

## PRODUCT QUALITY AND CONSUMER PREFERENCE FOR BOTTLED WATER IN LAGOS STATE

OPELE, A. M.<sup>1</sup>; SALAMI, L.<sup>2</sup>; FAGBENRO, A. A.<sup>3</sup>

<sup>1</sup>Department of Marketing, Lagos State University, Ojo, Lagos State, Nigeria

<sup>2</sup>Lagos State University, Ojo, Lagos State, Nigeria.

<sup>3</sup>University of Lagos, Akoka, Lagos State, Nigeria

<sup>1</sup>[adedayo.opele@lasu.edu.ng](mailto:adedayo.opele@lasu.edu.ng)

<sup>2</sup>[lateefsalam19@yahoo.com](mailto:lateefsalam19@yahoo.com)

<sup>3</sup>[fambreruitment@gmail.com](mailto:fambreruitment@gmail.com)

Correspondence: <sup>1</sup> 08023096268

### Abstract

Water is one of the indispensable resources for the continued existence of all living things including man and adequate supply of fresh and clean drinking water is a basic need for all human beings. Access to safe and potable water is a fundamental human right, yet it remains a significant challenge for many urban centers in developing countries. This study examined the effect of purity and taste as indicators of product quality on consumer preference for bottled water in Lagos State, Nigeria. The study adopted descriptive survey research design and sample the opinion of 384 consumers of bottled water across the three Senatorial Districts in Lagos State using convenience sampling technique. Data for the study were collected through primary source with the aid of structured questionnaire. The data collected were analyzed using frequency distribution and mean as descriptive statistics while simple linear and multiple regression analysis were employed as the inferential statistics to examine the effect of the independent variable on the dependent variable. The findings of the study revealed significant and positive effect of purity on consumer preference for bottled water in Lagos State (R value = 0.703) F-statistic value of 58.244 and a significance level (p-value) of 0.000. The results of hypothesis two showed that there is significant effect of taste on consumer preference for bottled water in Lagos State (The R value is 0.700) F-statistic of 113.657 and a p-value of 0.000. The result of hypothesis three also indicated that there is combine effect of purity and taste on consumer preference for bottled water in Lagos State (The R Square value of 0.626). F-statistic of 97.761

and a p-value of 0.000. The study therefore concluded that product quality has significant effect on consumer preference for bottled water in Lagos state and recommended that Bottled water companies should consistently maintain high levels of chemical and microbiological purity in their products and also invest in refining the sensory profile of their bottled water to deliver a crisp, clean, and refreshing taste.

**Key Words:** *Consumer preference, Product quality, Purity, Purchase frequency, Taste, Water quality.*

### 1.1 Introduction

Water is one of the indispensable resources for the continued existence of all living things including man and adequate supply of fresh and clean drinking water is a basic need for all human beings (Edema, Atayese & Bankole, 2021). In nature, all water contains impurities; as water flows in streams, accumulates in lakes and filters through layers of soil and rock in the ground, it dissolves or absorbs substances it comes in contact with, which may be harmful or harmless (Ezeugwunne, Agbakoba, Nnamah & Anhalu, 2019). One of the major and critical problems in most developing countries today is the provision of an adequate and safe drinking water to its populace (Airaodion, Ewa, Ogbuagu, Ogbuagu & Agunbiade, 2019). Drinking water that is safe and aesthetically acceptable is a matter of high priority to National Agency for Foods and Drugs Administration and Control (NAFDAC) and other regulatory agencies in Nigeria and is expected to meet the Nigerian Industrial Standard (NIS). Furthermore, drinking water that is fit for human consumption is expected to meet the World Health Organization (WHO) standard and be free from physical and chemical substances as well as microorganisms in an amount that can be hazardous to health (Alhassan, Imam, Yakasai, 2018). It is a known fact that no single method of purification can eliminate 100 % contaminants from drinking water. However, water can be and should be made safe for consumption within acceptable limits (Danso, & Frimpong, (2019).

Bottled water can be described as any commercially treated water, manufactured, packaged and distributed for sale in sealed food grade containers and is intended for human consumption. Water consumers are frequently unaware of the potential health risks associated with exposure to water borne contaminants which have often led to diseases like diarrhea, cholera, dysentery, typhoid fever, legionnaire's disease and parasitic diseases (Dada, 2019). The continuous increase in the sale and indiscriminate consumption of packaged drinking water in Nigeria is of public health significance, as the prevalence of water related diseases in developing countries like Nigeria is determined by the quality of drinking water (Olaoye, & Onilude, 2022). The safety of drinking water in poor and deprived communities has in the last decade been in jeopardy as a

result of the introduction of refuse and sewage into sources of water supply. The intake of unwholesome water could have devastating effects on health as unsafe drinking water is a key determinant of many microbial diseases with serious complications in immune-competent and immune-compromised individuals. The introduction of bottled water was aimed at providing safe, hygienic and affordable instant drinking water to the public and to curb the magnitude of water related infections in the country (Ogwo & Igwe, 2020).

The proliferation of bottled water consumption in Lagos State, Nigeria, mirrors a global trend driven by concerns over tap water quality, increasing health consciousness, and lifestyle changes. In Lagos, this trend is intensified by rapid urbanization, inadequate public water infrastructure, and a growing middle class. This paper aims to contribute to the existing literature by providing a comprehensive analysis of how product quality affects consumer preferences for bottled water in this unique context.

## 1.2 Statement of problem

Product quality can be described as the degree to which a product meets customers' needs, performs its intended function, and conforms to industry standards. Lagos State, Nigeria, like many urban centres, faces challenges in providing consistent and high-quality public water. This has led to a surge in the consumption of bottled water, making it a significant sector within the state's economy (Alhassan, et al., 2018).

Access to safe and potable water is a fundamental human right, yet it remains a significant challenge for many urban centers in developing countries. In Lagos State, Nigeria, rapid population growth, urbanization, and inadequate public water infrastructure have led to a reliance on alternative water sources, particularly bottled water. The consumption of bottled water has increased dramatically in recent decades, not only in Lagos but across Nigeria. This surge can be attributed to several factors, including: Perceived poor quality of tap water, Concerns about waterborne diseases, Aggressive marketing and branding by bottled water companies, increasing disposable incomes, Lifestyle changes and on-the-go consumption habits (Ogwo & Igwe, 2020).

While bottled water is often perceived as a safer alternative to tap water, its quality is not always guaranteed. Several studies have reported instances of contamination and substandard quality in bottled water sold in Nigeria (Nwidu, Oveh, Okoriye, & Vaikosen, 2020; Alhassan, et al., 2018; Airaodion, 2019; Dada, 2019; Edema, et al., 2021). This raises concerns about public health and the need for stricter regulatory oversight.

Several studies have been carried out on water quality of varying degrees and coverage. Some were carried out on the chemical quality of the water, some on the microbiological quality, some

on the physical quality and some on the physiochemical quality of the water. For instance (Edema, et al.,2021; Nwidu, Oveh, Okoriye, & Vaikosen, 2020; Airaodion, 2019; Dada, 2019; Alhassan, et al., 2018) but few studies have been conducted on purity and taste. This therefore motivated the study to examine the effect of purity and taste on consumer preference for bottled water in Lagos state.

### 1.3 Objectives of the Study

The main objective of this study is to examine the effect of product quality on consumer preference for bottled water in Lagos state. The specific objectives are to;

- i. examine the effect of purity on consumer preference for bottled water
- ii. assess the effect of taste on consumer preference for bottled water
- iii. investigate the combine effect of purity and taste on consumer preference for bottled water in Lagos State.

### 1.4 Research Questions

The study provided answers to the following research questions.

- i. What is the effect of purity on consumer preference for bottled water?
- ii. How does taste affect the consumer preference for bottled water?
- iii. What is the combine effect of purity and taste on consumer preference for bottled water in Lagos State?

### 1.5 Research Hypotheses

The following null hypotheses were tested to achieve the objective of the study

- i. There is no significant effect of purity on consumer preference for bottled water
- ii. There is no significant effect of taste on consumer preference for bottled water
- iii. There is no combine effect of purity and taste on consumer preference for bottled water in Lagos state.

### 1.6 Significance of the Study

This study aims to contribute to the existing literature by providing a comprehensive analysis of how product quality affects consumer preferences for bottled water in this unique context. Understanding these dynamics is crucial for industry stakeholders, policymakers, public health officials and will also enhance the consumers standard of living. The research offers valuable

insights for informed decision-making, policy formulation, and the promotion of public health and well-being.

### 1.7 Scope of the Study

The study focused on product quality and consumer preference for bottled water in Lagos State. It specifically focused on how water purity and taste affect the choice of consumers of bottled water in Lagos state. The study focused on staff and also visitors to six selected Local Government Secretariat in Lagos State during the period of conducting the study. The selection of the six Local government arears cut across the three senatorial districts in Lagos State (Lagos East: Ikorodu Local government and Shomolu Local government; Lagos central: Eti-Osa Local government and Suru-Lere Local Government; Lagos West: Ikeja local Government and Alimosho Local Government). Some popular bottled water in Lagos state include; Eva Table Water, Ragolis bottle water, SWAN Table Water, Cascade Table Water, Nestle Water, Aquafina Water, Aquadana, Aquacy, Aquabest, Mr. V, Cascade Table water, Sunfresh Premium Table water, Enni Premium Table water, Nirvana table water, LASU Water, UNILAG Water.

## 2.0 Literature Review

### 2.1 Product Quality

Product quality, according to Siew-Phaik, Ayankunle, and Hanisah, (2019), is defined as the degree to which a product meets consumer needs, performs, its intended function, and conforms to industry standards. Essentially, a product's quality is determined by how well it satisfies customer expectations and achieves its purpose.

**Water quality:** This refers to the chemical, physical, and biological characteristics of water that determine its suitability for a particular use or purpose. It's a measure of how clean or polluted the water is relative to the requirements of its intended use, whether it is for drinking, recreation, agriculture, industry, or supporting aquatic life. (Adediji & Ajibade, 2020; Nwidu, et al., 2020; Alhassan, et al., 2018). Bottled water can be described as any commercially treated water, manufactured, packaged and distributed for sale in sealed food grade containers and is intended for human consumption. In the context of bottled water, consumers may prioritize different quality dimensions, such as: purity, taste, packaging, and certification.

**Purity:** According to Edema, et al. (2021), purity refers to the absence of harmful contaminants, chemicals, and microorganisms in the water. Consumers often seek assurance of purity through certifications and adherence to regulatory standards. Water purity refers to the absence of contaminants, pollutants, and microorganisms, and is a key factor in determining water quality,

crucial for protecting natural resources, human health, and ecological balance (Danso, & Frimpong, 2019).

**Taste:** Taste is a subjective but important determinant of water quality, primarily because it influences consumer perception and acceptance (Adediji & Ajibade, 2020; Dada, 2019). While taste itself doesn't directly indicate the presence of harmful contaminants in many cases, it can be a strong indicator of undesirable substances that affect the aesthetic quality and potentially the safety of drinking water.

**Packaging:** Packaging, as a dimension of water quality, refers to the impact of the materials and processes used to contain and distribute water on the water's safety, purity, and overall quality. It goes beyond just preventing leaks and considers how the packaging itself can interact with the water. The choice of packaging material, the manufacturing process, and the integrity of the packaging play significant roles in ensuring that the water remains safe, palatable, and of high quality throughout its shelf life.

**Certification:** Certification, as a dimension of water quality, refers to the formal process by which an independent third-party organization verifies that a water product, process, or system meets specific established standards and regulations related to water quality. It provides assurance to consumers and stakeholders that the water has been tested, treated, and handled according to defined criteria. National Agency for Foods and Drugs Administration and Control (NAFDAC) is the regulatory agency in Nigeria that certify the quality of bottled water. Certification is a significant dimension of water quality as it provides a formal, independent verification that water products and processes meet established quality standards. It enhances consumer trust, facilitates trade, and drives continuous improvement in the water industry, ultimately contributing to the availability of safe and high-quality drinking water.

### 2.1.1 Consumer Preference

Consumer preference is defined as the subjective (individual) tastes, as measured by utility of various bundles of goods. According to Novemsky, Dhar, Schwarz, & Simonson (2019), the consumer preferences are positive motivation, expressed by the affective compatibility towards a physical product, service or trading firm. Preferences can be triggered by the features related to the material substance of the goods (shape, size, print, taste, colour, consistency, package, brand reputation, certification etc.); elements referring to label, name, the statute granted to the person owning and using that particular product.

Literatures have shown that preference is different from the concept of choice, choice and preference are two radically different entities: choice is an action while preference is a state of

mind (Adebiyi, Shitta, & Olonade, 2019); Ogwo, & Igwe, 2020; Mohammad, & Wajidi, 2020). Preferences are the result of a long-term relationship between the brand and the consumer, as choice learns to associate the brand with a symbol and perceive it as having high quality. Following these deep connections created over the course of time, a strong emotion is developed which lies on the basis of preferences, remaining present even in the absence of the friendly symbol or of any other component feature. Additionally, conducted studies have established various concepts related to the preference, such as the concept of the formed preference which underlines the idea that the consumers' preferences are not better defined, but rather formed along the process of choosing, a constructive point of view which suggests that different tasks and contexts highlight different aspects of the options, the consumer concentrating on different considerations leading to inconsistent decisions. Knowledge of consumer preferences is especially important with respect to the various activities carried out at the organizational level, necessary for its survival (Boshoff, & Gray, 2021).

Bottled water producers need to put into consideration competitive pricing, safety and purity, convenience and accessibility, brand reputation as well as certification in order to gain consumer preference towards a brand and preferences for that particular brand (Opele, Afolabi and Onifade, 2018). Consumer preference is used primarily to mean an option that has the greatest anticipated value among a number of options. Bottled water consumers are expecting certification, safety and purity in every brand of bottled water they consume. This will enhance satisfaction, loyalty and repeat purchase, hence consumer preference (Dick, & Basu, 2018). Consumer preference for bottled water in Lagos State is significantly high and driven by a confluence of factors primarily related to concerns about the quality and reliability of the public water supply.

### **Drivers of consumer preference**

Oyatoye, Adebiyi, & Amole, (2023) described drivers of consumer preference as the metrics used to understand and measure what customers like, want, and choose among available options. These indicators help businesses gauge the success of their products, marketing strategies, and overall brand appeal. They include:

**Repeat Purchase Rate:** The percentage of customers who buy a product or service more than once. High repeat purchase rates signify strong preference and loyalty.

**Purchase Frequency:** How often consumers buy a particular product or from a specific brand. Higher frequency suggests a stronger preference.

**Customer Retention Rate:** The percentage of customers retained over a specific period. High retention suggests strong preference and satisfaction.

**Churn Rate:** The percentage of customers who stop using a product or service. Low churn indicates preference and loyalty.

**Brand Perception and Image:** Surveys assessing how consumers view a brand on attributes like quality, value, and trustworthiness. Positive perceptions drive preference.

## 2.2 Theoretical Review

The theory underpinning this study is Expectancy-disconfirmation theory. Expectancy-disconfirmation theory was developed by Oliver, R. L. in the 1977. The theory holds that consumers form satisfaction judgments with a product by comparing their expectations about the product performance (Oliver, 1980).

According to Morgeson (2019), satisfaction is related to the size and direction of the disconfirmation experience that occurs as a result of comparing product performance against expectations. The author stated further that expectation-disconfirmation theory evaluates the perceived performance of product and compare it with what consumer is expected in order to determine his level of satisfaction. Opele et al., (2020), agreed that consumers are dissatisfied when service received could not meet their expectations. This theory is relevant to the study because a dissatisfied bottled water consumer may switch to another brand of bottled water, therefore, bottled water producers should tailor the production of their products towards consumer expectations so as to enhance customer loyalty and retention, hence consumer preference.

## 2.3 Empirical Review

Several studies have been carried out on product quality and many variables such as customer satisfaction, customer patronage, customer retention, etc; Some were carried out on the chemical quality of the water, some on the microbiological quality, some on the physical quality and some on the physiochemical quality of the water. For instance, Airaodun et al., (2019), in their study of sachet water packaged within Kano metropolis, analyzed the physicochemical characteristics (color, taste, odour, alkalinity, total hardness, pH, chloride, sodium, potassium, calcium, lead, zinc, chromium, copper, cobalt, nickel and manganese) using standard methods. All samples were tasteless, colorless and odourless. The pH, alkalinity and total hardness were within WHO permissible limit. The concentration of sodium, potassium and calcium was found to be within the acceptable limit and the chloride of most of the samples is above the WHO acceptable limit.

Obiri, Okore and Jones (2018) examined the microbiological quality of sachet drinking water and bottled water sold on the streets of Kumasi, Ghana and concluded that bottle water in the Ghanaian market is of good microbiological quality.

Some studies were carried out on consumer preference, customer satisfaction and product quality, examples, a study of Siew-Phaik, Ayankunle, and Hanisah, (2019) on service quality and customer satisfaction in telecommunication service provider in Malaysia. Servqual model was used to examine the impacts of reliability, responsiveness, assurance, empathy and tangible aspects on customer satisfaction while gap analysis was used to determine the perceived satisfaction on each dimension of service quality and regression analysis was conducted to test the relationship between service quality and level of customer satisfaction. Results indicated that reliability, responsiveness, assurance and empathy positively influenced customer attitudes in terms of satisfaction and loyalty.

Similarly, Malik, Ghafoor, and Igbal, (2018) carried out research on impact of brand image, service quality and price on customer satisfaction in Pakistan telecommunication sector. Data was collected from educational and business sector of Gujranwala region of Pakistan using stratified random sampling technique. The result indicated that brand image, service quality and price are correlated to customer satisfaction.

In addition, the study conducted by Oghojafor, Mesike, Omoera, and Bakare, (2017) on modelling telecom customer attrition using logistic regression. The study was conducted in Nigeria, a sample survey was conducted using two stage sampling technique. 600 subscribers were randomly selected in 14 local government areas in Lagos state, logistic regression model was applied to examine the effect of socio-economic factors that influence subscribers switching from one service provider to another and findings revealed that call expenses, providers' advertisement medium, type of service plan, number of mobile connections and providers service facilities are reliable indicators of customers' attrition.

The study conducted by Lee (2020) on Factors influencing customer loyalty of banking service: empirical evidence from Korea. A stratified sampling technique was used and sample were randomly drawn from each group. A total of 384 bank customers in Korea. Responses were collected from Seoul in Korea through structured questionnaire. The result of the path analysis showed that service quality, perceived value and customer satisfaction significantly affected customer loyalty. It was concluded that customer loyalty may be significantly influenced by high-quality service.

### 3.0 Methodology

### 3.1 Research Design

Descriptive survey research design was adopted for the study. The use of survey research design is aimed at getting fair representation of the population of study with a view to having broader understanding of the phenomenon being studied. It is appropriate for this study because it reveals accurate account of the characteristic, such as behaviour, opinion, abilities and knowledge of a respondent individual situation.

### 3.2 Population of the Study

The population of study comprises the customers of bottled water market in Lagos State. The bottled water market in Lagos State is characterized by a wide range of brands, varying in price, packaging, and quality. Due to the inability to determine the population size, the population of this study is considered to be infinite.

### 3.3 Sample size

This refers to the number of individuals or entities selected from the overall population for data collection, and determining an appropriate size was crucial for ensuring the statistical validity and reliability of the research findings. The sample size for this study was determined using Cochran (1977) sample size formula for infinite population. The choice of Cochran sample size determination is to avoid bias in the selection process, also, fairly and equitably ensure that selected participants are true representation of the entire study population:

$$n = \frac{Z^2 PQ}{e^2}$$

Where:

n- Sample size

Z = Statistical parameter that depends on the confidence level (1.96)

P = The numerical probability of success (0.5)

Q = 1-P (1 - 0.5) = 0.5

e = Level of precision or sampling of Error of 0.05

$$n = \frac{(1.96^2) 0.5 \times (1 - 0.5)}{(0.05)^2}$$

$$n = \frac{(1.96^2) 0.5 \times 0.5}{(0.05)^2}$$

$$n = \frac{(3.8416) 0.25}{(0.05)^2}$$

$$n = \frac{0.9604}{0.0025}$$

$$n = 384$$

The sample size for the study is therefore, 384

### 3.4 Sampling technique

Convenience sampling technique was adopted to sample the opinion of 64 consumers of bottled water from staffs and visitors to each of the six selected Local government secretariat during the period of this study. The copies of the questionnaire were conveniently administered to any consumer that came in contact with the researcher and who is willing to express his or her opinion.

### 3.5 Method of Data Collection

Data for this study were collected through primary source with the of structured questionnaire. Data were collected directly from the respondents who are consumer of bottled water came in contact with across the six selected Local Government in Lagos State. Primary method of data collection can be described as the method of collecting raw information.

### 3.6 Research Instrument and Administration

Structured questionnaire was used as research instrument for this study. Four hundred (400) copies of questionnaire were administered to bottled water consumers in Lagos State. The questionnaire was adopted from Danso, & Frimpong, (2019).

### 3.7 Validity of the Research Instrument

Content validity was employed in this study to ascertain the content of the research instrument. Validity is reached when all the aspects intended to be measured actually are measured. It is also an important process to go through in order to see if the questions in the survey are easy for the participants to understand. The questions are supposed to reflect and cover the content that is being investigated, this can be controlled by asking people and experts to go through the survey and give some feedback. In order for this study to reach content validity the study employed the

judgment of expert in validating data collection instrument, through the vetting of my supervisor and authorities in this study area.

### 3.8 Reliability of the Research Instrument

The Cronbach Alpha was employed to test the reliability of the instrument. The test of reliability measures the internal consistency of the measurement scales of the items of each of the variables for primary data analysis. The result of coefficient Alphas is presented in Table 3.1.

**Tables 3.1-:** Reliability test Result using Cronbach's Alpha

S/N	Variable	No. of Items	Coefficient Alpha
1	Purity	5	0.721
2	Taste	5	0.700

**Sources:** Researcher's computation (2025)

The coefficients of the Cronbach's alpha of the variables, viz. Tangibility, Reliability, Responsiveness and customer patronage are 0.721 and 0.700 respectively. Since each of the coefficients lies between 0.7 and 1.00, this is an indicator of consistency that the items measure the same characteristics of the same constructs. Therefore, there is consistency in the measurement scales given by responses. This implies that 72.1% and 70.0% of variances in the scores of the variables respectively are reliable.

### 3.9 Method of Data Analysis

The data collected via the research instruments were analysed using both descriptive and inferential statistical. The descriptive statistics such as frequency distribution and mean were employed to condense the mass of data to evaluate the statistical properties of the variables under consideration. Meanwhile, the inferential statistics involved the use of simple linear regression to test hypotheses one and two while multiple regression analysis was used to test hypothesis three.

### 4.0 Results and Interpretations

#### 4.1 H<sub>01</sub>: There is no significant effect of purity on consumer preference for bottled water

##### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.703 <sup>a</sup>	.495	.486	.48406

a. Predictors: (Constant), Purity

**ANOVA<sup>a</sup>**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	27.295	2	13.648	58.244	.000 <sup>b</sup>
	Residual	27.884	383	.234		
	Total	55.179	384			

a. Dependent Variable: Consumer Preference

b. Predictors (Constant), Purity

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.102	.326		.315	.753
	Purity	.376	.074	.407	5.091	.000

a. Dependent Variable: Consumer Preference

The regression analysis was conducted to examine the effect of purity on consumer preference for bottled water. The model summary reveals that the correlation coefficient (R) is 0.703, indicating a strong positive relationship between purity and consumer preference. The R Square value is 0.495, which suggests that approximately 49.5% of the variation in consumer preference can be explained by the level of water purity. The adjusted R Square, which accounts for the

number of predictors in the model, is slightly lower at 0.486, but still confirms a substantial explanatory power of the model. The ANOVA table shows that the regression model is statistically significant, as evidenced by the F-statistic value of 58.244 and a significance level (p-value) of 0.000. This indicates that the overall model fits the data well and that the predictor variable (purity) significantly contributes to explaining the dependent variable (consumer preference). Looking at the coefficients table, the unstandardized coefficient (B) for purity is 0.376. This means that for every one-unit increase in the measure of purity, consumer preference increases by 0.376 units, holding other factors constant. The t-value for purity is 5.091, and the associated p-value is 0.000, which is well below the standard threshold of 0.05. This signifies that the relationship between purity and consumer preference is statistically significant.

Based on these results, the null hypothesis (H01), which states that there is no significant effect of purity on consumer preference for bottled water, is rejected. Therefore, we conclude that purity has a significant positive effect on consumer preference for bottled water.

**4.2 H<sub>02</sub>: There is no significant effect of taste on consumer preference for bottled water**

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.700 <sup>a</sup>	.491	.486	.57871

a. Predictors: (Constant), Taste

**ANOVA<sup>a</sup>**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	38.065	1	38.065	113.657	.000 <sup>b</sup>
	Residual	39.519	383	.335		
	Total	77.584	384			

a. Dependent Variable: Consumer Preference

b. Predictors: (Constant), Taste

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	.577	.317		1.820	.071
Taste	.809	.076	.700	10.661	.000

a. Dependent Variable: Customer Preference

The regression analysis was carried out to determine the effect of taste on consumer preference for bottled water, in relation to the second hypothesis:

The model summary shows that the correlation coefficient (R) is 0.700, indicating a strong positive relationship between taste and consumer preference. The R Square value is 0.491, which implies that about 49.1% of the variation in consumer preference can be explained by the perceived taste of bottled water. The adjusted R Square is slightly lower at 0.486, reinforcing that the model has good explanatory power while adjusting for the number of predictors. From the ANOVA table, the regression model is statistically significant, as shown by an F-statistic of 113.657 and a p-value of 0.000. This suggests that the overall model is a good fit and that the predictor variable taste of bottled water significantly contributes to explaining variations in consumer preference. The coefficients table provides further insight. The unstandardized coefficient (B) for taste is 0.809, indicating that for every one-unit increase in the perceived taste of bottled water, consumer preference increases by 0.809 units. The t-value is 10.661, and the p-value is 0.000, which is well below the conventional threshold of 0.05. This means the effect is statistically significant.

Based on these findings, we reject the null hypothesis (H02) and accept the alternative. Therefore, it can be concluded that: There is a significant positive effect of taste on consumer preference for bottled water.

**4.3 H<sub>03</sub>: There is no combine effect of purity and taste on consumer preference for bottled water in Lagos state.**

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.791 <sup>a</sup>	.626	.619	.49825

a. Predictors: (Constant), Purity, Taste

**ANOVA<sup>a</sup>**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	48.538	2	24.269	97.761	.000 <sup>b</sup>
	Residual	29.045	383	.248		
	Total	77.584	384			

a. Dependent Variable: Consumer Preference

b. Predictors: (Constant), Purity, Taste of bottled water

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.100	.292		-.342	.733
	Purity	.409	.090	.354	4.545	.000
	Taste	.586	.090	.505	6.495	.000

a. Dependent Variable: Consumer Preference

The regression analysis was performed to evaluate whether the combined influence of purity and taste has a significant effect on consumer preference for bottled water in Lagos State, in line with the third hypothesis. The model summary reveals a correlation coefficient (R) of 0.791, indicating a very strong positive relationship between the combined predictors purity and taste of bottled water and consumer preference. The R Square value of 0.626 shows that approximately 62.6% of the variation in consumer preference for bottled water can be explained by the joint effect of these two factors. The adjusted R Square, which adjusts for the number of variables in the model, is slightly lower at 0.619, confirming that the model has substantial explanatory power. The ANOVA table supports the significance of the overall model, with an F-statistic of 97.761 and a p-value of 0.000. This result confirms that the model fits the data well and that the combined predictors significantly influence consumer preference for bottled water.

Further insights are provided by the coefficients table. The unstandardized coefficient for purity is 0.409, with a t-value of 4.545 and a p-value of 0.000, indicating a statistically significant positive effect. Similarly, taste of bottled water has an even stronger effect, with a coefficient of 0.586, a t-value of 6.495, and a p-value of 0.000. These results suggest that both variables contribute meaningfully and significantly to explaining changes in consumer preference.

Based on the evidence from the model summary, ANOVA, and coefficients, it is clear that both purity and taste of bottled water have a statistically significant combined effect on consumer preference. Therefore, the null hypothesis (H03), which states that there is no combined effect of purity and taste on consumer preference for bottled water in Lagos State, is rejected. In conclusion, the findings indicate that: The combined influence of purity and taste has a significant and positive effect on consumer preference for bottled water in Lagos State.

#### 4.4 Discussion of Findings

The findings from hypothesis one shows that the regression analysis indicate a statistically significant and positive effect of purity on consumer preference for bottled water. With a correlation coefficient (R) of 0.703 and an R Square value of 0.495, it is evident that water purity plays a major role in influencing consumer preferences accounting for nearly half of the variation in consumer decision-making regarding bottled water. The strong positive relationship between purity and consumer preference suggests that consumers have clear expectations about the purity of bottled water and that when this expectation is met or exceeded, it leads to a favorable consumer response. The significant regression coefficient for purity ( $B = 0.376$ ,  $p < 0.001$ ) supports the idea that consumers positively adjust their preferences when they perceive bottled water to be pure—likely due to health and safety concerns, and also value perception. This aligns with positive disconfirmation, a central tenet of Expectancy-Disconfirmation Theory, where the perceived purity of bottled water either meets or surpasses expectations, resulting in enhanced consumer preference. The implication is that bottled water brands that invest in ensuring and communicating high purity levels are more likely to retain and grow their consumer base, as they are meeting or exceeding the anticipated standards of quality.

Furthermore, the significance of purity as a predictor highlights the psychological and perceptual dimensions of consumer behavior, which are central to EDT. Consumers are not just evaluating bottled water based on price or packaging—they are deeply influenced by how well the product aligns with their expectations of healthiness, cleanliness, and reliability. The regression results of hypothesis two revealed a statistically significant and strong positive effect of taste on consumer preference for bottled water. With a correlation coefficient (R) of 0.700 and an R Square value of

0.491, nearly half of the variance in consumer preference can be attributed to the perceived taste associated with quality. The strength of the relationship is further confirmed by the highly significant t-value (10.661) and p-value (0.000) for the taste variable. Taste likely represents a key expectation component. Consumers generally associate pure-tasting water with cleanliness, healthiness, and product integrity. When bottled water meets or exceeds these taste-related expectations, positive disconfirmation occurs consumers are pleasantly surprised or satisfied leading to increased preference for the brand or product.

The regression coefficient ( $B = 0.809$ ) is particularly noteworthy. It indicates that a unit increase in the perceived taste leads to a relatively large increase in consumer preference, more so than what was observed in the regression for purity alone. This suggests that taste is not merely a sensory factor, but also an indicator of performance fulfillment. Consumers may interpret a clean, fresh taste as confirmation of the product's overall quality and safety, fulfilling or even surpassing their initial expectations. This reinforces the key mechanism of Expectancy-Disconfirmation Theory—perceived performance surpassing expectations (positive disconfirmation) leads to higher satisfaction and stronger preference. Conversely, if the taste fails to align with what consumers anticipate (negative disconfirmation), it could significantly damage preference, even if the product is pure by chemical standards. Thus, perceived taste acts as both an experience and a validation mechanism in consumer decision-making.

The regression analysis on the combined effect of purity and taste on consumer preference for bottled water reveals a highly significant and positive relationship. With a correlation coefficient ( $R$ ) of 0.791 and  $R$  Square of 0.626, the results suggest that 62.6% of the variability in consumer preference can be jointly explained by perceptions of purity and its associated taste. This substantial explanatory power underscores the importance of these attributes in shaping consumer decisions. Benchmarking these findings against the Expectancy-Disconfirmation Theory (EDT) provides critical insight into consumer behavior. According to EDT, consumer satisfaction—and ultimately preference—is driven by the comparison between expected performance and actual performance. When a product meets or exceeds expectations (positive disconfirmation), satisfaction increases, leading to stronger consumer preference. If it falls short (negative disconfirmation), dissatisfaction results, decreasing preference. In this case, purity and taste serve as dual pillars of consumer expectation regarding bottled water. Consumers typically anticipate that bottled water should be chemically clean (purity) and pleasant or neutral in taste (taste of bottled water). These expectations are not only functional but also emotional and perceptual, linked to health, safety, and sensory experience.

The coefficients table confirms that both variables have statistically significant individual effects: Purity ( $B = 0.409$ ,  $p = 0.000$ ) contributes positively to consumer preference, implying that the more consumers perceive a product as pure, the more they prefer it. Taste ( $B = 0.586$ ,  $p = 0.000$ ) has an even greater influence, suggesting that sensory experience—how "pure" the water tastes is a particularly critical factor. This synergistic impact reflects a reinforced positive disconfirmation, where both the objective performance (purity) and subjective sensory validation (taste) align or exceed expectations. When both criteria are met simultaneously, consumers experience heightened satisfaction, which solidifies preference and encourages brand loyalty. Furthermore, the high F-statistic (97.761) and low p-value (0.000) in the ANOVA table confirm that the combined predictors meaningfully improve the model's explanatory power over consumer preference. This reinforces the practical relevance of the findings—bottled water producers must focus not only on ensuring chemical purity but also on delivering a sensory experience that matches or exceeds consumer expectations.

## 5.0 Conclusion

The findings from hypothesis one shows that the regression analysis indicate a statistically significant and positive effect of purity on consumer preference for bottled water. With a correlation coefficient ( $R$ ) of 0.703 and an R Square value of 0.495, it is evident that water purity plays a major role in influencing consumer preferences accounting for nearly half of the variation in consumer decision-making regarding bottled water. The strong positive relationship between purity and consumer preference suggests that consumers have clear expectations about the purity of bottled water and that when this expectation is met or exceeded, it leads to a favorable consumer response. The significant regression coefficient for purity ( $B = 0.376$ ,  $p < 0.001$ ) supports the idea that consumers positively adjust their preferences when they perceive bottled water to be pure—likely due to health and safety concerns, and also value perception. The regression results of hypothesis two revealed a statistically significant and strong positive effect of taste on consumer preference for bottled water. With a correlation coefficient ( $R$ ) of 0.700 and an R Square value of 0.491, nearly half of the variance in consumer preference can be attributed to the perceived taste associated with quality. The strength of the relationship is further confirmed by the highly significant t-value (10.661) and p-value (0.000) for the taste variable. The regression analysis on the combined effect of purity and taste on consumer preference for bottled water reveals a highly significant and positive relationship. With a correlation coefficient ( $R$ ) of 0.791 and R Square of 0.626, the results suggest that 62.6% of the variability in consumer preference can be jointly explained by perceptions of purity and its associated taste. This

substantial explanatory power underscores the importance of these attributes in shaping consumer decisions.

Based on the findings, the study concluded that there is positive significant effect of product quality on consumer preference for bottled water in Lagos state.

### 5.1 Recommendations

Based on the findings and discussions benchmarked against the Expectancy-Disconfirmation Theory, the study thereby recommended as follows:

- i. Bottled water companies should consistently maintain high levels of chemical and microbiological purity in their products. Equally important is the transparent communication of these standards to consumers through packaging labels, certifications, and advertisements. Educating consumers about the product's compliance with recognized purity benchmarks can help align with and exceed their expectations, reinforcing trust and preference.
- ii. Since taste of bottled water significantly influences consumer preference, companies should invest in refining the sensory profile of their water to deliver a crisp, clean, and refreshing taste. This includes controlling factors such as mineral content and filtration methods that affect taste. Sensory testing and consumer panels can be used to ensure that the product not only meets safety standards but is also perceived as pure through taste.

### References

- Adams, J. S. (1963), (Towards an understanding of inequity. *Journal of Abnormal and Social Psychology*, 67(7), 422-436.
- Adebiyi, S. O., Shitta, H. A. & Olonade, O. P. (2019). Determinants of customer preference and satisfaction with Nigerian mobile telecommunication services, *Journal of Management and Research*, 8(1), 1-12.
- Adediji, A. & Ajibade, L. T. (2020) Quality of well water In Ede Area, South West Nigeria. *Journal of Human Ecology* 17(3), 223-228.
- Airaodion, AI, Ewa, O, Ogbuagu, EO, Ogbuag, U, Agunbiade, AP, (2019) Evaluation of Potassium Bromate in Bread in Ibadan Metropolis: Fifteen Years after Ban in Nigeria. *Asian Food Science Journal* 7(4), 1-7.
- Alhassan, A. J., Imam, A. A, Yakasai, A. M. (2018) Quality assessment of sachet water packaged around Kano Metropolis, Nigeria. *Bayero Journal of Pure and Applied Science* 1(1), 83-87.
- Boshoff, C. & Gray, B. (2021), The relationships between service quality, customer satisfaction and buying intentions in the private hospital industry. *South African Journal of Business Management*, 35 (4) 27-37.

- Dada, A. C. (2019) Sachet Water phenomenon in Nigeria: Assessment of the potential health impacts. *African Journal of Microbiology Research* 3(1): 015-021.
- Danso, B. E. & Frimpong, I.K. (2019) Quality Analysis of Plastic Sachet and Bottled water brands produced or sold in Kumasi, Ghana. *International Journal of Development and Sustainability* 2(4): 2222- 2232.
- Dick, A., & Basu, K. (2018), Customer Loyalty: Toward and Integrated Conceptual Framework. *Journal of Academy of Marketing Services*, 22(2), 99-113.
- Edema, M.O., Atayese, A.O., & Bankole, M.O. (2021) Pure Water Syndrome: Bacteriological quality of sachet-packed drinking water sold In Nigeria. *African Journal of Food, Agriculture and Nutrition* 11(1): 4595-4609.
- Emmanuel, O, and Oyelude, S. A (2021) Quality of sachet water and bottled water in Bolgatanga Municipality of Ghana. *Journal of Applied Science, Engineering and Technology* 4(9): 1094-1098.
- Ezeugwunn, I.P, Agbakoba, N.R, Nnamah, N.K. & Anhalu, I.C. (2019) The Prevalence bacteria in packaged sachet water sold in Nnewi, South East, Nigeria. *World Journal of Dairy Food Science* 4(10): 19-21.
- Lee, H. S. (2020). Major moderators influencing the relationships of service quality, customer satisfaction and customer loyalty. *Asian Social Science*, 9(2), 1-11
- Malik, M. E., Ghafoor, M. M. & Iqbal, H. K. (2018) Impact of brand image, service quality and price on customer satisfaction in Pakistan telecommunication sector. *International Journal of Business Science*, 3 (23), 123-129.
- Mohammad, J. & Wajidi, A. Z. (2020), Cellular Mobile Phone Service and Users' Preference in Quetta City. *Journal of Managerial Sciences*, 11(1) 141-153.
- Morgeson, F. V. (2019). Expectations, disconfirmation, and citizen satisfaction with the U.S. federal government: Testing and expanding the model. *Journal of Public Administration Research and Theory*. Advance online publication. Accessed on 18/ 04/2025 from <http://jpart.oxfordjournals.org/>.
- Novemsky, N., Dhar, R., Schwarz, N., & Simonson, I. (2019), Preference fluency in choice. *Journal of Marketing Research*, 44(7), 347–356.
- Nwidu, L.L, Oveh, B, Okoriye, T. & Vaikosen, N.A (2020) Assessment of the water quality and prevalence of water borne diseases in Amassoma, Niger Delta, Nigeria, *African Journal of Biotechnology* 7 (8), 2993-2997.
- Obiri, D. K, Okore, H. A, Jones, K. (2018) The microbiological quality of drinking water sold on the streets in Kumasi, Ghana. *Lett Appl Microbiol* 37(4): 334-339.
- Oghojafor, B. E. A., Mesike, G. C., Omoera, C. I. & Bakare, R. D. (2017) Modelling telecom customer attrition using logistic regression. *African Journal of Marketing Management*, 4(3), 110-117. 2012.



- Ogwo, O. E. & Igwe, S. R (2020) “Some Key Factors Influencing Attitudes to Patronage of Table Water: The Nigerian Experience.” *International Journal of Business and Management*,7(18), 82-91.
- Olaoye, O.A. & Onilude, A.A (2022) Assessment of microbiological quality of sachet-packaged drinking water in Western Nigeria and its public health significance. *Public Health* 123(11), 729-734.
- Oliver, R.L. (1980). A Cognitive Model of the Antecedents and Consequences of Satisfaction Decision. *Journal of Marketing Research*, 17, 47-49.
- Oyatoye, E. O., Adebisi, S. O. & Amole, B. B. (2023) “An Empirical Study on Consumers Preference for Mobile Telecommunication Attributes in Nigeria”. *British Journal of Ities, March. Economics, Management and Trade*, 3(4), 419-428.
- Siew-Phaik, L., Ayankunle, .A. T., & Hanisah, M. S. (2019) Service Quality and Customer Satisfaction in a Telecommunication Service Provider, *International Conference of Financial Management and Economics*,11(8), 24-29.