

PERCEPTION SURVEY OF SELECTED BRANDS OF SACHET WATER SOLD IN BO CITY, SOUTHERN SIERRA LEONE

Mohamed Pujeh Junior^{a*}, Yahya Kudush Kawa^a, Umaru Kanneh^a, Sallu Pujeh^b

^aDepartment of Chemistry, School of Basic Sciences, Njala University, Bo City, Sierra Leone

^bFaculty of Engineering and Physical Sciences, University of Surrey, United Kingdom

*Corresponding author: mohamedpujehjunior@gmail.com

Abstract

This study was conducted to delve into the nuanced perceptions surrounding specific sachet water brands – Tex, Daramy Pure Water, Blue Diamond Water, Arjorkoh Pure Water, and Nice Pure Water – within the dynamic landscape of Bo City in Southern Sierra Leone. Bo City, a vibrant hub, witnesses local suppliers' consumption and sale of numerous sachet water brands. A meticulously crafted checklist of questionnaires was administered to comprehensively capture the multifaceted perspectives of residents. The survey encompassed a spectrum of aspects, including participant profiles related to sachet drinking water, knowledge about various brands, preferred consumption times, motivations behind choosing sachet water, consumption rates across different brands, taste preferences, confidence levels in producers, and the underlying rationale for brand selection. This multifaceted approach aims to provide a holistic understanding of the diverse factors influencing sachet water preferences and consumption patterns among the local populace. Analyses of the results revealed that most respondents chose Tex 82(41%), followed by Blue Diamond 42 (21%), Arjorkoh Pure Water 40 (20%), Daramy Pure Water 23 (12%), and Nice Pure Water 13 (7%) being the least. The study also revealed that most people's choices were based on the following parameters: Safety 82(41%), availability 47(23.5%), and good taste 34 (17%), among other parameters. A recent Canadian study of more than 1,000 citizens found that satisfaction with water quality is linked to taste, odor, and color. The research also revealed that few sachet water brands have no outlets in strategic locations within the city, and the taste of the water was a key factor, the consumption was high during the dry season of the year, and this is reflected in the annual sales record by the suppliers. From the data available at the time of writing, we concluded that Tex is the first preference of the customers, followed by Blue Diamond, Arjorkoh, and Nice Pure Water, being the least due to their taste, color, and availability.

Keywords: Water quality; sachet water; drinking water; water

doi: <https://doi.org/10.24815/jcd.v13i1.42588>

Received: November 25, 2024; **Revised:** February 27, 2025; **Accepted:** March 12, 2025; **Published:** 5 June 2025.

Citation IEEE style: P. J. Mohamed, K. K. Yahya, K. Umaru and P. Sallu, "Perception survey of selected brands of sachet water in Bo city, southern Sierra Leone," *Chimica Didactica Acta*, vol. 13, no. 1, pp. 1-5, 2025, doi: 10.24815/jcd.v13i1.42588.

Copyright © 2025 by Authors, published by chimica didactica acta. This is an open-access article distributed under the Creative Commons Attribution NonCommercial-ShareAlike 4.0 International (<https://creativecommons.org/licenses/by-nc-sa/4.0/>)



INTRODUCTION

Globally, 2 billion people (26% of the population) do not have safe drinking water, and 3.3 billion (46%) lack access to safely managed sanitation, according to the report published by UNESCO on behalf of UN-Water (UN World Water Development Report 2023). The global urban population facing water scarcity is projected to double from 930 million in 2016 to 1.7- 2.4 billion in 2050 (UN World Water Development Report 2023). This could probably be due to an increase in human and animal populations [2]; [3] or because potable water now attracts increased rates and fees, which many cannot afford due to poverty [4], [5], [6] or because of rapid industrialization, urbanization, and new uses of treated water [7], [8]. Many people, therefore, resort to taking unsafe water, which places them at risk of different diseases, resulting in public health challenges. [2]

Just after the 11-year civil war that ended in 2002, which led to the massive destruction of towns/cities' water supply infrastructure, in or around 2001-2003, the sale of water in rubber cups was introduced in most commercial markets in Sierra Leone, but this business quickly came to a halt when people started raising health and sanitation concerns about sharing the same cup or drinking in the same cup. From early 2005 to the close of 2006, a private water production company called Grafton introduced the sale of sachet water in principal cities in Sierra Leone. One of the many reasons for the introduction of sachet water in Sierra Leone's commercial market was to provide easy access to potable and affordable drinking water to the general masses, and to also help curb the spread of waterborne diseases, such as typhoid and cholera, in the country. This sachet of water (Pure water) was accepted by

many to be safe, clean, pleasant, and portable to carry. A study on sachet drinking water in Ghana has indicated that sachet water was one of the coping strategies for urban water shortages. [9].It was becoming the most important drinking water source in Accra, and in many low-income neighborhoods. [10].

In Sierra Leone's urban areas, the situation is only marginally better, with 13% of the population having access to improved water sources that are free from contamination and 20% having access to safely managed sanitation. The water sources and sanitation facilities are mainly off-grid (non-piped) systems (WHO/UNICEF 2021). A survey conducted by Action Against Hunger (2019) indicates that 32.2% of the Sierra Leonean population suffers from a lack of access to drinking water (Action Against Hunger, 2019). Good quality water should be odorless, colorless, free from microbial, and safe to be supplied to the consumer.

This research aimed to examine the perception of the consumer in their quest for the selection of brands, usage of sachet drinking water, knowledge, time of consumption, reasons, anesthetic (taste, odor, and color) their confidence level.

METHOD

Description of Study Area

Bo City is the administrative center of the southern province. It's the second largest city in Sierra Leone and the most populous district in Sierra Leone after Freetown. It is located at -7.96 latitude and 11.74 longitude, and it is situated at an elevation of 104 meters above sea level. Bo City has a population of 223,075 (2021 SSL, population census), making it the biggest city in the southern province. It has an area of 1500 square miles (approximately 3885 square kilometers), and the city is divided into three wards, namely, North, East, and West.

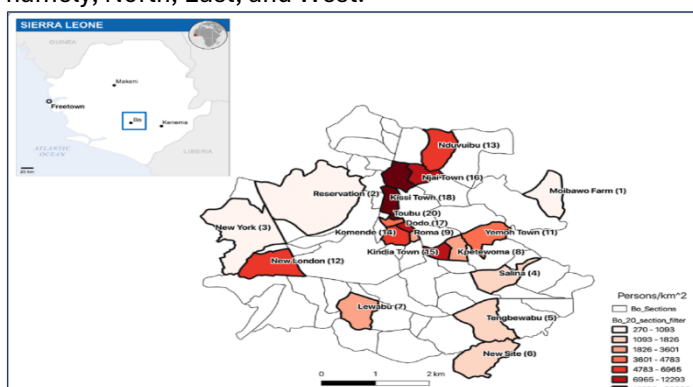


Figure 1. Map of Bo city showing study area Source: (Source: OCHA/ReliefWeb)

Water Sampling

Five popular brands of sachet water sold in Bo City were selected for this research, these water brands were selected based on their availability, quality, Taste, safety, convenience, water courage, and proximity of outlet, among

other parameters. These water suppliers have different outlets, and their production points are their major sale points whenever the sachet water is needed in large quantities, and most importantly, because of the discount at the production points as compared to that of their retail points.



Figure 2. Name of Brands of Sachet water with a volume of 250ml

Data Collection Technique and Data Analysis

Two hundred (200) checklists of structured questionnaires were administered at random to respondents who comprised teachers, pupils, and students and were within the age bracket of 15-55 years. The questionnaire focuses on their perception of the five (5) brands of sachet water consumed within Bo City. The questionnaire comprises three sections. Section one (1) focuses mainly on the distribution of the respondents' age gap and gender, Section two (2) discusses the usage profile of the respondents about drinking sachet water. Section three (3) comprises consumer satisfaction with the five brands of sachet drinking water. To ensure quality assurance, I supervised the administering of the checklist to identify any irregularities and to enhance sound data

collection and accuracy of data with a 100% response rate. Checklists were administered in plain English. Where participants could not read, the questionnaires were read out to them so they could decide. Data collected from this investigation was analyzed using statistical methods and tables.

RESULTS AND DISCUSSION

The results of this study encompass various aspects related to drinking water consumption in Sierra Leone. These include an analysis of respondents' demographic characteristics, their frequency of drinking water use, the sources through which they learn about drinking water brands, the typical times they consume water, and the selling rates of drinking water across different regions. These findings provide a comprehensive understanding of the factors influencing drinking water usage patterns and market dynamics in the region.

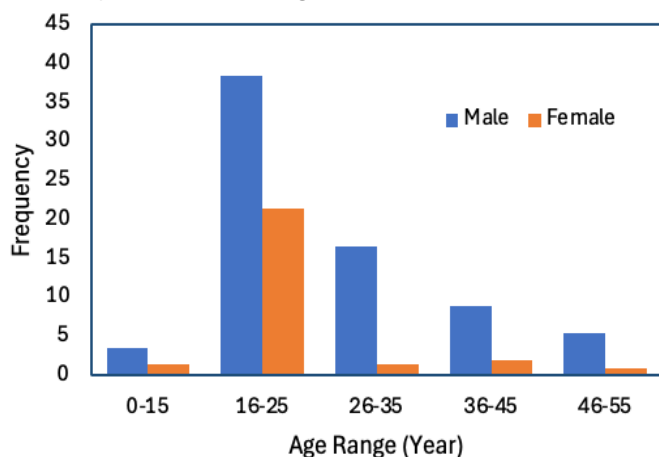


Figure 3. Age Distributions of The Respondents

Figure 3 indicates the distribution of age brackets of the respondents as follows: 0–15 (3.5% male, 1.5% female), 16–25 (38.5% males, 21.5% females), 26–35 (16.5% males, 1.5% females), 36–45 (9% male, 2% female), and 46–55 (5.5% male, 0.5% female). Results from the analysis indicated that most of the participants were within the age bracket of 16–25, highlighting this group as the primary consumer demographic. There were more males (73%) than females (27%) involved in the research, and the smallest age gap was from 0–15 (3.5% males and 1.5% females).

Similar research carried out by [11] on the demographic representation of participants indicates that 53.8% were male and 46.2% female, which aligns with the gender proportions observed in this study. This demographic pattern underscores a broader trend where younger age groups and male respondents are often more accessible or willing to participate in studies of this nature. The high representation of the 16–25 age group could reflect their increased engagement with products or services being studied, possibly due to lifestyle or economic activity. Furthermore, the low representation of the 0–15 and 46–55

age brackets suggests potential barriers to participation, such as limited relevance of the study topic to their daily lives or lower awareness of the research. These findings emphasize the need to explore strategies for engaging underrepresented groups to achieve a more balanced demographic representation in future research.

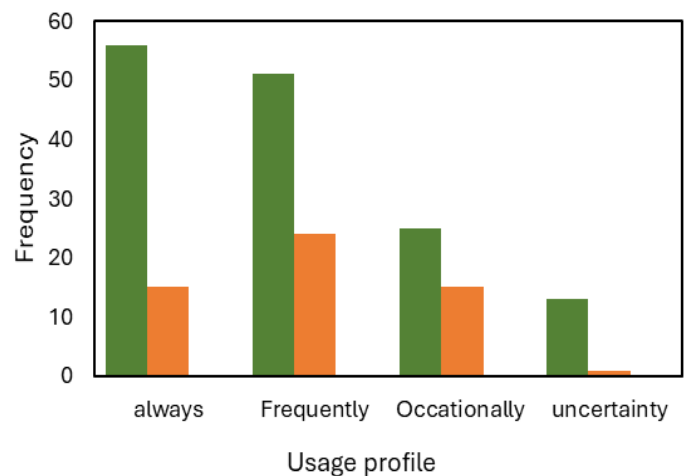


Figure 4. Participants Profile Usage of Sachet Drinking Water

From Figure 4; respondents were asked about their usage in drinking sachet water, some participants said, frequently, (25.5% Yes, 12% No), Always (28% Yes, 7.5% No), Occasionally (12.5% Yes, 7.5% No) and Uncertainty (6.5% Yes, 0.5% No). From the analysis of the result, an average of 145 (72.5%) participants admitted (Yes) individual usage of sachet drinking water, whereas 55 (27.5%) said No. It can, however, be said that individual usage of sachet drinking is extremely high.

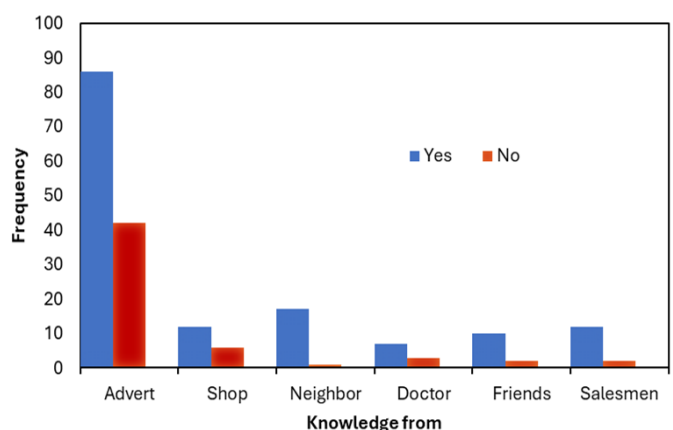


Figure 5. Knowledge about the Different Brands of Sachet Water

Participants were asked about their knowledge about the different brands of sachet water sold at commercial markets, the result of the analysis indicated that those that got the information through advert (43% Yes, 21% No), Shop (6% Yes, 3% No), Neighbor (8.5% Yes, 0.5% No), Doctor (3.5% Yes, 1.5% No), Friends (5% Yes, 1% No), Salesmen

(6% Yes, 1% No). Most sachet water users got their information about the different brands through adverts, and the least from friends. This indicates that advertisement is the major channel used by sachet marketers to sell their products to consumers. This implies that most people got to know new brands of sachet drinking through advertisements.

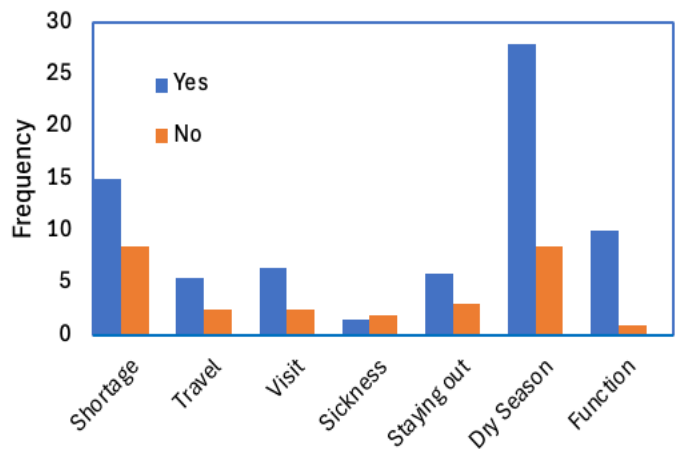


Figure 6. Time of When Participants Normally Drink Sachet Water

Time of consumption played an important role in the determination of water consumed by the various participants. When participants were asked to tick the time they consumed a large quantity of sachet water, participants stated as follows, Shortage (15% Yes, 8.5% No), Travel (5.5% Yes, 2.5% No), Visit (6.5% Yes, 2.5% No) Sickness (1.5% Yes, 2% No), Staying out (6% yes, 3% No), Drying Season (28% Yes, 8.5% No), Function (10 % Yes, 0.5% No). From the result, it can be concluded that most people drink sachet water during the dry season, 56(28%), Shortage of water, 30(15%), and functions, 20 (10%). In Sierra Leone, sachet water sales are more visible during the dry season, this is as a result of a decline in the water table of most wells and hand-dug wells. In most rural settings, most locals resort to drinking water from streams and rivers.

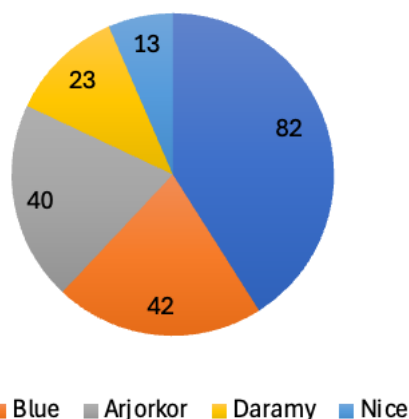


Figure 7. The Rate of Sales of the Different Brands.

Figure 7 indicates the result of sales of the different brands as presented by the respondents: Tex Pure Water 82(41%), Blue Diamond 42(21%), Arjorkor 40(20%), Daramy Pure Water 23(12%), Nice Pure Water 13(7%). It could be concluded that the choice of brand for most consumers in Bo City is Tex Pure Water, followed by Blue Diamond Water and Arjorkor, Daramy Pure, and Nice Water being the least considered by the consumer. The choice of the brand by the participant could have been influenced by the taste of the water, size, availability, odor, and network coverage. A Similar study was carried out in Ghana by [12]. The result of the analysis indicated that respondent who makes decisions on the brand of water to consume or buy was largely based on color, and taste which likely gave them preference for a particular brand of sachet water.

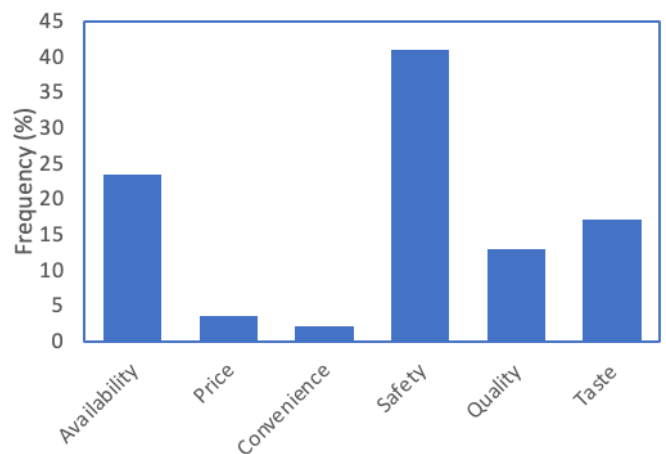


Figure 8. Different Reasons for Drinking Sachet Water

From Figure 8, 82% of the respondents say because of safety, 47% say because of availability, 34% of the respondents say because of Taste, 26% of the respondents say because of quality, 7% of the respondents say because it is cheap and 4% of the respondent say because of convenience. It can be concluded that most people drink sachet water because of safety (82%), Availability (47%), Taste (34%), and quality (26%). It can be said that the consumption of sachet water is influenced by the above parameters. Similar research published by [13] Consumers' choice of a particular brand was influenced by several factors, which included quality of the water (30.7%), taste of the water (25%), and knowledge of the source of the water for production (21.3%). Another study from Australia, which examined historical water quality data and customer complaints, also noted that customers primarily perceive the safety of drinking water on aesthetic qualities such as taste and odor [14]. Public acceptability of drinking water forms part of the World Health Organization's guidelines for drinking water quality (WHO, 2011).

CONCLUSION

The primary objective of this research is to assess the perception of people about five brands of sachet water that

are popularly sold or consumed in Bo City, southern Sierra Leone. While a lot of research has been done in terms of examining the chemical, biological, and physical parameters, in Bo City, southern Sierra Leone, little research has been documented in terms of individual perception concerning these five brands of sachet water. Sachet water plays a pivotal role in the life sustenance of inhabitants in Bo City. The locals in their various settlements depend on sachet water producers for potable water supply for home consumption. Therefore, it is imperative to examine the perception of people to be able to determine what drives their passions for these brands of sachet water. It can be concluded that most participants chose Tex Pure Water as the most popular brand, Tex (41%), followed by Blue Diamond (21%) and Arjokoh (20%), and Nice Water being the least selected. Participants' selection was based on taste, color, safety, and availability. The result of the analysis is similar to that done by [15] In investigating customer perception of the quality of water at Adum, a suburb of Kumasi, Ghana, which established that respondents' perception of the water's taste, smell, and color affected their choice of water for drinking.

REFERENCES

- [1] I. Delpla, C. Legay, F. Proulx, and M. J. Rodriguez, "Perception of tap water quality: Assessment of the factors modifying the links between satisfaction and water consumption behavior," *Science of The Total Environment*, vol. 722, p. 137786, Jun. 2020, doi: 10.1016/J.SCITOTENV.2020.137786.
- [2] H. C. C. Maduka et al., "(FUTO), Imo State, Nigeria Using Microbiological Indices," 2014. [Online]. Available: www.iosrjournals.org
- [3] O. Adebayo, E. Olugbenga, E. Sunday, and U. K. Nchedo, "Microbiological examination of sachet water sold in Aba, Abia State, Nigeria," 2012.
- [4] E. Oyelude, "Quality of Sachet Water and Bottled Water in Bolgatanga Municipality," 2012.
- [5] A. O. Adewoye, S. O. Adewoye, and O. A. Opasola, "Microbiological Examination of Sachet Water Experimentally Exposed to Sunlight," 2013. [Online]. Available: www.ijopaasat.in
- [6] Saka A Balogun, "Physicochemical and Microbiological Profile of Drinking Water Sold In Abeokuta, Ogun State, Nigeria," 2014.
- [7] M. O. E. P. A. O. Mojekeh, "The roles and attitudes of urbanites towards urban water insecurity. Case of the New Juaben Municipality, Ghana".
- [8] R. Gangil, R. Tripathi, A. Patyal, P. Dutta, and K. N. Mathur, "Bacteriological evaluation of packaged bottled water sold at jaipur city and its public health significance," *Vet World*, vol. 6, no. 1, pp. 27–30, Jan. 2013, doi: 10.5455/vetworld.2013.27-30.
- [9] Michael Osei Asibey, "Vulnerability and urban farming: Coping with price volatility in Ejisu Juaben municipality, Ghana".
- [10] J. Stoler, J. R. Weeks, and G. Fink, "Sachet drinking water in Ghana's Accra-Tema metropolitan area: Past, present, and future," *Journal of Water Sanitation and Hygiene for Development*, vol. 2, no. 4, pp. 223–240, 2012, doi: 10.2166/washdev.2012.104.
- [11] Rachel Kusa & Williams Kwari Joshua, "Evaluating the potability and human health risk of sachet water in Wukari, Nigeria," *Arch Environ Occup Health*, 2022.
- [12] H. O. Addo et al., "Consumer Preference and Quality of Sachet Water Sold and Consumed in the Sunyani Municipality of Ghana," *Biomed Res Int*, vol. 2020, 2020, doi: 10.1155/2020/3865895.
- [13] I. I Betepe, "College of Science assessment of the quality of some sachet water brands in the Sunyani metropolis of Ghana, a thesis submitted to the Department of Environmental Science in partial fulfillment of the requirements for the degree of Master of Science in Environmental Science," 2015.
- [14] Michael A. Webber, "Taste and odor and public perceptions: what do our customers really think about their drinking water".
- [15] Umar Mohammed, "Water quality deterioration in piped water and its effect on usage and customers' perception: a case study of Adum- Kumasi, Ghana".