collect relevant data on the study. The data was later processed using statistical tools. Consequently, the relative importance index revealed that ease of cleaning (0.98), functionality (0.97), durability (0.97), price (0.96) and coziness (0.96) were the major factors influencing the choice of CSW by end-users in the study area.

Keywords: end-users, fecal, functionality, sanitary, toilets

INTRODUCTION

The issue of waste management in terms of excrement and its disposal can never be overemphasise despite its pervasive presence in our daily lives. It is natural that every man that takes in food and water, must have a way of relieving themselves of waste. This process of disposing excrement could have deadly consequences if not properly managed. Uno and Wen, (1985) opined that the emphasis given to waste varies from community to community. This suggests that certain communities have design ways to manage their faecal wastes. Some secluded places are usually designated or constructed for this purpose base on the financial capacity of the owner or community. Sanitary convenience or toilets are usually furnished with sanitary ware products designed with different materials such as ceramics, concrete, wood, stainless steel, plastic and fibreglass available globally in different sizes, shapes, qualities and brands. Ceramic sanitary wares are sanitary ware products made from clay and other earthen materials, fired to glaze temperatures for managing human faecal waste. Ryan and Radford, (1987)

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acknowledged that ceramic sanitary ware (CSW) products are manufactured with either Vitreous China or Fireclay body usually covered with opacified glaze and appears in a standard white colour or a range of other well-defined colours.

In South West, Nigeria, there are different types of sanitary wares available for use in homes, offices, worship-places, hospitals and other public places but the most commonly see is the CSW. When it comes to choice of sanitary ware utilization, man is an intelligent being whose sense of choice cannot be overemphasised. This study henceforth, examine the factors responsible for user preference of CSWs over other sanitary ware alternatives in South-west, Nigeria, which in turn provides information to guide both local and foreign investors.

LITERATURE REVIEW

Pathak, (1995) revealed that long before the establishment of human abode; people have lived as wanderers and have relieved themselves wherever and whenever they felt like doing so. In prehistoric era people have defecated in open fields, bushes, caves, valleys and river channels without much health consequence. Hence, having considered the population around that period, the researcher is of the opinion that it does not necessarily mean that the prehistoric people were dirty or unhygienic. It was because these settlements were so small and organised in such a way that human waste was so minimal that assaults on nose and health was too small to be a nuisance (Barbara, 2013). As population began to expand, houses were built, small villages began to emerge into towns and cities, the management of human excrement became a major challenge, having to deal with smells and health related issues. This development necessitated the need for environmental sanitation since improper disposal of waste has inextricably linked to health issues which in due course led to the creation of a private secluded place (toilets, lavatories, bathrooms, or latrines) where the body can relieve its waste (World Health Organization, 2012).

Teresi, (2002) claimed that the third millennium BC was the "Age of Cleanliness, when toilet invention began to spring up in several parts of the world, and Mohenjo-Daro circa 2800B.C. had some of the most advanced toilets at that time, with lavatories built into the walls of houses. These were primitive "Western-style" toilets made from bricks with wooden seats on top. They had vertical chutes, through which waste fell into street drains or cesspits. These were only used by the affluent classes. Most people at that time squat over the pots set into the ground or use open pit. Early toilets using flowing water to remove waste according to Lambert, (2001) were also found at Skara Brae in Orkney, Scotland, dating from about 3100B.C. until 2500B.C. Around this period some of the houses there have a drain running directly beneath them, and some of these had a cubicle over the drain; such that flowing water helps to wash their excrement away. As years go by more innovative designs and improved sanitary products were invented using different materials and technologies with the aim of properly managing human excrement all over the world, (Becky, 2012).

As for Nigeria, there is no specific record on sanitary ware historical development. The management of excrement has always been based on the diverse traditional value of the people. Ages before colonization, Nigerians defecate in bushes. Some

bury their faeces in the ground while others leave them for dogs and pigs to feed on. Pits are dug in some more civilized villages but these eventually became breeding places for flies and mosquitoes. Other options include defecating in river channels also came up; this method also aided the spread of waterborne diseases (Odogwo, 2014 and Ogbebo, 2014). The traditional bucket latrines were introduced during the colonial era for the few rich Nigerians. This colonial latrine consists of a wooden squatting plate and a metal bucket located in a small compartment immediately below the squatting plate. The night-soil labourer removes the full bucket of excreta, disposes it and replaces it with an empty bucket. This method faded out between the late 1970s and the early 80s, hence the pour flush toilet was introduced and eventually the conventional cistern-flush toilet.

CSW belongs to the category of improved sanitary furniture or fixtures used to equip conventional cistern-flush toilets. They are often gloss fired to prevent absorption of water and other liquid chemicals which ensures resistance to attack, strength and durability. They comprise range of designs such as water closets, cisterns, wash basins, wall urinals and bidets among others. Ojibo, (2011) and Cute, (2012) opined that the cost of effective management of CSW can get to be so expensive beyond what some ordinary citizens can afford when one considers the increasing population resulting from migration, shortage of pipe borne water supply and the state of unemployment. This implies that only the rich few who can sink boreholes have access to satisfactory sanitary disposal systems in some large cities. While most average income earners who cannot afford CSW put-up with other alternatives such as fetching water to flush or sharing toilet with others. Adindu, Moses, Thaddeus and Tse, (2014) also argued that despite the cost of managing ceramic cistern-flush toilets, and fact that there are alternative sanitary ware products, there is still high demand for CSW stimulated by growth in the Building and housing sector. Consequent to the high influx of imported CSW products in the market, this study investigates the factors responsible for end-users' preference for CSW in South western, Nigeria.

RESEARCH METHODOLOGY:

This study was intended to find out the qualities that attracts CSW end-users and identify what distinguishes the product from other alternatives. Survey method of research was employed which involved gathering and collection of primary data as recommended by Creswell, (2009) and Babbie (2013). This method provided a quantitative description of trends, attitudes or opinions by studying a sample of the population. The population for the end-users of CSW cannot be ascertained, since there are no registered or identified number of CSW consumers within any of the states. Hence, the population for end-users was indefinite for each of the states. In order to achieve sample size for end users, an assumed population of 100,000 was used according to Babbie (2013) for each state.

Taro Yamane's formula was adopted to calculate the sample size as recommended by Israel (2013).

Yamane's formula: $n = \frac{N}{1+N(e)^2}$ ..... (1)

Where;

n = sample size,
N = population size, and
e = acceptable sampling error limit or level of precision taken as ±10%.

Using a 95% confidence level, i.e. 5% significance level, the sample size of the population was calculated as follows:

Assumed population of 'N' for each state = 100000
n = 100000/[1 + (100000*0.12)] = 100000/[1+ (1000)] = 100
Sample size n for CSW end users was 100 for each state
There are 6 states in the study area
Hence sample size n for the study area was:
Six (6) states x n = 600

Sample size for CSW end-users was 600 for the study area.

A structured questionnaire was designed to obtain data from end-users of CSW. During the distribution of questionnaires 10 extras were added to ensure returned questionnaires falls within the recommended number. This was because it has been established through various studies that returned questionnaires are always lower than number distributed. Thirteen (13) variables were designed in the questionnaire for consumers order to assess the factors influencing the users' preference. The questionnaires were administered and collected over a period of time and the service of well-trained assistants were employed to aid the study. The Likert scale model of eliciting information was adopted in the design of questionnaire. The data collected was analysed using Statistical Package for Social Science (SPSS). And the results were presented using means, percentage and relative importance index in tables.

ANALYSIS AND RESULTS

Demographic data of the respondents

Gender of respondents

Gender distribution is appropriate in research because it helps to highlight sex disparity in the study area and sometimes it helps to check if there are any bias or gender influence. The gender distribution as displayed in Table 1 indicates that the female gender represented 58% of respondents in the study area. This suggests that more female use sanitary ware because of their quest to protect their privacy than the male in south-west, Nigeria.

Table 1: Gender distribution of Respondents

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Female	348	58	58	58.0
Male	252	42	42	100.0
Total	600	100	100	

Source: Author's field work, 2017

Age distribution of respondents

Table 2 shows the age distribution of respondents within the study area. The result revealed that the usage of sanitary ware cuts across all ages between less than 21

to ages above 40. And that 37% respondents between 21 and 30 years of age were the majority. This demonstrations that it does not matter the age, in as much as people relief themselves age is not a barrier to the use of sanitary ware. The underage, those with disabilities and the elderly can also be assisted to use the facilities.

Table 2: Age distribution of Respondents

Ages	Frequency	Percent	Valid Percent	Cumulative Percent
<20	24	4.0	4.0	4.0
21 - 30	222	37.0	37.0	41.0
31 - 40	186	31.0	31.0	72.0
40<	168	28.0	28.0	100.0
Total	600	100	100	

Source: Author's field work, 2017

Educational qualification of respondents

The educational qualification of respondents was important to ensure that respondents are knowledgeable in the subject area. However, the results as shown on the bar chart in Figure 1, indicates that a popular responds of 34% respondents possessed Ordinary National Diploma Certificate (OND) or its equivalent (NCE). Others include 18% Bachelor's degree, 17% Higher National Diploma (HND), 17% West African Examination Certificate (WAEC) and 8% without formal education. This figure reveals that although most of the respondents were literate, yet end-users without formal education still use sanitary ware. This implies that without formal education people can still use decent sanitary ware.

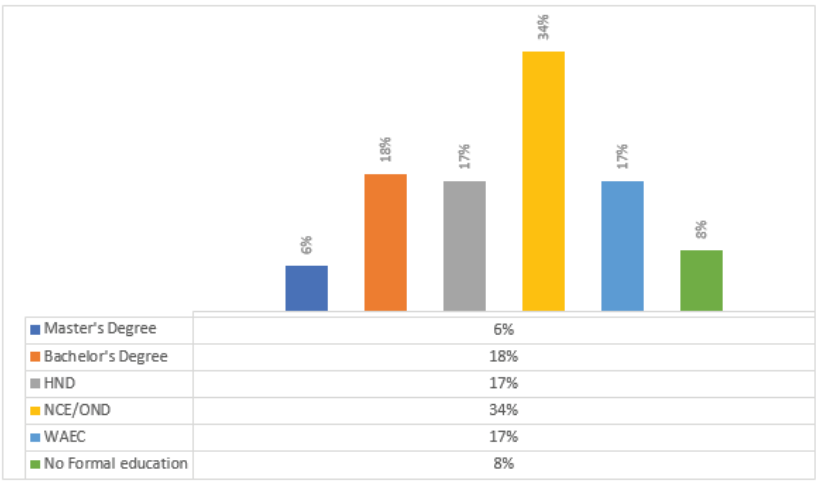

Figure 1: Educational qualification of respondents
Source: Author's field work, 2017

Ownership of ceramic sanitary ware

Analysis was also carried out to find out from end-users if they have CSW installed in their houses. The result as displayed in Figure 2, on the pie chart reveal that majority 83% respondents have CSW installed in their houses or share with a neighbour, while only 2% do not have it installed and the remaining 15% did not respond to the question. This indicates that the mainstream of respondents were well familiar with ceramic sanitary ware.

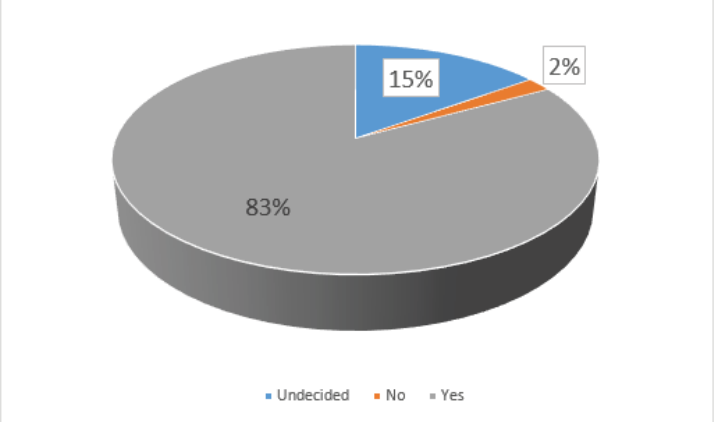

Figure 2: Ownership of ceramics sanitary ware
Source: Author's field work, 2017

Comparative use of sanitary ware facilities

The analysis carried out to assess the utilization of sanitary ware facilities as displayed in Table 3 reveal the comparative use of sanitary ware facilities. The result indicated that 91% majority of respondents use CSW flush-toilet. This attested to the fact that toilets furnished with CSWs are the most used and ranked the first in the list of sanitary facilities. CSW flush toilets have the mean score of 4.9 and Relative importance index (RII) of 0.98. RII for other alternative sanitary wares included Pit Latrine (0.63), Open Defecation (0.58) and Bucket latrine (0.29).

Table 3: Use of ceramic sanitary ware fixtures in comparison with other alternatives

S/N	Sanitary facility	MU	U	N	LU	NU	Mean	RII
1	CSW flush-toilets	546 (91%)	36 (6.0%)	-	6 (1.0%)	12 (2.0%)	4.9	0.98
2	Bucket latrines	6 (1.0%)	42 (7.0%)	24 (4.0%)	72 (12.0%)	456 (76.0%)	1.5	0.29
3	Pit Latrines	120 (20.0%)	186 (31.0%)	60 (10.0%)	108 (18.0%)	126 (21.0%)	3.2	0.63
4	Open Defecations	78 (13.0%)	156 (26.0%)	96 (16.0%)	126 (21.0%)	144 (24.0%)	2.9	0.58

Source: Author's field work, 2017
Keys: MU = Most Used U = Used N = Neutral LU = Less Used NU = Not Used

Identification of factors responsible for consumer preference for CSW from end users' responds.

It was perceived from the analysis made, that end-users of CSW were attracted based on some qualities that appeals to them. These forces of attraction can also be referred to as factors influencing demand. These factors were investigated using relative importance index (RII) and judging from the results shown in Table 4. The results shows that 92% choice was very important, 7% important and 1% undecided. This ranked the Ease of cleaning as the first most important factor end-users consider before buying CSW with RII of 0.98 (Mean = 4.9).

The table also categorized other priorities in the following order of RII; functionality (0.97), durability (0.97), comfort (0.96), price (0.96) and availability of products in the market (0.92). These were the factors most sort after by end-users before purchasing a CSW. Other important factors include size (0.88), colour (0.86), elegance (0.85), surface texture (0.83), uniqueness (0.83) and Glaze type (0.76). While choice based on origin of CSWs remains undecided and has RII of 0.67.

Table 4: Factors responsible for consumer preference for ceramic sanitary ware

S/N	Qualities of Attraction	VI	I	UD	LI	NI	Mean	RII
1	Size	384 (64.0%)	114 (19.0%)	72 (12.0%)	18 (3.0%)	12 (2.0%)	4.4	0.88
2	Colour	318 (53.0%)	192 (32.0%)	30 (5.0%)	54 (9.0%)	6 (1.0%)	4.3	0.86
3	Elegance	294 (49.0%)	210 (35.0%)	42 (7.0%)	54 (9.0%)	-	4.2	0.85
4	Durability	534 (89.0%)	54 (9.0%)	-	-	12 (2.0%)	4.8	0.97
5	Origin	132 (22.0%)	150 (25%)	174 (29.0%)	84 (14.0%)	60 (10.0%)	3.4	0.67
6	Glaze type	204 (34.0%)	144 (24.0%)	174 (29.0%)	72 (12.0%)	6 (1.0%)	3.8	0.76
7	Comfort	516 (86.0%)	66 (11.0%)	12 (2.0%)	6 (1.0%)	-	4.8	0.96
8	Surface texture	312 (52.0%)	114 (19.0%)	150 (25.0%)	12 (2.0%	12 (2.0%	4.2	0.83
9	Functionality	510 (85.0%)	66 (11.0%)	-	6 (1.0%)	18 (3.0%	4.9	0.97
10	Availability in market	390 (65.0%)	192 (32.0%)	18 (3.0%)	-	-	4.6	0.92
11	Ease of cleaning	552 (92.0%)	42 (7.0%)	6 (1.0%)	-	-	4.9	0.98
12	Uniqueness	300 (50.0%)	126 (21.0%)	150 (25.0%)	24 (4.0%	-	4.2	0.83
13	Price	504 (84.0%)	78 (13.0%)	6 (1.0%)	6 (1.0%)	6 (1.0%)	4.8	0.96

Source: Author's field work, 2017
Keys: VI = Very Important I = Important UD = Undecided LI = Less Important NI = Not Important RII = Relative Importance index

CONCLUSION

This study acknowledges the fact that there are different types and brands of sanitary ware in South-west Nigeria. It also recognised the fact that CSW are more patronised in terms of preference than other sanitary ware alternatives. The responds gathered from both categories of respondents corroborated that end-users' preference for CSW was based on some qualities that appealed to them. These dynamic force of attraction includes design, price, coziness, durability, ease of cleaning, functionality of products and their availability in the market.

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