



CHEMOSENSORY ATTRIBUTES OF MALT BRANDS AND CONSUMERS' REPURCHASE DECISIONS IN NIGERIA

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ABSTRACT: *This research investigated the chemosensory attributes of malt brands and its influence on consumer repurchase decisions in Nigeria. An ex-post facto as well as survey research design was adopted to ascertain the influence of the exogenous variables on the endogenous variables without manipulating the independent variables. The target population of the study consists of the consumers of Guinness, Maltina, Amstel, Dubic and Grand malt brands in South Eastern Nigeria. The study used a purposive sampling technique while 352 valid copies of the questionnaire were used for analysis. Composite reliability, convergent and discriminant validities were checked. Structural Equation Modeling technique was employed to test the hypothesized relationship at 5% level of significance. The findings show that gustatory and olfactory attributes of malt brands had significant positive influences on consumer repurchase decisions. It was found that consumers' repurchase intentions significantly mediate the influences of gustatory and olfactory attributes of malt brands on consumers repurchase decisions. Also, the findings show that the influences of gustatory and olfactory properties of malt brands on consumers' repurchase significantly differ by gender groups. The findings of this study serve as a strong platform for brand management and strategic decisions on the side of malt manufacturers, managers and marketers. This research has provided valuable insights and important implications to the major stakeholders in beverages industry in Nigeria.*

KEYWORDS: Gustatory, Olfactory, Consumer Repurchase Decisions, Malt Brands, Nigeria

INTRODUCTION

Besides the physiosensory attributes of malt brands, there is another aspect of the senses that is of great paramount for proper comprehension of consumers' purchasing motives with regard to malt drinks which is the chemosensory. Chemosensory is an aspect of the senses that focuses on intrinsic or chemical components which comprises the gustatory and olfactory properties. They are intrinsic attributes which are very important in product assessment and purchases (Asioli, Wongprawns, Pignatti & Canavari, 2018). Specifically, product gustation or brand taste influences consumers' purchase decisions (Raj & Shiny, 2017). Taste has



various forms such as sweet, savour, juice, bitter, cream, salt, sucrose and sugar (Kourouniotis, Riddel, Lacy, Thorpe & Cicerale, 2016) which determine sensory impressions and consumption experience (Goyal & Singh, 2007). Pertinently, product taste is used as a differentiation strategy by firms so as to preclude their products from being faked (Rodrigues, Hulten & Britio, 2011). Olfactory attribute plays an essential role in product evaluation and purchase decision (Anggie & Haryanto, 2011). In addition, olfaction has attributes such as flavor, scent, aroma, pleasant smell, fragrance, pleasant odour (Bosmans, 2006).

Pertinently, the chemosensory product characteristics do not only facilitate purchase engagement but also take consumers through the purchasing decisions, post purchase satisfaction and repeat purchase (Kotler, 2014). Unfortunately, the rise in the amount of commercialization of different brands of malt in Nigerian markets (Obuzor & Ajaezi, 2010) has heightened competition among the manufacturers (Idoko, Nkamnebe, Nwaizugbo & Okoye, 2013). Additionally, the difficulty in meeting customers' increasing demands while broadening alternatives for consumers have made malt manufacturers and managers to seek for possible means of satisfying their customers in order to still remain in the business. As a survival strategy, some manufacturers have paid attention to some key drivers such as corporate name, price, brand name and product availability as major factors that influence consumers' patronage of malt drinks (Okocha, 2012). Regrettably, not much is known concerning the chemosensory attributes of malt that equally seem to influence consumers' repurchase decisions (Hinestroza & James, 2014).

Extant studies have shown that product taste and smell have been discussed in the literature especially in the developed countries (Krishna, 2010). Surprisingly, most of the studies focused on extrinsic or physical product characteristics (Carvalho, Qian, Van Ee & Spence, 2016; Goel & Sathwara, 2016; Gu, 2013); few studies on intrinsic product attributes (Hoegg & Alba, 2007; Krishna & Morrin, 2008) while chemosensory studies are still limited especially in Nigeria. Surprise, even the limited studies on chemosensory had varying findings as a result of different ways of operationalization which suggests further empirical evidences or justifications. For instance, product olfactory attributes were found to have insignificant influences on consumer repurchase decisions (Gueguen & Petr, 2006; Orth & Bourrain, 2005). Conversely, the findings of (Bosmans, 2006; Spangenhenn, Grohmann & Sprott, 2005) revealed that product olfactory attributes significantly influence consumer repurchase decisions. Furthermore, Raj and Shiny (2017) found that malt taste significantly influences consumer repurchase contrary to Kraus (2015). Based on previous empirical findings, further empirical evidences are needed in order to potentiate or refute the findings of the previous scholars on the influence of product gustatory and olfactory attributes on consumers' repurchase decisions especially in Nigeria.

Besides, inconsistency still subsists in the literature concerning the moderating role of gender in influencing the relationship between the exogenous and endogenous constructs of this study. Although some scholars such as (Srinivasan & Shende, 2015; Udo-imeh, 2015) found that gender significantly moderates and influences consumers' repurchase behaviours contrary to (Krishna, 211; Solomon, 2011) that found insignificant gender moderating role in influencing consumers repurchase decisions. Pertinently, there is a need to make further empirical investigations based on this contradiction since the contention has not been resolved. Accordingly, this study is an attempt to close the research gap in order to contribute to knowledge. Therefore, this study seeks to investigate whether the influence of the predicting variables on the dependent variable differ by gender groups. It is expected that this



will help to strike a balance position on the controversy regarding gender moderating role in influencing consumers' repurchase decisions. Frankly, based on available literature reviewed, it was discovered that limited literature on the subject matter exists in Nigeria. Therefore, it is against this backdrop that this study sought to fill the identified gap from the literature.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Consumer Repurchase Decision

Consumer repurchase decision entails decision either to repurchase or not to repurchase a particular brand of a product in the future as a result of its chemosensory attributes (Oghojafor, Adeosun & Ganiyu, 2013). Consumer repurchase decision is a deliberate decision or conclusion to be purchasing or not to be purchasing a particular brand of a product after undergoing through the decision-making process. Consequently, it is pertinent to emphasize that various emotional, sensorial and cognitive processes are carried out during product evaluation and purchase decision stages in order to enhance satisfaction that leads to repurchase decision (Schroder, 2013). Consumer repurchase decision is used in this study as the decision to be purchasing or not to be purchasing again or in the future, a particular brand of malt (Njoroge, 2017).

Gustatory Attribute of Malt Brand

Product taste is very important and is considered to be one of the best among other attributes of a product (Kathuria & Gill, 2013; Maehle, Iversen, Hem & Otnes, 2015). The involvement of product gustatory property or taste in purchase evaluation is pertinent since consumers always expect products that will satisfy them well (Hoegg & Alba, 2007). Taste is a primary product attribute of majority of the beverage products, because the taste experience resulting from product consumption is the primary reason for buying the product (Morrin, 2010). There is a direct relationship between perceived taste and consumers' intentions towards becoming regulars (Rupini & Nandagopal, 2015). Malt taste is found to significantly influence consumer purchase decision in Kanyakumari district (Raj & Shiny, 2017). Van Wymelbeke et al., (2014) maintained that drinks that contain sucrose influence sales and consumption. Malik, Schulze and Hu (2016) revealed that intake of sugar-sweetened beverages increases weight gain. Furthermore, taste was discovered to determine the sensory impressions of food or drinks (Kraus, 2015). Additionally, product taste influences consumer repurchase intent as well as repurchase decisions especially beverage products (Thompson et al., 2010). Consequently, taste is used as a firm's differentiation strategy by reducing products from being faked by the competitors (Rodrigues, Hulten & Britio, 2011). Based on this narration, we hypothesize that:

- H1. Gustatory attribute of malt brand has a positive significant influence on consumer repurchase intention.
- H2. Gustatory attribute of malt brand has a positive significant influence on consumer repurchase decision.



Olfactory Attribute of Malt Brand

Product olfaction is essential in consumer perception, evaluation and purchase of a product offering (Crowley & Henderson, 1996). The olfactory bulb detects olfaction forms such as; odors, flavour, aroma, scent, fragrance, congruence and so on and also fast-tracks stimuli or signals to the limbic system that eventually links sensation and emotion to memories (Bosmans, 2006). Some companies are looking for measures to improve on the flavour, congruency, scent, fragrance and aroma of their products in order to increase their brand identity (Grohmann and Sprott, 2005). Smell has attributes such as flavour, scent, aroma, fragrance, congruence, pleasant odor and stink (Orth & Bourrain, 2005). Pleasant or congruent scents enhance evaluation of products and stores as well (Bosmans, 2006; Spangenhenn, Grohmann & Sprott, 2005). Product smell influences consumers repurchase decisions (Iman, 2001). Similarly, Gueguen and Petr (2006) observe that product odor and smell have positive influence on consumer patronage. Good product olfaction or smell triggers memory and substantiate product value since pleasant smell results in fragrant sensory experience (Krishna et al., 2010). Product pleasant smell directly influences buyer's intention and purchase decision (Chabat & Michon, 2003). Even in a competitive environment, product flavour, fragrance as well as pleasant odor influence the consumers and stimulate purchase actions (Gueguen & Petr, 2006). Interestingly, some researchers have contended that olfactory properties have insignificant influence on consumer repurchase decisions (Mattila & Wirtz, 2001; Orth & Bourrain, 2005, Gueguen & Petr, 2006). Conversely, other researchers' findings revealed that flavour, pleasant odor; aroma and congruent scent significantly influence consumer repurchase of a product (Bosmans, 2006; Spangenhenn, Grohmann & Sprott, 2005; Heinio, Katina, Liukkonen & Poutanen, 2003). Based on these arguments, we hypothesize:

H3. Olfactory attribute of malt brand has a positive significant influence on consumer repurchase intention.

H4. Olfactory attribute of malt brand has a positive significant influence on consumer repurchase decision.

Consumer Repurchase Intention: (Mediating Variable)

Consumer repurchase intention is the likelihood that a consumer will buy or not buy a particular brand of a product again (Justin & Iyoti, 2012). It is a plan to react or not to react toward a behaviour. The intention is also seen as the probability that a consumer will rebehave in a particular way under specific situations which may or may not happen (Al Qeisi & Al-Abdallah, 2013). Intention is the antecedent that drives and facilitates consumers' decisions to purchase products (Hawkins & Mothersbaugh, 2010). Consumer repurchase intention is the intent of the consumer to repurchase or not to repurchase a particular brand of a product in the future. Apparently, it is a desire to buy or not to buy a product in the future. However, when the consumer purchase intent is strong, there is higher likelihood for repeat purchase decision (Haque et al., 2015). In addition, repurchase intent is seen as the primary determinant of repurchase behaviour. Extant literature has shown that a person may intend to purchase a product, but eventually may or may not do so. It is pertinent to predict if a person intends to purchase or not to purchase malt drink because of its chemosensory attributes. Repurchase intention is the key motivator of repurchase decisions (Chiew et al., 2014). There is a strong relationship between repurchase intent and repurchase decision (Kim



& Pysarchik, 2000). Kourouniotis et al., (2016) captures that consumers intend to purchase malt drinks because of perceived right attributes such as taste. Consumers who are satisfied with malt product will have a positive attitude towards malt brand. If a consumer has a positive attitude towards the malt brand it will increase his repurchase intention as well as repurchase decisions (ByoungHo & Yong, 2005). Based on this narration, we hypothesize the following hypotheses:

H5. Consumer repurchase intention significantly relates to consumer repurchase decision toward malt brands.

H6. Consumer repurchase intention significantly mediates the influence of gustatory attribute of malt brand on consumer repurchase decision.

H7. Consumer repurchase intention significantly mediates the influence of olfactory attribute of malt brand on consumer repurchase decision.

Moderating Variable (Gender)

A good number of researchers have maintained that gender plays a significant role in moderating and influencing consumers' purchase decisions (Alauddin et al., 2015; Bogue et al., 2005; Fernandes & Londhe, 2015; Goyal & Singh, 2007; Kraus, 2015; Yadav & Pathway, 2016). Similarly, some researchers maintained that gender as a moderating variable promotes the predictability of consumer purchase decision (Udo-imeh, 2015). Also, gender plays an essential role in moderating consumer purchase decisions (Kraus, 2015; Srinivasan & Shende, 2015; Hasan, 2014; Bendall-Lyon & Power, 2013; Bashir, Zeeshan, Sabbar, Hussain & Sarki, 2013). On the other hand, some researchers maintained that gender is a poor moderator of consumer purchase decisions (Schiffman & Kanuk, 2010; Krishna 2012, Solomon, 2011; Vyncke, 2002). Further, the assertion has been argued by other scholars (Krishna, 2011; Solomon, 2011) who maintained that gender is a poor moderator for consumer purchase behaviour.

Nevertheless, Wojcicki and Heyman (2011) found that malt drinks and beverages produce no nutritional value across gender. Ngoroje (2017) found that there is no significant relationship between gender and purchase of soft drink in Nairobi Kenya. He also reported that the purchase and consumption of malt drinks did not coincide with a person being single or married (Ngoroje, 2017). Elfhag et al., (2010) found that the rate of consuming malt is higher among men in Nairobi, Kenya contrary to (Ngoroje, 2017) who reported that it is higher among women in Nairobi, Kenya. Mohamed et al. (2015) reported that gender plays a critical role in the purchase and consumption of soft drinks among Malaysian primary school children. They found that the purchase and consumption of soft drinks is prevalent among boys as compared to girls. Elfhag, Tynelius and Rasmussen (2010) reported that gender, low education and age are major determinants of soft drink consumption. They contend that the consumption rate for soft drink was higher among men and decreased with age and education.

Furthermore, in adolescence, boys seem to generally require a higher energy intake than girls, due to greater average body weight and higher resting metabolic rate (Yeh, 2010). Notwithstanding, Vereecken et al. (2014) findings reported a lower proportion of soft drink purchase as well as consumption among females in comparison with males. Their findings also indicated that gender was a significant predictor of sugar-sweetened beverage

consumption and that females consumed less amounts of sugar sweetened beverages than their male counterpart. Obviously, the controversy is still on and the contention has yet not been resolved. As a consequent, there is a need for further empirical investigation in order to ascertain the true position on the argument that gender does not significantly moderates consumer repurchase decisions. Based on this narration, we hypothesize the following hypotheses:

- H8. The influence of gustatory attribute of malt brand on consumer repurchase intention does not significantly differ by gender groups.
- H9. The influence of olfactory attribute of malt brand on consumer repurchase intention does not significantly differ by gender groups.
- H10. The influence of gustatory attribute of malt brand on consumer repurchase decision does not significantly differ by gender groups.
- H11. The influence of olfactory attribute of malt brand on consumer repurchase decision does not significantly differ by gender groups.
- H12. The relationship between consumer repurchase intention towards malt brand and consumer repurchase decision does not significantly differ by gender groups.

The Proposed Model

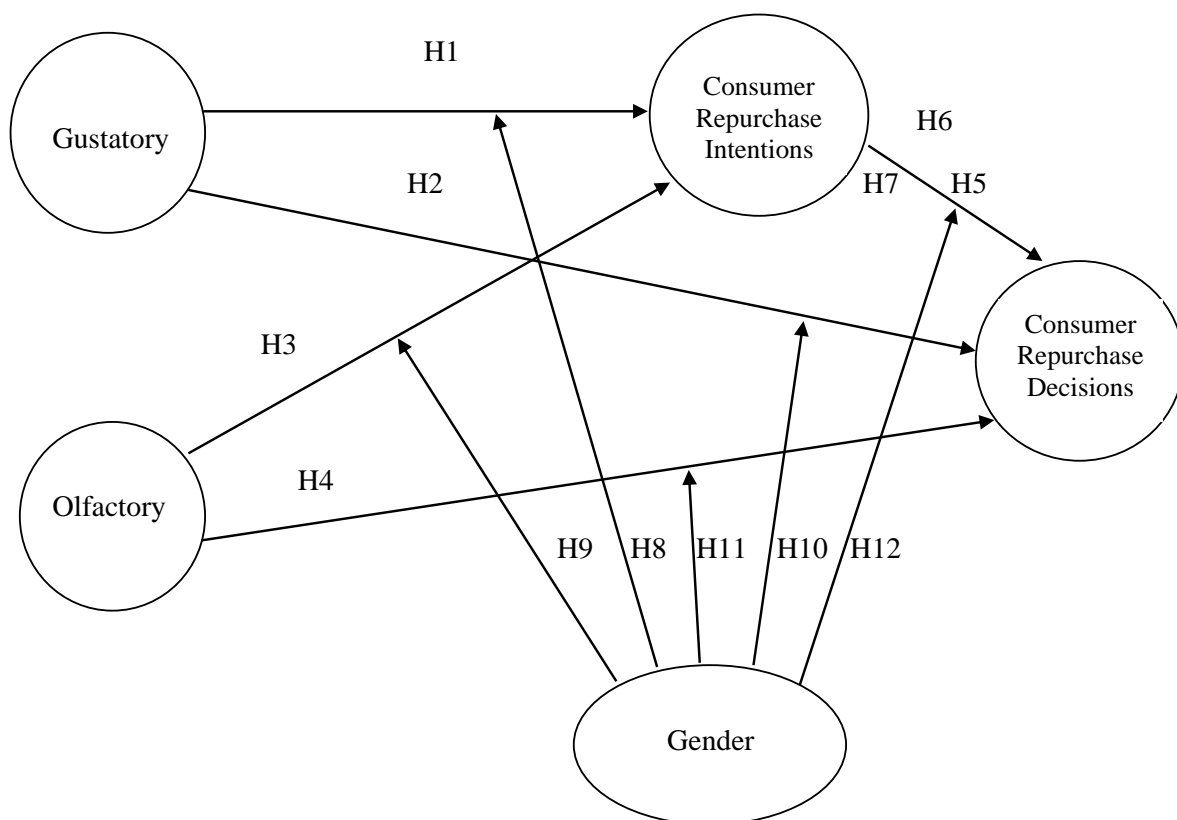


Figure 1: Proposed Conceptual Model

Source: Authors' conceptualization, 2020.



METHODOLOGY

The study adopted an ex-post facto as well as survey research design because of the non-manipulative nature of the variables of this study and also to allow legitimate application of both descriptive and inferential statistics. The target population of the study consists of consumers of malt drinks in south eastern part of Nigeria. The population size was difficult to obtain because there is no sampling frame of malt consumers in the study areas. The sample size of 384 consumers of selected malt drinks; Guinness, Maltina Amstel, Dubic and Grand malt brands was statistically determined using Cochran formula which is used for unknown population size. The study adopted a purposive sampling technique by making sure that only adult malt consumers that have consumed from the selected malt brands under investigation were allowed to participate in the study. Furthermore, respondents were drawn from five States in South eastern part of Nigeria namely; Abia, Anambra, Ebonyi, Enugu and Imo. Also, only malt consumers age 18 years and older found in public drinking points in the geographical areas under study were surveyed. The source of data collection for analysis was primary source using self-administered copies of the questionnaire. The scale used in the current study was adapted from previous studies and also modified to suit the context of the study. The questionnaire items were developed from the literature and the measurement scale adapted from the previous studies (Raj & Shiny, 2017; Bosmans, 2006; Chiew et al., 2014 and Njoroge, 2017) as shown on table 1.

Table 1: Battery of Measurement Items and Sources

Latent construct	Number of items	Sources of scale
Gustatory	3	Raj and Shiny (2017)
Olfactory	3	Bosmans (2006)
Consumer repurchase intention	2	Chiew et al. (2014)
Consumer repurchase decision	2	Njoroge (2017)

Source: Compiled by the Authors, 2020.

Prior to the main survey, a blind taste test was conducted using 20 students as the participants. The rationale was to confirm that they can identify the taste of each of the brand of malt drinks under investigation. In addition, the questionnaire items for each construct were pilot tested and revalidated because of alterations made to the measurement instrument. However, the instrument for the survey was structured to have a screening questions part as well as three main sections A, B, C and D. The screening part was designed to check whether the respondent drinks malt or not. If the respondent has taken malt before, he/she would be allowed to proceed to the main sections. Otherwise, the respondent would not proceed for the main survey. Section A was designed to capture the demographic characteristics and general information about the respondents. Section B was designed to ascertain the extent the malt attributes are valued by the respondents. Section C was design to measure the level of consumer repurchase intent while section D was design to measure the level of consumer repurchase decision towards malt brands in the South-East, Nigeria. Likert's five-point interval scale style of structured questionnaire was adopted. The data collection lasted for four months at different times in a day, weekdays and weekend so as to minimize sampling bias and also get varied mix of respondents (Kok & Fon, 2014).



RESULTS

Demographic Profile of the Respondents

Out of 384 copies of the questionnaire distributed to the respondents, only 352 valid copies were used in the analysis, 24 copies were lost while 8 copies were not properly filled. Concerning the demography, 48.3% of the respondents are males while 51.7% of the respondents are females. This shows that both sex were sampled and also participated in the survey. Based on respondents' profile on marital status, 67.2% of the respondents are single; 33.3% of the respondents are married; 0.9% of the respondents are divorced while 0.6% of the respondents are widowed. The age distribution of the respondents within the age bracket of 18-30 constitutes 41.6%. However, 31.7% of the respondents are within the age bracket of 31-40 years; while 18.5% of the respondents are within the age bracket of 41-50 years. The age distribution of the respondents within the age bracket of 50 and above constitutes 28.1%. The majority of the respondents fall within the age bracket of 18-40 years. The income distribution of malt consumers denominated in Nigeria Naira (₦) shows that 1.4% of the respondents earn an average monthly income below ₦18,000; 16.9% of the respondents get an average monthly income range of ₦18,000 – ₦50,999; 23% of the respondents get an average monthly income range of ₦51,000 – ₦99,999; 28.7% of the respondents get on the average, monthly income range of ₦100,000- ₦199,999 while 30.1% of the respondents get on the average, monthly income range of ₦200,000 and above. This implies that consumers can comfortably purchase malt drinks.

Assessment of Structural Equation Modeling

Reliability and validity

Composite reliability and Cronbach's alpha were used to check for internal consistency reliability. For the estimation of the reflective measurement model in PLS-SEM; Cronbach's alpha is believed to be more of conservative measure, hence recent attention on composite reliability which is the upper bound of internal consistency reliability (Hair et al., 2017). Therefore, this study used both measures in checking for the internal consistency reliability. Hair, Ringle and Sarstedt, (2011) maintained that composite reliability should be ≥ 0.70 . The composite reliability as well as Cronbach's alpha for all the latent constructs for this study was computed in smartPLS 3. Based on the result as shown on table 2, all the constructs exceeded the 0.708 threshold as proposed by (Hair et al., 2017) which made them reliable and acceptable. The validation of the research instrument was confirmed by assessing convergent and discriminant validity. Construct validity is established when both convergent and discriminant validities are met (Hair et al., 2014). Based on the result on table 2; the average variance extracted (AVE) of all the constructs checked ranging from 0.519 – 0.642 exceeded the benchmark of 0.50 as proposed by (Hair et al., 2017); therefore, convergent validity was maintained. In addition, the discriminant validity was attained by ensuring that the square roots of the average variances extracted (AVEs) were above their correlation pairs in each latent construct. As depicted on table 2, the square root of the AVEs ranged from 0.720-0.801 which shows that the criterion for estimating discriminant validity was not violated judging from the bench mark set by Hair et al. (2014) that for the discriminant validity to be met, each construct must have more variance with its indicator than any other construct.

**Table 2: Reliability and Convergent Validity Checks**

Indicator	Factor loading	Cons-struct	Cronbach alpha	Composite reliability	Convergent validity AVE	Discriminant Validity				
						Con-struct	GUS	OLF	CRI	CRD
GUS 1	0.709	GUS	0.770	0.783	0.519	GUS	0.720			
GUS 2	0.712					OLF	0.618	0.727		
GUS3	0.739					CRI	0.644	0.587	0.795	
OLF 1	0.723	OLF	0.737	0.762	0.529	CRD	0.639	0.611	0.602	0.801
OLF 2	0.710									
OLF 3	0.749									
CRI 1	0.822									
CRI 2	0.766	CRI	0.845	0.836	0.632					
CRD 1	0.813									
CRD 2	0.789									
		CRD	0.809	0.821	0.642					

Note: square roots of AVE are in bold in the diagonal.

Source: PLS-SEM Algorithm Output, 2019.

Structural Model Result

The study used the standardized root mean square residual (SRMS), the root means square residual covariance (RMS_{θ}) as well as normed fit index (NFI) for assessing the PLS-SEM goodness of fit. The SRMR value of 0.042, RMS_{θ} value of 0.0823 and the NFI value of 0.903 implies that the model fit well with the data. The coefficient of determination (R^2) values of the model used in this study are 0.558 (55.8%) and 0.513 (51.3%) for consumers repurchase decisions (CRD) and consumers' repurchase intentions (CRI) respectively; which is substantial and also showing the explanatory powers of the exogenous variables in determining the changes in the endogenous variables (Hair et al., 2017).

Table 3: Bootstrapping Results of the Structural Model

	Hypotheses paths	Path Coefficients	T values	P values	Decision	Type of Mediation
H1	GUS -> CRI	0.691	12.349	0.000*	Supported	
H2	GUS -> CRD	0.427	5.900	0.001*	Supported	
H3	OLF -> CRI	0.595	8.594	0.000*	Supported	
H4	OLF -> CRD	0.298	3.764	0.003*	Supported	
H5	CRI -> CRD	0.917	18.721	0.000*	Supported	
H6	GUS -> CRI -> CRD	0.280	3.423	0.021*	Supported	Complementary
H7	OLF -> CRI -> CRD	0.264	3.207	0.042*	Supported	Complementary

Note: path is significant (*) at 5% level of significance; if the p-value is ≤ 0.05 or t-value ≥ 1.96

Source: PLS-SEM Output, 2020.



The proposed research model for the determination of the significance or otherwise of direct, mediated and moderating hypotheses to guide the study were tested. The Partial least squares structural equation modeling was used to test the significance of the model using bootstrapping procedure. As shown in table 3, a positive significant influence was found to exist between gustatory and consumer' repurchase intention ($\beta = 0.691$, $t = 12.349$, $p < 0.05$). Also, gustatory had a significant influence on consumer' repurchase decision ($\beta = 0.427$, $t = 5.900$, $p < 0.05$). Again, a positive significant influence was found to exist between olfactory and consumer repurchase intention ($\beta = 0.595$, $t = 8.594$, $p < 0.05$). Similarly, olfactory had a significant influence on consumer repurchase decision ($\beta = 0.298$, $t = 3.764$, $p < 0.05$). In addition, the relationship between consumers repurchase intentions and consumers repurchase decisions was found to be positive and significant ($\beta = 0.917$, $t = 18.721$, $p < 0.05$). For the mediating hypotheses, consumer repurchase decision was significantly mediated by consumer repurchase intention towards gustatory attributes of malt brands ($\beta = 0.280$, $t = 3.423$, $p < 0.05$). Also, consumer repurchase decision was significantly mediated by consumer repurchase intention towards olfactory attributes of malt brands ($\beta = 0.264$, $t = 3.207$, $p < 0.05$). The type of mediation found among the constructs used in this study is complementary/partial mediation.

Table 4: Multi-Group Analysis (Gender Comparative Analysis)

Moderating Paths	Path Coefficients (Females)	Path Coefficients (Males)	t-Values (Females)	t-Values (Males)
GUS -> CRI	0.855	0.537	8.218	5.178
OLF -> CRI	0.511	0.209	4.065	3.236
GUS -> CRD	0.527	0.289	4.214	3.410
OLF -> CRD	0.403	0.201	4.001	2.335
CRI -> CRD	0.940	0.568	9.101	7.798

*Note: The t-values in bold show the dominance of females over males' sample groups.
Source: PLS-MGA Bootstrapping Output, 2020.*

Table 5: Test of Significant Difference Using Welch-Satterthwait Method

	Paths	Path coefficients-differences (Females - Males)	p-value (females vs males)	Decision and strength of the influence
H8	GUS -> CRI	0.318	0.000*	Significant the influence is stronger among females than males
H9	OLF -> CRI	0.302	0.001*	Significant the influence is stronger among females than males
H10	GUS -> CRD	0.238	0.003*	Significant the influence is stronger among females than males



H11	OLF -> CRD	0.202	0.008*	Significant the influence is stronger among females than males
H12	CRI -> CRD	0.372	0.000*	Significant the relation is stronger among females than males

NB: path is significant () at 5% level of significance if p-value is ≤ 0.05 or t-value ≥ 1.96 .*

Source: PLS-SEM Output, 2020.

For the moderating hypotheses (H8-H12), the combination of table 4 which presents the multi-group moderation analysis result using (PLS-MGA) for gender moderation based on gender specific group samples (males/ females) and table 5 which shows the result of test of the significant difference between males and females sample groups were used in gender groups comparison and analysis. Judging from table 5, the influence of gustatory on consumer repurchase intention significantly differs by gender ($\beta = 0.318$, $p < 0.05$). As shown on table 4, the influence was stronger among females than males sample groups (females: $\beta = 0.855$, $t = 8.218$ vs males: $\beta = 0.537$, $t = 5.178$). Also, the influence of olfactory on consumer repurchase intention significantly differs by gender ($\beta = 0.302$, $p < 0.05$). Furthermore, as shown on table 4, the influence was stronger among females than males sample groups (females: $\beta = 0.511$, $t = 4.065$ vs males: $\beta = 0.209$, $t = 3.236$). In addition, the influence of gustatory on consumer repurchase decision significantly differs by gender ($\beta = 0.238$, $p < 0.05$). As shown on table 4, the influence was stronger among females than males sample groups (females: $\beta = 0.527$, $t = 4.214$ vs males: $\beta = 0.289$, $t = 3.410$). Also, the influence of olfactory on consumer repurchase decision significantly differs by gender ($\beta = 0.202$, $p < 0.05$). Further, as shown on table 4, the influence was stronger among females than males sample groups (females: $\beta = 0.403$, $t = 4.001$ vs males: $\beta = 0.201$, $t = 2.335$). Finally, table 5 also shows that the relationship between consumer repurchase intention and consumer repurchase decision significantly differs by gender groups ($\beta = 0.372$, $p < 0.05$). The relationship was stronger among females than males sample groups (females: $\beta = 0.940$, $t = 9.201$ vs males: $\beta = 0.568$, $t = 7.798$). Based on the results as shown on tables 3, 4 and 5 and figure 2; all alternative hypotheses were supported.

DISCUSSION

This paper set out to investigate the influence of chemosensory attributes of malt brands on consumers' repurchase decisions in Nigeria. Our findings show that gustatory attributes of malt brands influence consumers' repurchase decisions. This implies that gustatory attribute of malt brand is very essential in influencing consumer repurchase intentions (Chironi et al., 2017). The finding is in line with Muntaha (2016) that found that the better the taste of malt brand, the more likely the consumer will buy that particular brand and also repurchase more of it in the future. The high statistically significant of gustatory attributes of malt brands in Nigeria may be linked to the fact that many consumers value to a very great extent the low sugar taste of malt brands as well as other gustatory components of malt brands. Our findings align with the findings of (Ray & Shiny, 2017; Morrin, 2010) that found a positive significant influence between taste/gustatory attribute and consumers' repurchase decisions. The



findings of Kourouniotis et al. (2016) confirmed that taste is a primary driver for purchasing a particular product. The finding of this study affirms the report by Altamore et al. (2018) that taste appearance and odor are always important drivers of consumer repurchase of products.

Furthermore, the study findings show that olfactory properties of malt brands influence consumers' repurchase intentions as well as decisions. This implies a strong positive influence between the olfactory attributes of malt brands and consumers' repurchase behaviour. The high significance of this construct in Nigeria suggests that majority of malt consumers value to a great extent the flavour as well as other olfactory properties of malt brands while making repurchase decisions. The finding of this study supports the findings of (Anggie & Haryanto, 2011; Bosmans, 2006; Henderson et al., 2003) who found that olfaction is very important in product evaluation, purchase intentions as well as repurchase decisions. The finding of this study negates the findings of Mattila and Wirtz (2001) that found less significant influence between olfaction and consumers' repurchase of products. Besides, Balla and Deari (2015) found that products are influenced by their taste, smell, texture and appearance. Additionally, our finding is consistent with the finding of Elangovan and Padma (2017) who found that olfaction makes a consumer feel relaxed and also in good mood that positively influences repurchase decisions. Also, Rupini and Nandagopal (2015) found that product olfaction is very important asset that changes consumers' moods by making them feel more comfortable.

Concerning mediation, our finding revealed that consumer repurchase intention had a positive significant relationship with consumer repurchase decision. This is in agreement with the findings of (Awi & Chaipoopirutana, 2014; Chiew et al., 2014). The high statistically significant connection between the two constructs in Nigeria suggests that consumers have positive intentions to be repurchasing malt brands because of possession of chemosensory properties. Specifically, consumer repurchase decision was found to be significantly mediated by consumer repurchase intention towards gustatory and olfactory attributes of malt brands. The finding is consistent with the findings of (Pelsmaeker et al., 2013) that consumer repeat purchase is as a result of a positive intention toward the brand perceived right attributes such as taste and smell. The implication is that the more a consumer values the taste of a particular malt brand, the more likely he will have the intention to be purchasing the particular brand in the future. This is agreeing with the finding of Miller (2005). Also, the more a consumer cherishes the olfaction of a malt brand, the more likely he/she will have the intention to purchase the brand again which is consistent with the finding of (Brand & Millot, 2001).

Regarding moderation, our finding demonstrate that significant differences exist between males and females sample groups on the influence of chemosensory attributes of malt brands on consumer repurchase behaviours. The finding of our study corroborates with the findings of (Kraus, 2015; Srinivasan & Shende, 2015; Ferdnandes & Londhe, 2015) and negates the finding of Vyncke (2002). The influence between gustatory and consumers' repurchase decisions is significant and the influence is stronger among females than males. This implies that females value the gustatory attributes of malt brand more than males while making repurchase decisions. The finding agrees with Bashir et al., (2013) and contradicts the finding of Bendall-Lyon & Power (2013). The influence between olfactory and consumers repurchase decisions is significant and the influence is stronger among females than males. This implies that females value the olfactory attributes of malt brands more than males while making repurchase decisions. The finding is consistent with (Contini et al., 2015). The



finding of this study also agrees with Brand and Millot (2001) who found that females' olfaction tend to be superior to that of males as females detect and perceive smells more than males.

CONCLUSION AND IMPLICATIONS

The study investigated the relative influence of chemosensory purchasing motives on consumers' repurchase behaviours. Interestingly, the findings revealed that consumers are largely influenced by malt gustatory and olfactory components. This study has provided a comprehensive understanding that positive significant influence exists between intrinsic sensory attributes of malt drinks and consumers repurchase decisions which have managerial and practical as well as theoretical implications to the management and other stakeholders in food and beverage industry. The significance of malt taste and smell as potent factors that enhance sales as demonstrated by the findings of this study will be a guide to the brand managers which will enable them to focus their marketing efforts on. Marketing practitioners are expected to use the findings of this study to form database information and intelligence that will help them to communicate the values associated with chemosensory attributes of malt brands to their numerous customers. This study is expected to be the threshold for policy execution among the marketing practitioners and malt dealers. This study has contributed to the body of existing knowledge by providing an in-depth search, a comprehensive explanation of chemosensory as well as consumer behaviour constructs. Theoretically, this study has contributed to the body of existing theories in the field of chemosensory and sensory marketing. The findings of this study have contributed in identifying the nature as well as the extent of influence between chemosensory attributes of malt brands and consumers' repurchase decisions. This paper therefore concludes that the introduction of mediating and moderating variables in this study has helped in advancing the already existing sensory and consumer behaviours theories as well as theoretical models.

Future Research

This research is not a conclusive one, therefore we suggest that since this study adopted a cross sectional survey, future studies may use longitudinal one. Also, the present study concentrated on south eastern Nigeria therefore there is a need to expand the scope in future research in order to cover other geographical zones in Nigeria. The need for experimental research design in future research is suggested in other to compare its results with the findings of this study.

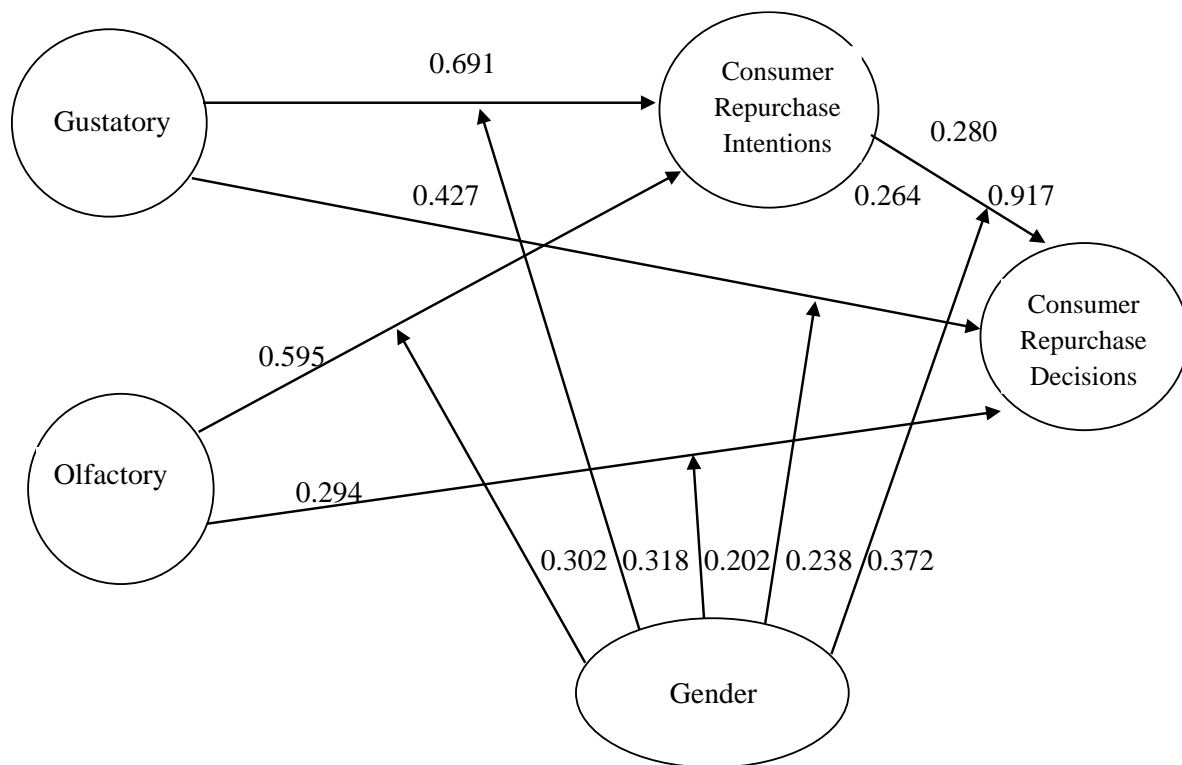


Figure 2: Structural Model Results

Note: the path coefficient should be ($\beta \geq 0.20$) to show significant influence.

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