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Determinants of Bottled Water Continuance-Use Intention in High-Inequality and Low Access Contexts

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Abstract
Nigeria is a country where access to municipal supply is among the lowest in the world, thus its population depends very much on continuance-use of bottled water (BW) for access to safe drinking water. This study investigates the intention for continuance-use behaviour of BW consumers in the country based on inequality brought by their high demographic- and socio-economic background. The need to study this issue arises because it is unclear as to how the inequalities, BW consumption habits and risk exposures affect consumers' continuance-use intention (CUI). Analyses of self-reported data from 365 consumers from Middle Belt Region of Nigeria, using the binary logistic model show that the most likely respondents who belonged to the CUI group will be those respondents who have their postgraduate qualifications compared to those who were older, those within the highest income group, those who reported using BW for less than ten times a month or more than five years, and those who were exposed to BW quality information. Respondents' gender was found to show no relationship with BW CUI.

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1. Introduction

Lack of access to safely managed drinking water was identified as a major challenge to the United Nations' achievement of the Millennial Development Goals (MDGs) which ended in 2015 and later changed to the Sustainable Development Goals (SDG). In many developing countries, low access rate poses a challenge to the current UN Sustainable Development Goals (SDG) six - universal and equitable access to safe and affordable drinking water by the year 2030. In Nigeria for instance, the percentage of people with access to safely managed drinking water continues to be one of the lowest in Sub-Saharan Africa. The country's data for year 2000 to 2015 show people's access to safe drinking water remained below 20% which is less than the average Sub-Saharan Africa of 24% (World Bank 2018). With lack of adequate municipal water supply (Kaur et al., 2015), and 63 million people still lack access (WaterAid Nigeria, 2018), millions of people have no choice but to resort to consume bottled water (BW) and the continuance of its use is observed to be critical not only for access to safe drinking water but also to the achievement of the SDGs.

This study investigates the intention for continuance-use behaviour of BW consumers in the country based on inequality bought by their high demographic- and socio-economic background. The need to study this issue arises due to lack of available literature on the subject that show how the inequalities, BW consumption habits and risk exposures affect consumers' continuance-use intention (CUI).

2. Literature Review

As defined by World Bank (2018), access refers to water availability on premises; safe water refers to drinking water which is free from faecal and priority chemical contaminations; and that safe water can include packaged bottled drinking water. It is consumers' desire to have access for safe drinking water that they shift to consume

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bottled water (the single serve polyethene terephthalate bottled water) which they believed to be safer than tap water (Viscusi et al., 2015; Ferrier, 2001).

According to the literature, existing consumers' commitment to continue the use of BW as a source of drinking water (in this study, the term used is continuance-use intention (CUI)), is an antecedent of actual use (Bhattacherjee et al., 2008; Venkatesh & Goyal, 2010). Theories such as the Expectation Disconfirmation Theory (EDT) and the Theory of Planned Behaviours (TPB) also suggest CUI to be a function of satisfaction from previous consumption or use (Oliver, 1980) and it is an antecedent of actual future behaviours (Ajzen, 1991). CUI's importance to customer retention is also identified (Gray & Wert-Gray, 2012).

In the context of drinking water in Nigeria, BW CUI may well be a major element of success of the SDG's universal access to safe and affordable drinking water by 2030. However, it is important to note that the country's existing inequalities arising from their demographic and socio-economic differences, consumption habits and risk-level exposure in the larger population indicate that only few Nigerians who could afford and access BW can exploit the opportunity provided by availability of BW for their consumption and continued use. For instance, the inequalities in access to safe drinking water could be due to the consumers' gender and age, education, and income, while risk-level exposure and consumption habits could also play some roles in the decision to continue BW use.

According to Ferree (1990), gender theory suggests gender as the principal antecedent of peoples' behaviour (Hall et al., 1995). Gender differences in BW consumption is well documented in consumer behaviour literatures (Pacheco et al. 2018; Wright et al. 2018). In the case of income, Bibi et al. (2014) found relationship between income and willingness to pay for improved drinking water. BW purchase among the poor amplified the socioeconomic burden numerous times vis-a-viz the rich (Massoud et al., 2013), such that consumers with lower incomes were found to be 17 times less likely to purchase bottled water than otherwise (York et al., 2011). Education of household heads has been found to have significant effects on BW buying decision (Francisco, 2014). Consumers with higher education were about 60 times more likely to purchase bottled water for regular consumption than less educated ones (York et al., 2011). Daneshvary and Schwer (2000) also found education to be a significant predictor of purchase intention.

Habit, a behavioural preference is associated with intention and future behaviour. According to Ye and Potter (2007), habit guides intention and future behaviour. The Habit Persistent Theory (Brown, 1952) holds that actual consumption is a function of experience. Habit positively impacted behavioural intention (Makanyeza & Mutambayashata, 2018); it is a key predictor of CUI (Huang et al., 2013) and is measured as the number of times of use for some past periods (Olsen et al., 2013). Experience refers to the length of time, usually in years since the adoption of a product. Inclusion of experience is important because customer experience is relevant in a retail context (Srivastava & Kaul, 2016). This study combines the two perspectives to contextually define consumption habit as the frequency in, and experience of BW's use. At the individual level, extant research argues that experience is directly related to the number of times the product has been used by an individual (Fornell et al., 1985). While consumption habit is vital because its formation "may well be a rational response of a consumer with unchanged tastes" (Fornell et al., 1985: p.1087), experience or how long an individual has used BW may be a proxy for CUI. Therefore, given that CUI is a loyalty variable, both the frequency and length of use are not only important but are likely to be covariates of BW CUI in this study.

In general, socio-economic differences constitute the major underlying causes of inequalities among population sub-groups (Fabrizio et al., 2017; Hussain et al. 2016). It has been observed that the rising inequality in the African continent has consequences (Adesina, 2015) and this constituted a major obstacle to the achievement of MDGs of access to safe drinking water (UNESCO, 2015). Therefore, it has been suggested that strategies to achieve the SDG drinking water target should include an arrangement to progressively wear down the inequalities (Bain et al., 2014) which emanate mostly from the demographic and socio-economic population characteristics. Hence, factoring-in inequalities in access in developing water quality policy framework in order to focus on those most affected, has been advocated (Bain et al., 2014).

While the drinking water stakeholders would be interested in a population that have strong continuance intention, however, whether belonging to a population sub-group, or which sub-group, would determine the likelihood of continuance-use is not apparent from existing studies. Previous studies (e.g. Pacheco et al., 2018; Francisco, 2014; Vasquez, 2016) did not explore the potential roles of demographic, socio-economic factors, risk-level exposure and consumption habits could have on BW CUI in Sub-Saharan Africa, where access remains low and demographic and socio-economic inequalities have remained intractably high (Fabrizio et al., 2017). Additionally, whereas extant literatures have shown the positive effects of perception, satisfaction, and trust on CUI (Liang et al., 2018; Oghuma et al., 2016; Hussain et al. 2017), how BW consumers' demography, economic status, exposure to BW risk-level information, and habits relate to CUI in low access and high inequality contexts, is poorly understood as yet.

The knowledge of how these factors relate to CUI is needed to aid policy planning targeted at narrowing the inequalities in access to drinking water and informing marketing segmentation strategies. The objective of this paper is to determine how the consumers' gender, age, education, income, BW risk-level exposure, and

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consumption habits relate to the likelihood of a BW consumer belonging to the strong CUI group, in a low access and high-inequality contexts. This study intends to answer the following specific research questions – In a low - access and high-inequality contexts, do the consumers' gender, age, education, income, BW risk-level exposure, and consumption habits significantly relate to the likelihood of a BW consumer belonging to the strong CUI group? The following section presents the methodology of this study.

3. Methodology

This study applies a binary logistic model to explore the effects of the proposed variables (gender, age, education, income, risk-level exposure and consumption habits) on the likelihood that the respondents belong to a strong CUI. The study was conducted in the Middle Belt Region of Nigeria; the selection was triggered by the fact that this region functions as the nerve-centre for businesses and is resident to BW companies, distribution outlets, and all classes of BW consumers. For example, it houses the Federal Capital Territory of Nigeria. Moreover, with the seat of the Federal Government Abuja falls in this region, it means that many public and private sector employees, and people from diverse ethnicities, culture, and demographic and socio-economic characteristics choose it as a place to reside in. In addition, the area has become a point of focus for several consumer behaviour studies in recent times (e.g. Oluyege et al., 2014; Oladipupo et al., 2017; Lawal et al., 2018).

The unit of analysis for this study individual. This study used 458 purposive samples of BW consumers (PET single-serve BW user) who participated voluntarily in the survey carried out (face-to-face exercise). Purposive sampling strategy was used in the absence of a sampling frame.

In the structured questionnaire, measurement for the CUI construct was adapted from Bhattacherjee (2001) due to its relevance, high psychometric properties (CR = 0.83, AVE = 0.62), and popularity among consumer behaviour researchers (Lee, 2010; Oghuma et al., 2016; Wen et al., 2011; Alraimi et al., 2015). The study measures CUI with three items – "In the future, I intend to drink BW frequently"; "My intention is to continue drinking my regular brand of bottled water rather than drink any alternative", and "I plan to drink more bottled water in the future" and responses to the item statements were measured using a 5-point-Likert scale starting from 1=strongly disagree to 5=strongly agree. For data analysis, the variable was dummy-coded "weak CUI = 0" and "strong CUI = 1", using the Transform and Visual Binning functions in IBM SPSS 23. For gender, age, education, income, How Often, Drink Experience, Buy Purpose, When Drink, respondents were asked to check the boxes appropriate to their demographic, socio-economic characteristics, and consumption habits.

3.1 Treatment

The lead up to the treatment stage reported here followed the procedures in Maholtra (2014). Prior to questionnaire administration, participants were randomly assigned to two groups – the experimental and control. The experimental group received abstracts of 19 journal articles as a treatment. The articles selected for the experiment met the following inclusion criteria:

1. Articles were laboratory analyses of PET single-serve BW samples,
2. The BW samples were randomly selected from Nigeria,
3. The articles were peer-reviewed and
4. Published within a five-year (2013 - 2017).

Of the 19 papers, 12 of them reported on detection of microbial contaminants ranging from escherichia, staphylococcus, bacillus to pseudomonas aeruginosa; one reported on violation of mineral composition limits, and the other six reported on the fact that the BW samples analysed met guidelines for drinking water quality in the country. The respondents in the experimental group were exposed to these pieces of information before completing the questionnaire.

3.2 Analytical framework

Logistic regression model used to analyse the data for the study was due to its appropriateness. According to Peng et al. (2002), the method is suitable for a study with binary categorical outcome variables where the linear probability model is heteroskedastic (i.e. does not assume equal variances amongst the predictors) as this allows the model in predicting the probability values beyond the (0,1) range. Further, the model is perhaps more common in use (Hedeker & Mermelstein, 2000) because error terms for dichotomous data are not normally distributed. Thus, the use of logistic regression precludes the normality assumption. Further, since the outcome variable is qualitative, dichotomous, and binary in nature, the binary logistic regression model would present the best estimate of factors that influence consumers CUI in this study.

This study evaluates three models - one, two and three (Table 2). The first model comprises of the demographic variables of gender and age. The socio-economic variables of education and income were introduced later to form model two. The full model – model three comprises all the variables. The variables were incrementally included after running the preceding models and recording the results of each. The relationship between the male and female, young, middle-age, and older consumers, and the probability of belonging to the strong CUI groups was tested.

4. Results

4.1 Descriptive analysis

The respondents' profile show that the majority were males (65.0%), those below 37 years (51%), those with

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secondary schools to university qualifications (50%), those who have consumed BW for more than 5 years (74%), and those who reported that BW was for their personal consumption (65%).

4.2 Case classifications

The case classification allows for assessment of how well the cases are classified into the dichotomous groups of the response variable. In a multi-model test, the classifications for preceding models constitute the reference point for subsequent models. In this study, the overall percentage of properly classified cases are 66.8% (model 1), to 67.8% (model 2), and 69.9% in the full model (Table 1).

4.3 The "goodness-of-fit"

The Goodness-of-Fit index assesses the relative amount of the observed variances and covariances explained by a model (Teo, Tsai, & Yang, 2013) and shows how well the model fits the data structure (Molina et al., 2009). This study reports the Omnibus test, an overall fit test (Aydogdu & Yenigün, 2016) that provides evidence of a model's performance over the preceding models (Pallant 2016). The Chi square test for Models 1, 2, and 3, are statistically significant, χ^2 (3, N = 434) = 12.088, p < .007; χ^2 (7, N = 379) = 17.875, p < .013; and χ^2 (12, N = 365) = 45.446, p < .000, in that order. For the models, the Hosmer-Lemeshow Goodness of Fit Test indicates non significant χ^2 values, (2, N = 434) = 0.081, p > .960; χ^2 (8, N = 379) = 5.913, p > .657; and χ^2 (8, N = 365) = 2.300, p > .970. These results indicate an excellent fit for models 1 and 3 (where Omnibus p-values are closest to 0 and the Hosmer-Lemeshow p-values are closest to 1), and a good fit for model 2. Overall, the data fit the models well.

4.4 Variance explained

To determine how much of variances in the response variable are explained by each of the three models, Table 1 reports the pseudo coefficient of determination, Nagelkerke R^2's, the most robust of the tests (Pallant 2016). The results show that the R^2 values increased from 3.8% (model 1), to 6.4% (model 2), and to 16.3% in the full model. These indicate that the full model performed better than models 1 and 2 explaining 16.3% change in the response variable. The R^2 value for the full model is moderate (Cohen, 1988).

		Model 1			Model 2			Model 3		
Variables		Exp(β)	Sig.	95% C.I for EXP(B)	Exp(β)	Sig.	95% C.I for EXP(B)	Exp(β)	Sig.	95% C.I. for EXP(B)
Gender	Female (1)	1.040	0.858	0.674 - 1.606	1.118	0.657	0.682 - 1.833	1.211	0.481	0.711 - 2.064
Age	18 to 37 years		0.004			0.002			0.002	
	38 to 57 years (1)	0.515**	0.003	0.331 - 0.800	0.478**	0.007	0.281 - 0.814	0.470**	0.008	0.268 - 0.824
	Above 57 years (2)	1.619	0.330	0.614 - 4.268	2.459	0.130	0.766 - 7.896	3.172	0.082	0.863 - 11.653
Education	Below secondary					0.374			0.071	
	Secondary & degree (1)				1.340	0.306	0.765 - 2.347	1.581	0.141	0.859 - 2.910
	Postgraduate (2)				1.748	0.172	0.7853.- 892	2.750*	0.022	1.157 -6.538
Income	N100000 & below					0.123			0.090	
	N1010000 - 300000 (1)				0.823	0.533	0.447 - 1.518	0.644	0.194	0.331 - 1.252
	Above N300000 (2)				0.351*	0.041	0.129 - 0.957	0.334*	0.035	0.121 - 0.924
HowOften	Below 10 times (1)							0.505*	0.010	0.300 - 0.850
DrinkExp	Above 5 years (1)							0.539*	0.025	0.314 - 0.925
BuyPurpose	For celebrations (1)							0.707	0.199	0.416 - 1.201
WhenDrink	Out of home (1)							0.970	0.919	0.542 - 1.735
Group	Exposed to info (1)							0.456**	0.001	0.283 - 0.734
Constant	Constant	.614			.523			1.868		
-2 log likelihoods		538.067a			459.849a			416.864a		
Omnibus χ^2		12.088, df = 3, p<007			17.875, df = 7, p<013			45.446, df = 12, p<000		
Nagelkerke R^2		0.038			0.064			0.163		
Classifications		66.8%			67.8%			69.9%		

Note. *p≤.05; **p≤.001; 1 reference; model 1 with demographic variables only; model 2 with personal and socio-economic variables; model 3 full model with purchase habit variables

4.5 Binary logistic regression results

The assessment of predictor significances helps to show which of the variables have significant relationship with the response variable, as well as the direction of the relationship. Model 1 examines the effects of gender and age on the probability of a consumer belonging to the

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strong CUI group. The results (Table 1) indicate that there is no relationship between the gender of respondents and prediction of group membership. However, the results also show that respondents' age to be an important variable because it is found to be a significant predictor. The respondents in the middle age group category (38 to 57 years) are found to be two times less likely (1/0.515) to belong to the strong CUI category than those in the older and younger age groups [OR = 0.515, 95% CI = (0.331 & 0.800), $p < .003$]. In effect, there is a 95% confidence that the true value of the odds ratio (OR) lies between 0.331 & 0.800, $p < .003$.

In Model 2, the socio-economic variables - education and income were added to gender and age. Whereas there is no gender and education effects, the result for age is significant. The middle-aged respondents (38 to 57 years) are two times less likely (1/0.478) to belong to the strong CUI category than otherwise [OR = 0.478, 95% CI = (0.281 & 0.814), $p < .007$]. Thus, there is a 95% confidence that the true value of the odds ratio (OR) lies between 0.281 & 0.814, $p < .007$. The respondents in the highest income group are about three times less likely (1/0.351) to belong to the strong CUI category than those with lower monthly incomes [OR = 0.351, 95% CI = (0.129 - 0.957), $p < .041$].

For the full model (Model 3) the results from Table 1 indicate that six variables made significant contribution towards predicting 16.3% of the likelihood of respondents belonging to the strong CUI. The respondents in the middle age group (38 to 57 years) are two times less likely (1/0.470) to belong to the strong CUI category than those in the other age groups [OR = 0.470, 95% CI = (0.268, 0.824), $p < .008$]. Those with postgraduate qualifications are about three times more likely to belong to the strong CUI category than those with lower academic qualifications [OR = 2.750, 95% CI = (1.157, 6.538), $p < .022$]. Conversely, respondents with highest monthly income are about three times less likely (1/0.334) to belong to the strong CUI category than otherwise [OR = 0.334, 95% CI = (0.121, 0.924), $p < .035$]. Additionally, those who reported they used BW for less than 10 times per month (light users) are about two times less likely (1/0.505) to belong to the strong CUI category than those that use for more than 10 times per month [OR = 0.505, 95% CI = (0.300, 0.850, $p < .010$]. Similarly, those who indicated using BW for more than 5 years are about two times less likely (1/0.539) to belong to the strong CUI [OR = 0.539, 95% CI = (0.314, 0.925, $p < .025$]. For the experimental stage, the participants exposed to the BW quality information are over two times less likely (1/0.456) to belong to the strong CUI category than those in the non-exposure group [OR = 0.456, 95% CI = (0.283, 0.734), $p < .001$].

5. Discussion

The BW continuance-use is vital to bridging the global drinking water gap and facilitating the achievement of the UN SDG – universal access to safe drinking water by the year 2030. Although extant literature suggests that demographic and socio-economic factors and consumption habits can influence BW consumption, yet, little is known about the specific factors that predict BW CUI in a low access and high demographic and socio-economic inequality contexts (Fabrizio et al., 2017). In order to fill in the gap in the literature, this study thus examines the relationship between socio-demographic/psychographic factor (gender, age, education, income, and consumption habits) and the likelihood that a respondent belongs to the strong CUI group. A binary logistic regression was conducted using data from 458 PET single-use BW consumers from the Middle Belt Region of Nigeria.

The results show that gender has no significant relationship with the likelihood that the respondent would belong to the strong CUI. This suggests that gender does not differentiate between respondents in either of the CUI group. So, a male or female can be either in a strong or weak CUI group. This finding thus substantiates Vasquez's (2016) study, but negates the Gender Theory which holds that gender is the primary predictor of individual behaviour in families (Ferree, 1990; Hall et al., 1995). On the flip side, Rubin (1975) posits that women and men are more like each other. Specifically, extant literature suggests gender differences in preferences for BW may reflect personality characteristics (Harmon et al., 2018), the finding in this study is contradictory. Therefore, the explanation would be that the assumptions of Gender Theory is situation specific. Thus, gender differences would exist depending on the decision scenario. This is supported by Schnabel et al. (2018).

The result also indicates that the age of a respondent has an inverse relationship with the likelihood that a consumer belongs to the strong CUI group. Thus, as consumers grow older, their CUI decreases, ceteris paribus. This finding contradicts the conclusions of Francisco (2014) and Vasquez (2016). While Francisco reported no age effect, Vasquez reported that the "probability of choosing to purchase BW increased with the respondent's age" p.6. Given that these three studies deal with the similar products (BW) and were conducted in lower-middle-income developing countries (Guatemala, Philippines, and Nigeria) (World Bank, 2018), the differences in the findings may have emanated from the major motivations for consumers' use of BW, level of health-consciousness, and perhaps respondents' perception of both bottled and other alternative water sources. Along this assumption, the explanation for the current finding could be that older consumers may be less health- or fashion-conscious. This assumption is plausible because health- and fashion-consciousness are two major factors that drive BW use (Praveena et al., 2016; De Queiroz et al., 2013). Nevertheless, additional studies are necessary to reconcile the discrepancies.

Education is a positive predictor of group membership in this study. The respondents with postgraduate qualifications are about three times more

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likely to belong to the strong CUI category than those with lower academic qualifications. Previous research found individuals with higher education were 60% more likely to purchase bottled water for regular consumption than otherwise (York et al., 2011). Similarly, although this finding aligns with Francisco (2014) and Vasquez (2016), Vasquez's suggestion that "more educated respondents may be more aware of health-water linkages" (p.6) may not be the reason for the current finding. The respondents with 11-15 years of schooling (secondary to university educations) have enough education to be aware of the impact of water on health. This study argues that since education and income are positively related, increase in education can then lead to higher income and taste for high-end products. This argument may be the reason for why respondents in this category to be more likely to belong in the strong RCI since they could afford it.

However, as income rose to the highest, the income and CUI relationship becomes inverse. Thus, the consumers with the highest monthly income are about three times less likely to belong to the strong CUI category than those with lower monthly incomes. This finding corroborates an earlier study (Doria, 2006) that report higher bottled water sales amongst lower incomes groups in the United States of America. Effectually, when income rises, respondents' CUI decreases by about three times. Despite that this finding is at variance with several other studies, an explanation for this behaviour is rooted in the Substitution Effects Theory (SET) (DeGrandpre et al., 1993) from the field of economics. According to the SET, a rise in income above a certain level would normally influence consumers to shift to higher-value, higher-quality substitutes. In this instance, respondents in the highest income group are less likely to have strong CUI for BW (ordinary table drinking water). Going by the substitution effects paradigm, the consumers may abandon BW continuance-use in preference for Mineral water and/or home-water dispensers, which are more expensive since these products are affordable high-end products that could enhance the self-image of the well-to-do consumers. (Epstein et al., 2006) also observed this same effect.

This study further evaluated the relationships between respondents' consumption habits and the CUI group membership and finds that the regular users (respondents who reported using BW more than 10 times per month) are about two times less likely to belong to the strong CUI category than those who use BW less regularly. Similarly, more experienced users (respondents who reported they had used BW for more than five years) are about two times less likely to belong to the strong CUI category than the less experienced ones. These findings contradicts previous studies that found habit to be positive covariates of loyalty behaviours (Olsen et al., 2013), or behavioural intention (Makanyeza & Mutambayashata 2018). The explication of these findings is found in the Habit Persistent Theory (HPT). According to the theory, any level of actual consumption represent the cumulation of all past experiences (Brown, 1952). In other words, if a consumer's past experience has been that of dissatisfaction with a product, it will surely rub-off on the present consumption behaviours in a negative way and vice-versa.

Thus, the probable explanation for these deviant findings may be respondents' dissatisfaction with BW in the area. If this is the case, it means the respondents still use BW despite that they might not be satisfied with its quality and/or prices. Until recently, a litre of BW cost as much as a litre of petrol and the BW quality in Nigeria, or anywhere is imperfect. When consumers continue to use a product despite knowing its apparent deficiencies, it is a situation of forced consumption. Such respondents can easily switch or resort to unwholesome sources, thus making them vulnerable. Dissatisfaction with BW is apparent with the consumers exposed to results of BW quality analysis in the experimental stage of this study. Regression results show that respondents in this group are over two times less likely to belong to the strong CUI category than those in the non-exposure group. Previous studies have indicated associations between bottled water choice and risk awareness on one part (Mcleod et al. 2014) and risk concerns and bottled water consumption on the other. Thus, the finding here is logical and coherent with extant literature. On a whole, the findings outlined above hold implications for drinking water stakeholders in Nigeria and by extension, other developing countries.

6. Conclusion, Implication, and Future Research

In conclusion, the result indicates that respondents in the older age as well as those in the highest income groups are less likely to have the strong CUI whereas those with postgraduate qualifications are more likely. It also indicates that respondents who reported using BW for less than ten times a month or more than five years, and those exposed to BW quality information are less likely to belong to the strong CUI category. Respondents' gender has no relationship with BW CUI.

6.1 Policy and managerial implications

The design of this study helps to classify consumers into two groups – vulnerable (those in the weak repurchase category) and non-vulnerable or safe/protected (those in strong CUI) groups. According to World Health Organization (2017) drinking water that is unacceptable "will undermine the confidence of consumers, will lead to complaints and, more importantly, could lead to the use of water from sources that are less safe" (p.219). To this extent, consumers who are less likely to belong to the strong CUI are vulnerable as they could resort to less safe sources. This group include the middle-aged, least, and medium-educated, and the light and more experienced users. This submission holds implications for practice.

For policymakers, more attention should be paid to these vulnerable groups in the implementation of

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National and SDG drinking water programmes. The drinking water policy strategies should target population sub-groups which are less likely to belong to the strong CUI group as these consumers may become vulnerable as they may migrate to other less-wholesome sources. These population sub-groups should receive priority attention in the implementation of strategies that will grant better access. Since exposure to information about BW quality negatively influenced the likelihood of group membership, policymakers should design a strategy that induces marketers to not only conduct laboratory analysis of their water samples but also regularly disseminate outcomes of such tests for the consumers to make evidence-based instead of "perception"-based decisions. Such informed decisions could assist consumers to take additional precautionary measures where necessary.

For managers, the findings of this study portend potential loss of sizeable customer base to competitors, given that two-thirds (67%) of respondents belong to the weak CUI category. Hence, marketing managers should ensure improvement in water quality and affordability. They should also carry out trust-building measures to ensure customer retention. For the highest income group which is less likely to belong to the strong CUI, while brand owners cannot stop them from migrating to substitutes, they can track their needs and provide alternative high-end BW option for the niche.

Finally, the findings of this study express the existence of age, education, and income inequalities that predict consumers vulnerability or otherwise in the context of access to a safely managed drinking water source in Sub-Saharan Africa. It also showcases how consumption habits relate to the likelihood of belonging to a non-vulnerable group of consumers and vice versa. Taken together, targeting drinking water strategies at the vulnerable groups identified in this study can minimize existing inequalities, narrow the drinking water gap, and increase the potentials of achieving the UN SDG six – universal access to safe and affordable drinking water by the year 2030, especially in countries with the lowest access rates.

6.2 Limitations and future research

Although this study has identified the group membership of the respondents, there still exist some grey areas. For example, the reasons why the group differences exist amongst the population was not investigated. Additional studies are therefore required to explore these grey areas. Specifically, future studies could consider the effects of consumers perception, satisfaction, and trust on the consumers CUI's in the context of high-inequality and low access.

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