EVALUATION OF INFORMATION SHARING AND CONSUMERS' BUYING BEHAVIOURS: THE HEALTH IMPLICATIONS FROM PACKAGED WATER CONSUMED IJEBU-ODE SOUTHWESTERN NIGERIA

Adefala O O*

Solaja O.O**

Adegbite A A***

Lawal O.A***

ABSTRACT

The study was carried out to evaluate the perceptions on the qualities, brand names and prices information of the packaged water consumed by the inhabitants of Ijebu-Ode City, Ogun State Southwestern Nigeria. A total of two hundreds (200) households were surveyed where self opinionated questionnaires were randomly administered to the consumers–a hundred (100) from low-income area and hundred (100) from high-income areas of the city. The study adopted the 5-item Likert score scale of summation to analyze the responses of the consumers indicating the degree to which they agree/ disagree with the opinion expressed by the positive and negative statements in the questionnaires. The results of the scores indicated that the total positive scores for low-income and high income areas were 71 and 822 respectively, while the scores negative statements were 361 and 40 for low income and high income respectively. The results indicated contrast perceptions between the consumers from low-income and high-income areas and these can be interpreted that, the consumers from low-income areas do not bother with the quality of

* Department of Health Information Management,

** Department of Environmental Health Technology,

*** Department of Water Resources Management and Sanitation,

Ogun State College of Health Technology, Ilese-Ijebu P.M.B 2018, Ijebu Ode Nigeria

packaged water they consumed, brand names but are concern with the prices information and socio-economic and educational status are the factors responsible for their perception . Consequently, they face potential health risks/ diseases from consumption of unwholesome water. The study concluded that, the consumers need to be educated about the significance/ health implications of drinking water quality and to seek for information on the quality of the water they consumed.

Keywords: *Information, packaged water, consumers, health, socio-economic, Ijebu-Ode*

1. Introduction

Water is one of the most essential commodities for the survival of all lives and is a valuable resource. Among the three basic necessities of life, water is no less important than air and food. If there is no water there would be no life. Humans may survive for several weeks without food, but barely few days without water because constant supply of water is needed to replenish the fluids lost through normal physiological activities, such as respiration, perspiration, urination, (Murray *et al.*, 2003) cited in Chinedu et al, 2011). In another report by (Machiwal1 & Jha, 2010), the human/animal health, socio-economic development, and the functioning of earth's ecosystems depend on water. In contrast with many other vital resources, there is no substitute for water in most activities and processes where it is needed. Unfortunately, freshwater scarcity has emerged as one of the most pressing problems in the 21st century because of ever-increasing water demands for food, feed, fiber and fuel as well as growing pollution and misuse of freshwater resources (Zektser, 2000; de Villiers, 2001) cited in (Machiwal1 & Jha, 2010).

However, portable water should be odourless, colourless, tasteless and free from faecal pollution and a reliable supply of clean (wholesome) water is highly essential in a bid to promoting healthy living among the inhabitants of a defined geographical region (Mustapha and Adam, 1991). Potable water supplies in urban centers in Nigeria are still inadequate in spite of four decades of independence and several efforts from various governments. However, packaged water industries have been of great relieve in locally providing water to many populace, at affordable prices. The ever-increasing demand of readily available water has led to the concept of packaged water

industries as a safer and cheaper route to potable water production (Warburton and Austin, 1997).

Furthermore, the packaged drinking water (bottles and sachets) are easy to serve and the price is affordable, with relatively wider distribution but there are complaints abound on its purity and other health concerns (Dada, 2009). Despite the associated problems with the packaged water industries- like poor qualities and environmental conditions where the production takes place to the proliferation of the package water businesses where just any individual established, without meeting the standards (Afolabi, 2012). For instance, Sachet water have been reported to contain bacteria such as *Bacillus sp., Pseudomonas sp., Klebsiella sp., Streptococcus sp.,* and oocysts of *Cryptosporidia sp.* Apart from environmental contaminants, improper storage and handling by vendors also poses a serious threat to the health of the ignorant consumers (Omalu et al, 2010), yet the consumption of the packaged water is common in the study area Ijebu Ode where choices are made from different brand names. The choice of these packaged water products like any other commodities are influenced by many factors like products physical appearance and consumers perceived attributes (Blijlevens, J. et al, 2009). Some studies also have identified product appearance attributes that can be derived from product appearance, as well as from packaging, typefaces or logos influences consumers' choice (Ellis, 1993; Orth & Malkewitz, 2008, Henderson, Giese, & Cote, 2004) cited in (Blijlevens, J. et al, 2009)

In another study, Consumer Buying Decision Process can be influenced by many factors for instances buyers seek information from friends, relatives, or marketer-dominated sources of information, such as salespeople or socio-economic status of the consumers coupled with the accumulation of values, knowledge, beliefs, customs (Pride & Ferrell, 2012). Another factor that influences consumers' choice is information on price and brand name information (Dodds, 2002). In his study, he concluded that the brand effects are not influenced by the objective quality information. However, there are strong interaction effects between price and objective quality information (Dodds, 2002). But for the importance of water as health determinants, the study therefore seeks to determine the influence of information on the qualities, brands and prices of the packaged water and consumers' choice in Ijebu Ode Metropolis as a case study.

1.1 Objectives of the Study

(a) To assess the consumers' perception on the qualities, brand names and prices information of packaged water consumed in the study area

(b) To determine the health implications of these packaged water consumed based on the perception of the consumers in the study area.

2. The Brief description of the study area

The study was conducted in Ijebu-Ode metropolis, in Ogun State Southwestern Nigeria. The area can be located between latitudes 60 47'N and 60 52'N and between longitudes 30 53'E and 30 59'E. Ijebu-Ode is an ancient city, which is centrally located in relation to other human settlements around it.

A study of the city in 1998 (Odugbemi & Oyesiku, 1998) found that less than 20 per cent of the population are wage-earners in the public or private sector; over 60 per cent are engaged in petty trading whilst some 8 per cent are subsistence farmers, whilst the remaining operate in the informal sector as self-employed artisans and providers of a wide variety of services. There are a few small- and medium scale industries in the city and its environs mainly concerned with sawn timber milling, furniture-making, brewing and fruit-juice production and a pharmaceutical industrial establishment. Informal sector activities are usually associated with low productivity and low incomes, and 70 per cent of the household heads earned less than ₦8,000 (US$80.00) per annum whilst only 10 per cent earned above ₦16,000 (US$160.00) per annum (Mabogunje and Kates, 2004). Though, the study area also consist of inhabitants of high socio-economic status residing in Governmental Residential Areas/Housing Estates (GRA) (Adegbite et al, 2013)

3.0 Materials and Methods

The study was designed to gain an understanding of how packaged water consumers' perceptions are affected by the information gained on the products qualities, the brand names and prices. A survey of the inhabitants of the study area were carried out, to gather if the information gathered on a packaged water influence the choices of a product particularly on the qualities, brand names and prices.

The self opinionated administered questionnaires were designed with 5-item Likert scale, where respondents were asked to indicate the degree to which they agree and disagree with the opinion expressed by the statements in the questionnaires. The agreements with positively worded statements are assigned higher scores. The first statement is positively phrased; agreement indicates a favourable attitude toward the information on the qualities of the packaged water, the brand names and prices of packaged water consumed. The second statement is negatively worded, and so the scoring is reversed- a 1 is assigned to those who strongly agree, and so forth. This reversal is necessary so that a high score will consistently reflect positive attitudes towards the information and choice of packaged water among the inhabitants of the study areas. The summation features of Likert scales make it possible to make fine discriminations among people with different viewpoints (Williams and Wilkins, 2004).

The questionnaire consists of two sections. Section A sought general information on demographics characteristics of the respondents and Section B contains six statements on why a consumer chooses a packaged water based on the information he/she has on the qualities of the packaged water, the brand names and prices of packaged water. Three statements showed positive agreements and three statements showed negative agreements (Adapted from Rensis Likert). Two hundreds (200) households were randomly selected; a member of households is administered with questionnaire. A hundred (100) from low-income area and hundred (100) from high-income area of the city and those that cannot read and write were interviewed using the items of the questionnaires.

4.0 Results and Discussion

Demographics characteristics of the respondents from low income and high income residential areas

Table 1 showing the sex distribution of the respondents for the study

	Low -income Residential Areas		**High-income Residential Areas**	
Sex	Frequency	Percentage	Frequency	Percentage
Male	12	12	34	34

Female	88	88	66	66
Total	**100**	**100**	**100**	**100**

The results in table above showed that 46 (23%) male were respondents while 154 (77%) were female. The distribution indicated that 12 male respondents from low income residential area while 34 male from high income area and 88 female respondents from low-income area while 66 female respondents from high –income residential part of the study area.

Table 2 showing the educational /academic qualifications of the respondents

	Low -income Residential Areas		**High-income Residential Areas**	
Educational Qualifications	**Frequency**	**Percentage**	**Frequency**	**Percentage**
University	2	2	79	34
Secondary	67	67	21	66
Primary	21	21	-	-
No Education	10	10	-	-
Total	**100**	**100**	**100**	**100**

The table 2 above shows the education status of the respondents. The results revealed that, the education/educational qualifications of respondents from low income areas are low compared with the educational/qualification of the respondents from the high-income residential areas. This implies that there is difference in socio-economic status of the residents from the two areas of the city and the level of information sharing and perception will be different as a result of differences in educational background and social interaction.

4.1 Responses on Positive and Negative Statements

Results from the low-income areas

The table 4 and 5 displayed the responses of the inhabitants from both low-income and high-income areas on their perceptions of qualities, brand names and prices of packaged water they

consumed. The responses to the positive statements showed that from the low-income areas of the city, out one hundred respondents five (5) strongly agreed that the quality of packaged water influences their choice of the water they consumed, eight (8) agreed that brand of the packaged water influences their choices, while two (2) were not sure if the prices of the packaged water is the criteria for their choice. On the other hands, three (3) strongly disagree that information gathered on quality of the packaged water do not influences their choices, eight five (85) disagreed that brand names of the packaged water do not influence their choices, while two(2) not sure if the price that motivated them which one to buy or not.

The interpretation of the positive and negative statements is determined by summing the scores. The positive scores of 71 reflected positive attitude and understanding the implications of quality of packaged water, the impacts of brand names and prices of the packaged water while the total scores negatives (361) expresses the nonchalant attitudes of the consumers to the quality of water they consumed, while they might concern of brand names and the prices of these packaged water can be of concern especially the bottled ones (sachet ones has uniformed prices)

Results from the high-income areas

The responses to the positive statements showed that from the high-income areas of the city, out one hundred respondents eighty nine (89) strongly agreed that the quality of packaged water influences their choice of the water they consumed, ninety two (92) agreed that brand of the packaged water influences their choices, while three (3) were not sure if the prices of the packaged water is the criteria for their choice. On the other hands, the responses to the negative statements, two (2) strongly disagree that information gathered on quality of the packaged water do not influences their choices, six (6) disagreed that brand names of the packaged water do not influence their choices, while two(2) not sure if the price that motivated them which one to buy or not. The total positive scores of 822 reflected positive attitude and understanding of the implications of quality of packaged water they consumed, while the consumers in this part of the city also buy the packaged water with special brands from well established companies and they can afford the high prices of the packaged water (bottles) compared with the negative total score of 40 might be interpreted as an indication that, a few consumers show negative attitudes to quality of packaged water they consumed and not interested in brand names.

4.2 Comparison Scores of the responses from low income and high income area

Table 3 showing the scores of the positive and negative statements

	Low-Income Area	High-Income Area
Positive Statement	71	822
Negative Statement	361	40

The table 3 above, showing the differences in responses of the respondents from the low-income area and high-income area, the results showing contrast perceptions of packaged water variables under study-quality, brand names and prices. The total positive scores were 71 and 822 for low-income and high-income areas respectively while total negative scores were 361 and 40 for low-income and high-income areas respectively.

Table 4 showing the responses from low income area on the determinants of choice of the packaged water

		NUMBER OF RESPONSES					SCORE	
		SA	A	?	D	SD	+	-
1	The information on the packaged water quality influences my choice *	5					25	
2	The information on the packaged water brand names influences my choice*		8				40	
3	The information on the prices of packaged water influences my choice*			2			6	
4	The information on the packaged water quality do not					3		15

	influences my choice **							
5	The information on the packaged water brand names do not influences my choice**				85			340
6	The information on the prices of packaged water do not influences my choice**			2				6
	TOTAL SCORE						**71**	**361**

The method was adapted from Loiselle, C, G et al (2004) *Positive statement

**Negative statement

Strongly agreed (SA), Agreed (A), No Idea (?), Disagreed (D), Strongly Disagreed (SD)

Table 5 showing the responses from high income area on the determinants of choice of the packaged water

		NUMBER OF RESPONSES					**SCORE**	
		SA	**A**	**?**	**D**	**SD**	**+**	**-**
1	The information on the packaged water quality influences my choice *	89					445	
2	The information on the packaged water brand names influences my choice*		92				368	
3	The information on the prices of packaged water influences my choice*			3			9	
4	The information on the packaged water quality do not influences my choice **					2		10
5	The information on the				6			24

	packaged water brand names do not influences my choice**							
6	The information on the prices of packaged water do not influences my choice**			2				6
	TOTAL SCORE						**822**	**40**

*Positive statement **Negative statement

Strongly agreed (SA), Agreed (A), No Idea (?), Disagreed (D), Strongly Disagreed (SD)

The results from the low income areas (table 4), indicated that two factors might be responsible for the outcome. The first one is the socio-economic status of the people residing there, where the poverty level might restrict them to consume a particular brand name when they feel it has more volume than the others or it might as results of information gathered from neighbours, friends and family members even when the qualities of these packaged water are not satisfactory. Then, information heard might also affect and influence the consumer perception, which in supported by the study of Busler (2002), that exogenous influences include the impact of culture, any subcultures, demographics, social status, reference groups, and family and endogenous influences lifestyle include perception, learning, attitudes, personality and emotions influences the consumers in choosing one packaged water from others Busler (2002).

The second factor that might responsible for the consumers' behavior or perception is the low level of their education and awareness of the impact of poor quality of water on their health. Commonly in the Nigeria, people refer to Sachet water as 'Pure Water' even some do have taste from residual chlorine and in some cases, microbiological quality were not within the recommended standards. For instance, in the study by Onweluzo & Akuagbazie, (2010) where assessment of the quality of bottled and sachet water sold in Nsukka town, Nigeria were carried, it was discovered that four brands (24%) of the water had total viable count above the recommended count of 1000cfu/ml while 88% of the brands had coliform count above the recommended count of zero cfu/ml.

Furthermore, in another study by Oyelude & Ahenkorah (2012), conducted on Quality of Sachet Water and Bottled Water in Bolgatanga Municipality of Ghana, it was also revealed that three out of every four sachet water samples were contaminated by coliform bacteria ranging from 12-168 cfu/100 mL. Faecal coliform bacteria ranging from 2-63 cfu/100 mL were detected in more than 60% of the sachet water brands. All the unbranded hand-filled hand-tied sachet water samples without exception were contaminated by faecal coliform bacteria. This is contrary to the recommendation by WHO that faecal coliform bacteria must not be detectable in a 100-mL sample of drinking water. In another assessment of satchet water in another city of Nigeria, The coliform were detected in some packaged water based on the most probable number (MPN) analysis (Ndamitso et al, 2013)

On the other hands, the situation in the high income areas, apart from the educational level where the level of knowledge about the importance of good quality of drinking might be comparatively high, the brand loyalty might be a factor and advertisement strategy of the packaged water producers where the consumers in this part of the city can have access to information either through the reading and listening on media (Busler, 2002). Then, the purchasing power of the consumers here in the high income areas of the city can afford them to buy any products despite the high prices.

However, from the point of public health, drinking water that contain microorganism would be unfit for potability since they could also contain other microorganisms implicated in gastro-intestinal water borne diseases. It is clear fact that water quality has tremendous effects on human health both in the short term and in the long term. Short-term impacts of water quality refer to the sudden or in-day consequences of drinking and consuming water. Unwholesome water, especially contaminated one can containing a number of bacteria and viruses and harmful germs can be detrimental to human health. Drinking contaminated water, in medical term, may cause water-related diseases including diarrhea, bacterial dysentery, cholera, typhoid and many other contagious illnesses (WHO, 2008)

5 Conclusions

The study concluded that there are differences in consumers' perceptions from the two considered sections of the city. Those from low income areas do not see qualities of packaged water as an issue which on the short or long term, they are likely to be exposed to health risks and diseases from the packaged water if they are contaminated. The study also confirmed that socio-economic and educational status of the consumers are the contributing factors for the choice they made, they are also influenced by the information they gathered/received about the packaged water and level of awareness of the consumers. For the consumers of the packaged water from the low-income areas of the city not see the quality of the water as a priority, they are prone to water borne diseases and high mortality and morbidity can become prevalent among the consumers. Therefore, finally there is need for public health talk, education and campaign awareness among the inhabitants for the need to understanding the importance of high quality of drinking water and for them to seek for information on the products they consumed. Then, there is need for routine assessment of the qualities of packaged water produced in Ijebu Ode city to make sure they conform to World Health Organisation Standards.

6 References

[1] A A Adegbite, O.A Lawal, O.O Oduyiga & A.O Solesi Comparative Assessment of Risk-To-Health of Drinking Water Sources: A Case Study of Ijebu-Ode City Ogun Southwestern Nigeria International Journal of Physical and Social Sciences Volume3 issue 2 (2013)

[2] B. O Afolabi: Assessment of Drinking Water Quality Standard: A case study of Sachet Water Producing Factories in Ijebu-Ode Metropolis. Unpublished Research Project, Department of Water Resources Management & Sanitation, Ogun State College Health Technology, Nigeria(2012)

[3] J Blijlevens,, M. E. H Creusen, & J. P. L Schoormans,. How consumers perceive product appearance: The identification of three product appearance attributes. International Journal of Design, 3(3), 27-35. (2009)

[4] M Busler Product Differentiation, Celebrity Endorsements and the Consumer's Perception of Quality -A Thesis Submitted to the Faculty of Drexel University (2002)

[5] S N Chinedu, O C Nwinyi, Y.O Adetayo Y., V N. Eze : Assessment of water quality in Canaanland, Ota, Southwest Nigeria Agriculture and Biology Journal of North America ScienceHuβ, http://www.scihub.org/ABJNA (2011)

[6] C.A Dada Packaged water: optimizing local processes for sustainable water delivery in developing nations *Globalization and Health* 2011, **7**:24 doi:10.1186/1744-8603-7-24 (2011) <http://www.globalizationandhealth.com/content/7/1/24>

[7] C. A. Dada: Towards a successful packaged water regulation in Nigeria Scientific Research and Essay Vol.4 (9), pp. 921-928 (2009)

[8] C A Dada: Packaged water: optimizing local processes for sustainable water delivery in developing nations Dada Globalization and Health 2011, 7:24 http://www.globalizationandhealth.com/content/7/1/24 (2011)

[9] W. B Dodds: The Effects of Perceived and Objective Market Cues on Consumers' Product Evaluations Marketing Bulletin, 2002, 13, Article 2 (2002)

[10] M.O Edem, A.O Atayese and, M.O Bankole: Pure Water Syndrome: Bacteriological Quality of Sachet- Packed Drinking Water Sold In Nigeria. African Journal of Food, Agriculture, Nutrition and Development 11(1):4595-4609.(2004,)

[11] S. R Ellis: A psychometric investigation of a scale for the evaluation of the aesthetic element in consumer durable goods. Unpublished dissertation, University of Arizona, Tucson AZ. (1993)

[12] O Emmanuel, and S Ahenkorah: Quality of Sachet Water and Bottled Water in Bolgatanga Municipality of Ghana Research Journal of Applied Sciences, Engineering and Technology 4(9): 1094-1098, (2012)
http://blogs.washplus.org/drinkingwaterupdates/2012/04/quality-of-sachet-water-and-bottled-water-in-bolgatanga-municipality-of-ghana/

[13] P.S Henderson., J.L Giese, & J.A Cote: Impression management using typeface design. Journal of Marketing, 68(4), 60-72. (2004)

[14] C. G Loiselle,. J Profetto-McGrath,.,D.F Polit,, & C.T Beck, C.T.: Canadian essentials of nursing research. First Edition. New York: Lippincott, Williams & Wilkins. Peer reviewed. 537 p (2004

[15] A L Mabogunje and R.W Kates: Sustainable Development in Ijebu-Ode, Nigeria: The Role of Social Capital, Participation, and Science and Technology (2004)

[16] D Machiwal & M K. Jha: Advances in Water Quality Control-Tools and Techniques for Water Quality Interpretation Scientific Research (2010)

[17] S Mustapha and E. A Adam: Discussion on Water Problems in Nigeria: Focus on Bauchi State. National Water Research Institute. (1991)

[18] M. M. Ndamitso, S. Idris, M. B. Likita, Jimoh. O. Tijani1, A. I. Ajai and A. A. Bala: Physico-chemical and *Escherichia coli* assessment of selected sachet water produced in some areas of Minna, Niger State, Nigeria International Journal of Water Resources and Environmental Engineering Vol. 5(3), pp. 134-140, March, (2013)

[19] O O Odugbemi and O. O. Oyesiku: Socio-Economic Survey and Poverty Study of Ijebu-Ode: Final Report. Ago-Iwoye: Ogun State University, Department of Geography. (1998)

[20] ICJ Omalu, GC Eze, I.K Olayemi, S Gbesi, L.A Adeniran, A.V Ayanwale,, A.Z Mohammed, V Chukwuemeka:. Contamination of Sachet Water in Nigeria: Assessment and Health Impact. Online J Health Allied Scs. 2010;9(4):15 (2010)

[21] J.C Onweluzo. & C. A Akuagbazie: Assessment of the Quality of Bottled and Sachet Water sold in Nsukka Town Journal of Tropical Agriculture, Food, Environment and Extension Volume 9 Number 2 May 2010 pp. 104 – 110 .(2010)

[22] U.R Orth, & K. Malkewitz,: Holistic package design and consumer brand impressions. Journal of Marketing, 72(3), 64-81 (2008)

[23] E O. Oyelude and S Ahenkorah:. Quality of Sachet Water and Bottled Water in Bolgatanga Municipality of Ghana. Research Journal of Applied Sciences, Engineering and Technology, 4(09): 1094-1098 (2012)

[24] Pride & Ferrell: Marketing, South-Western. Consumer Buying Behavior Lecture Series (2012) <http://www.csustan.edu/market/williams/3410-07-10.htm>

[25] D W Warburton: A review of the microbiological quality of bottled water sold in Canada. Part 2. The need for more stringent standards and regulations. Can J Microbiol 1993, 39:158-168.(1993)

[26] WHO (World Health Organization): Guidelines for Drinking-Water Quality: Incorporating First Addendum. Vol. 1, Recommendations, Third Edition. WHO, Geneva, Switzerland (2008)