



## ASSESSMENT OF PHYSIOSENSORY ATTRIBUTES AND ITS INFLUENCE ON CONSUMER PURCHASE OF BRANDS OF MALT IN SOUTHEASTERN NIGERIA

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**ABSTRACT:** *The emergence of many malt brands in Nigeria has heightened competition in the beverage industry. However, the degree to which physiosensory attributes influence consumers' purchase of malt brands in Nigeria is still not clear. This paper aimed to ascertain the extent to which visual and tactile attributes of malt brands influence consumers' purchase decisions in Nigeria. The study adopted a cross sectional survey research design. The population of the study consists of consumers of five malt brands in South-eastern Nigeria. The study used purposive sampling technique while 351 useable copies of the questionnaire were used for analysis. Using Structural Equation Modeling (SEM) technique at 5% level of significance, the findings revealed that visual and tactile attributes had significant influences on consumers' purchase decisions. Purchase intent significantly mediates the relationship between the predictors and consumers' purchase decisions. The findings showed that gender significantly moderates the relationships between the independent and dependent variables. Thus, marketing professionals will use the findings from this study to make proper decisions and communicate the strategies and benefits associated with physiosensory attributes of malt to their various customers.*

**KEYWORDS:** Physiosensory, Consumer, Visual Attribute, Tactile Attribute, Consumer Purchase Decision, Consumer Decision Theory

### INTRODUCTION

Physiosensory is an aspect of sensory perception that engages consumers' physical sensations and influences their purchase attributes (Krishna, 2010). Physiosensory attributes are features of a product assessed through the physical senses that motivate the consumers toward the adoption and purchase of products (Krishna, 2012). Human vision is used mostly in sensory marketing (Latasha, Tooraiven, Monishan & Randhir, 2016). While visual attributes such as colour, size, design and shape are the means of product identification and differentiation (Latasha et al., 2016), tactile attributes of a product has to do with the touch and handling of a product; identifies and differentiates it through feeling and therefore influence consumer purchase of a product (Grohmann, Spangenberg & Sprott, 2007).

However, the arising challenges emanating from the proliferation of many malt brands in Nigeria (Obuzor & Ajaezi, 2010) have resulted in stiff competition among the manufacturers



(Ogbuji, 2008; Anyanwu, 2013; Idoko, Nkamnebe, Nwaizugbo & Okoye, 2013; Okolo, 2017). The amount of high competition coupled with the fact that consumers are now more educated and savvy (Idoko et al., 2013) and always demanding for physical product attributes that appeal to their senses (Spence, 2016); made the manufacturers to delve for other means of capturing the patronage of their customers. Although some malt manufacturers have paid attention to some factors such as price, brand name and product brand taste as the key motivations for consumers' patronage of malt drinks (Zeinab & Seyedeh, 2012). Regrettably, the degree to which physiosensory motives influence consumers' purchase of malt brands in Nigeria is still not clear (Oghojafor, Adeosun & Ganiyu, 2013).

Notwithstanding that extant literature exists on product visual and tactile purchasing attributes in the developed countries (Krishna, 2010; Lindstrom, 2005) although with varying findings. Elder and Krishna (2012) found that product visual attribute plays a significant role in consumer purchase decision which was negated by Gu, (2013). Taiye et al. (2015) findings revealed that product visual attribute plays a significant role in influencing consumer purchase decision contrary to the findings of (Siti, Lee & Wong, 2012; Muntaha, 2016) that found that product visual attributes had insignificant influence on consumer purchase decisions. Also, Grohmann et al., (2007) found that tactile attributes play major role in purchase decision contrary to the finding of Underhill, (2009). In addition, Goel and Sathwara (2016) found that product tactile attributes are significant in influencing consumer purchase decisions contrary to the finding by Muntaha (2016). Based on previous empirical findings, there is still a gap and also some contradictions on the extent to which visual and tactile product attributes influence consumer purchase. Therefore, more empirical evidence and justifications are needed.

Interestingly, there is still inconsistency in literature regarding the moderating role of gender in relation to consumer purchase decision. Some scholars maintained that gender plays a significant role in moderating consumers' purchase decision (Alauddin, Hossain, Ibrahim & Hoque, 2015; Fernandes & Londhe, 2015; Goyal & Singh, 2007; Kraus, 2015; Shine et al., 2006; Yadav & Pathak, 2016). Conversely, some scholars maintained that gender is a poor moderator of consumer purchasing decisions (Schiffman & Kanuk, 2010; Krishna 2012, Solomon 2011; Vyncke, 2002). Also, some scholars have asserted that gender significantly moderates the predictability of consumer purchase behaviour (Udo-imeh, 2015; Cohen & Wallis, 1985). This assertion has been argued by Krishna (2011) and Solomon (2011) who contend that gender is a poor moderator in terms of moderating the relationship between product physical sensory attributes and consumer purchase decision. Pertinently, there is need to accentuate and make further empirical investigation on this issue since the controversy has not been resolved. Also, there is need to determine the extent to which gender moderates on the influence of physiosensory attributes on consumer purchase of malt brands in Nigeria. This will help to close the gap and also strike a balance on the controversy that gender does not moderates consumer purchase behaviour as argued by (Krishna, 2011; Solomon, 2011), which is contrary to (Udo-imeh, 2015; Cohen & Wallis, 1985). Frankly, based on the available literature reviewed, it was discovered that limited literature on the subject matter still exists in Nigeria. Therefore, it is against this backdrop that this study sought to fill the gap identified from the literature in order to contribute to knowledge.



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## **LITERATURE REVIEW**

### **Physiosensory Attributes**

Visual and tactile attributes belong to physiosensory aspect of the senses while olfaction and gustatory are chemosensory aspect of the senses (Zia, 2017). Fundamentally, the visual, tactile, olfactory and gustatory attributes originated from the sensorial attribution of vision, touch, smell and taste respectively. Krishna (2010) emphasized the need to acknowledge the physical attributes of malt through the physical senses.

### **Consumer Purchase Intention**

Consumer purchase intention refers to the intention of the consumer to purchase or not to purchase a particular product or brand of a product immediately or in the future. It is a desire and also a plan to buy or not to buy a product now or in the future. Consumer purchase intention is the likelihood that a consumer will buy or not buy a product (Justin & Iyoti, 2012). Consumer purchase intent is operationalized in this paper as the intention to purchase or not to purchase a particular brand of malt drinks because of its attributes (Chiew et al., 2014).

### **Consumer Purchase Decision**

Consumer purchase decision refers to as the decision made either to purchase or not to purchase a particular brand of a product after evaluation of the product attributes (Hawkins, Best & Coney, 2001). It entails purchase action or even consumer's conclusion or decision to buy or not to buy a product or brand of a product. Consumer purchase decision process refers to as a procedure in which consumers evaluate a product and its alternatives based on the strength of various attributes and finally purchase the brand those appeals to his or her senses (Oghojafor et al., 2013). Consumer purchase decision is operationalized in this paper as the decision on purchase of a particular brand of malt drink because of the possession of physiosensory attributes (Njoroge, 2017).

## **Conceptual Development and Hypotheses Formulation**

### **Visual attribute**

Latasha et al., (2016) opine that sight is used mostly in the sensory marketing, as it is the most stimulated by the environment. Beverage firms' value and utilize visual attributes in order to establish brand identity. Visual and tactile attributes are both important experiential sources in evaluations and purchase decisions (Elder & Krishna, 2012; Lee & Labroo, 2004). Researchers have shown that the visual attribute of a product is pertinent in effecting customer preference and buying action (Hulten et al., 2009; Krishna, 2010; Henderson et al., 2003; Peck & Childers, 2003). Firms should try to improve on their products attractiveness where vision is involved (Joy and Sherry, 2003). The creation of an experience through the use of a sensorial product design and colour has been shown to trigger emotions and also create willingness to purchase (Reimann, Zaichkowsky, Neuhaus, Bender & Weber, 2010). Colour, design and size are the first way of product identification and differentiation (Latasha et al., 2016). The salient of product visual attributes such as size and design are useful in product evaluations and choices (Wansink & Ittersum, 2003). To gain deeper insight



regarding the extent to which visual attribute influences consumer purchase of a particular malt brand in Nigeria, therefore, we put forward the following hypotheses:

H1a: Visual attribute of malt has a significant influence on consumer purchase intention.

H1b: Visual attribute of malt has a significant influence on consumer purchase decision.

### **Tactile Attribute**

Texture is an important part of consumers' emotional lives since adults, aged, youths and even children are influenced and motivated to touch and assess products prior to purchase (Balaji et al., 2011). The tactile attribute of a product has been recognized as effecting purchase intentions and purchase actions (McCabe & Nowlis, 2003). The sense of touch is one of the most intimate senses in integrating the physical contact with the skin (Klatsky, 2010; Peck, 2010). Regrettably, research on the tactile product attributes is still scarce and need to be studied and appreciated empirically (Peck, 2010). Pertinently, it has been observed that hands are important and have been identified as the principle source of perceptual tactile input (Peck and Childers, 2003). It is beneficial for sellers to allow their customers touch, evaluate and interact with products before purchase (Grohmann et al., 2007).

Furthermore, touching a product during product evaluation decreases frustration and doubt (Peck & Childers, 2003), influences purchase decision (Grohmann et al., 2007), and also increases the chance of actual brand choice of the touched product (Streicher & Estes, 2015). The combination of sensory tactile inputs provides the customer with an experience that can never be forgotten (Krishna et al., 2010). In addition, consumers like to evaluate product attributes and gather information about them (Streicher & Estes, 2015) and their properties which are often done through the sense of touch (McCabe & Nowlis, 2003). Besides, it is imperative to evaluate a product through tactile sensation especially where the sense of vision is not enough to provide all the necessary information. Furthermore, the opportunity to evaluate a product through touch has been shown to create a feeling of ownership of that product (Peck & Shu, 2009). Tactile attributes have significant influence on consumer perception and evaluation of product offering (Grohmann et al., 2007). Also, tactile evaluation enhances differentiation strategy which company can use in order to avoid their products being faked (Rodrigues, Hulten & Britio, 2011). Also, in a highly touch-sensitive setting like in Nigeria, it is still not clear on the extent to which tactile attribute of a particular malt brand influences consumer purchase. Based on these points, we postulate the following hypotheses:

H2a: Tactile attribute of malt has a significant influence on consumer purchase intention.

H2b: Tactile attribute of malt has a significant influence on consumer purchase decision.

### **Mediating Variable**

Consumer purchase intention influences the actual purchase decision of a particular product or brand of a product. Intention is the antecedent that drives and facilitates consumers' decisions to purchase a particular product or product brand (Hawkins & Mothersbaugh, 2010). Consumer purchase intention refers to the intention of the consumer to purchase or not to purchase a particular product immediately or in the future. It is a desire and also a plan to buy or not to buy a particular product now or in the future. Consumer purchase intention is the likelihood that a consumer will buy or not buy a product (Justin & Iyoti, 2012). It also represents the extent and a measure of a person's relative strength of intent to perform a



behaviour. The intention is predicted by consumer's attitude towards the purchase behaviour (Ajzen, 1991). It is a plan to act or not to act toward a behavior. The intention is the probability that a prospect or a consumer will behave or not behave in a particular way under specific situations which may or may not happen (Hawkins et al., 2001).

Furthermore, there is a strong relationship between purchase intent and purchase decision or purchase behaviour (Kim & Pysarchik, 2000). Njoroge (2017) captures that consumers intend to purchase malt drinks because of perceived right attributes. 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, he will increase his purchase intention as well as actual purchase of malt (Njoroge (2017). In addition, in line with the theory of reasoned action, behaviour is predicted by a consumer's intention to engage in a specific behaviour such as purchase decision. However, when the consumer purchase intent is strong, there is higher likelihood for actual purchase decision (Ajzen, 1991). Purchase intent is seen as the primary determinant of purchase behaviour. It is a factor that motivates the consumers and also affects their purchase decisions (Ajzen, 1991). The extent or the strength of consumer's purchase intention determines the consumer's likelihood of performing the actual purchase behaviour. Therefore, it is important to evaluate the level of consumer's intent towards the purchase behaviour. It is pertinent to predict if a person intends to purchase or not to purchase a particular malt brand because of its physiosensory attribute. Therefore, physiosensory attributes influence consumers' purchase intentions. Also, purchase intention is the key motivator of purchase decision (Ajzen, 1991). Based on this narration, we hypothesize that:

- H<sub>3</sub>: Consumer purchase intention significantly influences consumer purchase decision.
- H<sub>4</sub>: Consumer purchase intention significantly mediates the influence of visual attribute on consumer purchase decision towards malt brand.
- H<sub>5</sub>: Consumer purchase intention significantly mediates the influence of tactile attribute on consumer purchase decision towards malt brand.

### **Gender as a Moderating Variable**

A moderator is a variable that moderates the relation between exogenous and endogenous variables and thus produces an interaction effect (Eboh, 2009). A moderator could be a qualitative or quantitative variable that affects the direction and/or strength of the relation between an independent and dependent variable (Baron & Kenny, 1986). Some researchers maintained that gender plays a key moderating role in consumer purchase behaviour (Kraus, 2015; Srinivasan & Shende, 2015; Bendall-Lyon & Power, 2013; Bashir, Zeeshan, Sabbar, Hussain & Sarki, 2013). Similarly, Contini, Casini, Stefan, Romano, Juhl, Lahteenmaki, and Grunert (2015) argued that female's perception about food and drinks is better than male. Also, gender is a moderating factor since females perceives smell more than males (Gilbert & Wysocki, 1989). Bartoshuk (1989) argues that visual and tactile experiences vary amongst individuals. Tactile attribute plays a crucial role in food and drinks intake although the effect is stronger among males (Cardello, 1996). Females' olfaction seems to be superior to that of males; females detect smells more than males (Brand & Millot, 2001). Overall, gender strengthens or dilutes purchase decisions relating to the predicting variables used in this work. Therefore, we hypothesize that:

- H<sub>6</sub>. Gender will moderates the influence of visual attribute of malt on consumer purchase intention.

H<sub>7</sub>. Gender will moderates the influence of tactile attribute of malt on consumer purchase intention.

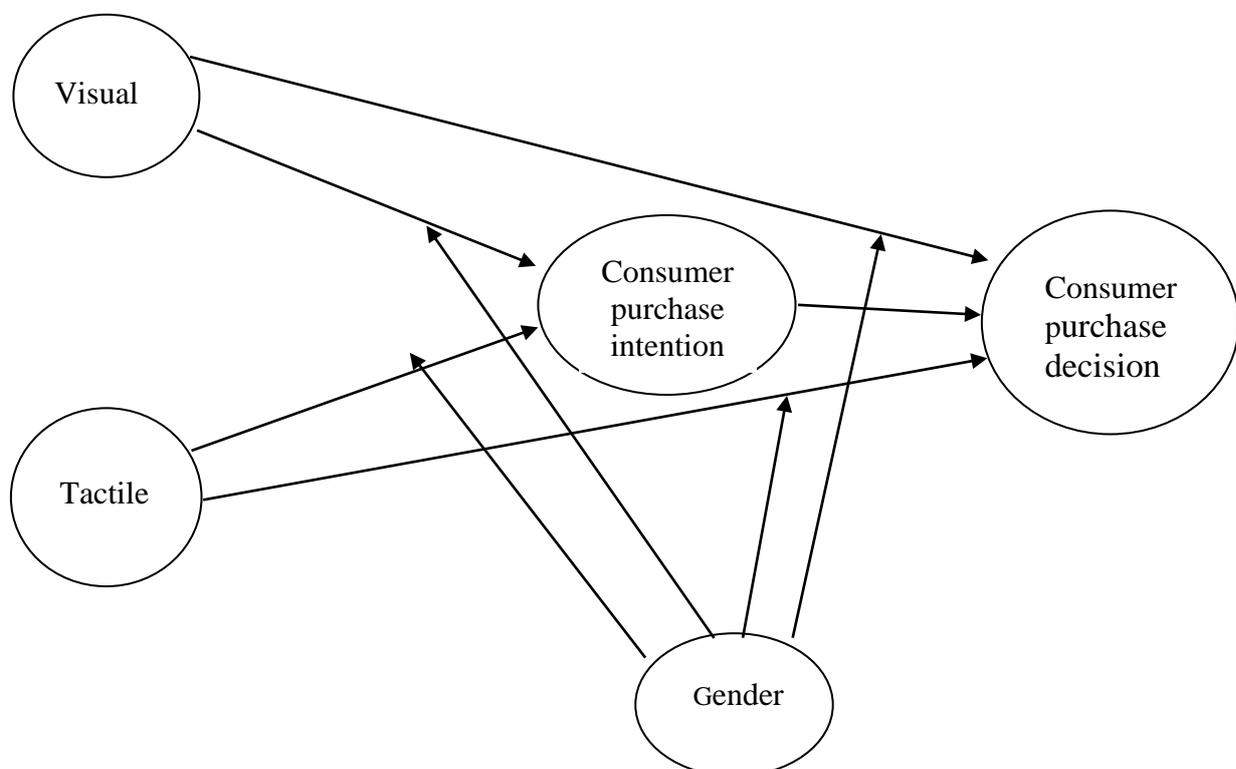
H<sub>8</sub>. Gender will moderates the influence of visual attribute of malt on consumer purchase decision.

H<sub>9</sub>. Gender will moderates the influence of tactile attribute of malt on consumer purchase decision.

### The Consumer Decision Theory

The Consumer Decision theory by Engel, Blackwell & Miniard (2001) stated that a consumer undergoes a seven-point pre-purchase, purchase and post purchase decision stages. According to this theory, the consumer decision process starts from the need identification, gathering of relevant information, pre-purchase evaluation of product attributes and alternatives, consumer purchase decision and action, consumption, post consumption evaluation and divestment. The first stage in decision process is to identify the consumer's need. The second stage is to embark on relevant information search. The third stage is the evaluation of product attributes and alternatives in order to establish attitude and purchase intention. A consumer purchase intention influences the actual consumer purchase decision which is the fourth decision process stage. Consumption is the fifth stage while post-consumption evaluation which culminates into satisfaction (consonance) or dissatisfaction (dissonance), which is the sixth stage. The seventh stage in decision process is the divestment which acknowledges whether the product purchased and consumed will be disposed of or not. Relating this theory to the present work portrays that consumer purchase decision stems from the fourth stage of this theory. The dependent variable and also the mediating variable are rooted in this theory.

### Proposed Conceptual Model



**Figure 1: Proposed Conceptual Model**

*Source: Researchers' schematics, 2019.*



Figure 1 shows the proposed conceptual model of the study using physiosensory purchasing attributes such as; visual and tactile as the independent variables. They are conceptually posited to have significant influence on consumer purchase (the dependent variable) which this work empirically investigated. In addition, the model shows the moderating variable of this research using gender as a moderator which is conceptually posited to moderate the influence of the brand visual and tactile attributes of malt on consumer purchase decision. Moreover, the model depicts the mediation using consumer purchase intention used as the mediator; which is conceptually posited to have significantly mediates on the influence of visual and tactile on consumer purchase of malt brands which this study empirically investigated.

## METHODOLOGY

The study adopted a cross sectional survey research design. 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 area. The sample size of 384 consumers of Grand Malt, AMSTEL MALTA, Maltina, Malta GUINNESS and Dubic MALT was statistically determined using a Cochran (1963) formula for unknown population. The study employed purposive sampling technique. Respondents were drawn from five States in South-eastern Nigeria namely; Abia, Anambra, Ebonyi, Enugu and Imo. Malt consumers age 18 years and older found in public drinking points in the geographical zone under investigation 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 scholars and 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 (Zia, 2017; Latasha et al., 2016; Krishna, 2010; Grohmann et al., 2007; Balaji et al., 2011, Chiew et al., 2014 and Njoroge, 2017).

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 and C. 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 as well as general information about the respondents. Section B was designed to ascertain the extent the malt attributes are being considered, cherished or valued by the respondents. Section C was designed to measure the level of consumer purchase intention while section D was designed to measure consumer purchase decision on a particular malt brand because of physiosensory attributes in South-Eastern, Nigeria. Likert's five-point interval scale style of structured questionnaire was adopted. The data collection lasted from September 5, 2019 to October 26, 2019 at different times in a day, weekdays and weekend so as to minimize sampling bias and get varied mix of respondents (Kok and Fon, 2014).



## Measurements and Results

### Demographic Profile of the Respondents

Based on 351 useable and valid samples surveyed, 158 representing (45.1%) of the respondents are males while 193 representing (54.9%) of the respondents are females. This shows that both sex were sampled and also participated in the survey, although greater number of the respondents are females. Based on respondents' profile on marital status, 236(67.2%) of the respondents are single; 110(33.3%) of the respondents are married; 3(0.9%) of the respondents are divorced while 2(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 41-50years. 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. This implies that youth, strong and healthy adults patronize malt drinks more when compared with underage and elderly people. 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 afford to buy any brand of malt comfortably.

**Table 1: Descriptive Statistics of the Study**

	Label	Mean	Std. Dev.
Colour of malt brand	VIS1	3.86	1.149
Shape of malt brand	VIS2	3.83	1.137
Design of malt brand	VIS3	3.86	1.157
Texture of malt brand	TAC1	3.54	1.281
Chillness of malt brand	TAC2	3.92	.920
Weight of malt brand	TAC3	3.40	1.386
Purchase intention because of visual attributes of malt brand.	CPI1	3.93	1.080
Purchase intention because of tactile attributes of malt brand.	CPI2	3.97	.920
Purchase decision due to visual attributes of malt brand.	CPD1	3.70	1.179
Purchase decision because of tactile attributes of malt brand.	CPD2	3.87	1.152

Source: Field Survey, 2019.

### Internal Consistency Reliability and Convergent Validity

For the check of internal consistency reliability, this study adopted composite reliability and cronbach's alpha. Cronbach's alpha is the lower bound while Composite reliability is the upper bound of internal consistency reliability when estimating reflective measurement models with PLS-SEM (Hair et al., 2017); therefore, this study used both measures in assessing internal consistency reliability. Hair, Ringle and Sarstedt, (2011) posit that composite reliability should be  $\geq 0.70$ . The composite reliability as well as cronbach's alpha for all the latent constructs in this study was computed in smartPLS. Based on the result, all



the constructs exceeded the 0.708 threshold as suggested by (Hair et al., 2017) which made them reliable and acceptable.

**Table 2: Reliability and Convergent validity**

Construct	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
CPD	0.813	0.858	0.820
CPI	0.863	0.902	0.864
TAC	0.849	0.867	0.807
VIS	0.821	0.851	0.765

*Source: PLS-SEM Algorithm Output, 2019.*

The convergent validity for this study was established using average variance extracted (AVE). The AVE is calculated as the mean of the squared loadings of each indicator associated with a construct. The outer indicators loadings were as follows; 0.760, 0.858 and 0.868 for VIS 1, 2 and 3 respectively. Others were; 0.858, 0.842 and 0.856 for TAC 1, 2 and 3 respectively. In addition, the loadings for CPD1 was 0.860, CPD 2 was 0.859 while that of PI 1 was 0.882 and PI 2 was 0.822 thus indicated that all the indicators were confirmed. Furthermore, higher outer loadings on a construct indicate that the associated indicators are correlated. Pertinently, the standardized outer loading should be 0.708 or higher since the AVE benchmark is 0.50 for it to be significant and acceptable (Hair et al., 2017). In addition, the AVE value of 0.50 or higher indicates that on the average, the construct explains more than half of the variance of its indicators. Conversely, more variance remains in the error of the items than in the variance explained by the construct (Hair et al., 2016). Based on the result on table 2; the AVE value of all the constructs checked exceed 0.50 and therefore supported and accepted.

### Discriminant Validity

Discriminant validity is the extent to which a construct is truly distinct from other constructs, in terms of how much it correlates with other constructs as well as how much indicators represent only a single construct (Hair, Gabriel and Patel, 2014). Due to the limitations of cross-loadings (failing to indicate a lack of discriminant validity when the constructs are perfectly corrected) and the Fornell-Larcker's criterion (performs very poor when a construct indicators' loadings vary slightly) in reliably detecting discriminant validity issues (Henseler et al., 2015 and Voorhees, Brady, Calantone and Ramires, 2016), a new approach for assessing the discriminant validity known as the heterotrait-monotrait ratio (HTMT) of correlations was proposed by Henseler et al, (2015). Therefore, this study adopted (HTMT) ratio of correlation for discriminant reliability check. HTMT is the mean of all correlations of indicators across constructs measuring different construct (Henseler et al; 2015). It is an estimate of what the true correlation between two constructs would be, if they were perfectly measured. Precisely, it is the ratio of the between-trait correlations to the within-trait correlations (Henseler et al., 2015). Based on table 3 result that shows that discriminant validity condition has been satisfied since the correlations among the constructs ranging from 0.354 to 0.771 are below the threshold value of 0.90 as proposed by (Henseler et al., 2015).

**Table 3: Discriminant Validity Using Heterotrait-Monotrait Ratio (HTMT)**

	CPD	CPI	TAC	VIS
CPD				
CPI	0.771			
TAC	0.544	0.714		
VIS	0.354	0.457	0.682	

Source: PLS-SEM Algorithm Output, 2019.

### Model fit Criteria

The study adopted the standardized root mean square residual (SRMS), the root mean square residual covariance ( $RMS_{\theta}$ ) as well as normed fit index (NFI) as the measures for the assessment of PLS-SEM goodness of fit. Based on the results on table 4.2.3; the three model fit measures show a well-fitting model; the SRMR value of 0.050,  $RMS_{\theta}$  value of 0.0855 and the NFI value of 0.911. This implies that the model fit well with the data. The threshold for acceptance of the fitness of the model used in the study is met.

**Table 4: Model Fit Criteria**

Parameters	Saturated Model	Estimated Model	Acceptable Level	Source
SRMR	0.050	0.050	$\leq 0.08$	Hu and Bentler (1998)
rms Theta	0.0855	0.0855	$\leq 0.12$	Henseler et al., (2014)
NFI	0.911	0.911	$\geq 0.90$	Bollen (1989)

Source: PLS-SEM Algorithm Output, 2019.

### Coefficient of Determination ( $R^2$ )

The R-square is the coefficient of determination which measures the total variance explained in each of the endogenous constructs as a result of changes on the exogenous variables. The  $R^2$  value ranges from 0 to 1, with higher levels indicating more predictive accuracy. We computed the  $R^2$  and determined the variance explained in the endogenous variables (CPD and CPI) as a result of the variations in the exogenous variables. The  $R^2$  values of the model used in this study; are 0.964 (96.4%) and 0.943 (94.3%) for consumers' purchase decisions (CPD) and also consumers' purchase intent (CPI) respectively. Furthermore, the result proved the substantial powers of the exogenous variables in explaining the endogenous variables; since the  $R^2$  values of 0.75, 0.50 and 0.25 are substantial, moderate and weak respectively (Hair et al., 2017).

### Assessing the Structural Path Significance in Bootstrapping Procedure

The direct, indirect and moderating hypotheses for the determination of the significance or otherwise formulated to guide this study were tested. Partial least squares structural equation modeling was used to test the significance of the inner and outer model using bootstrapping



procedure. Based on a two-tailed t-test with 5% (0.05) level of significance, the path coefficient will be significant if the t-statistics is greater than or equal to 1.96 (Wong, 2013) or the p-value less than or equal to 0.05 (Hair et al., 2014). Table 5 shows the result of direct, indirect or mediating as well as moderating hypotheses tested. For direct hypotheses; Visual -> Consumers' purchase intention path has path coefficient value of ( $\beta = 0.691$ ), standard deviation of 0.028, t-value of 14.795 and p-value of 0.000. Therefore, H1a is supported and also accepted. The result implies that visual attribute of malt had a significant influence on consumers' purchase intention. Visual -> Consumers' purchase decisions path has also path coefficient value of ( $\beta = 0.127$ ), standard deviation of 0.043, t-value of 2.957 and p-value of 0.003. Therefore, H1b is supported and also accepted. The result implies that visual attribute of malt had a significant influence on consumers' purchase decisions.

Similarly, Tactile -> Consumers' purchase intention path has path coefficient value of ( $\beta = 0.295$ ), standard deviation of 0.027, t-value of 10.787 and p-value of 0.000. Therefore, H2a is supported and also accepted. The result implies that tactile attribute of malt had a significant influence on consumers' purchase intention. Tactile -> Consumers' purchase decisions path has path coefficient value of ( $\beta = 0.654$ ), standard deviation of 0.051, t-value of 12.718 and p-value of 0.000. Therefore, H2b is supported and also accepted. The result implies that tactile attribute of malt brand had a significant influence on consumers' purchase decisions. Moreso, Consumers' purchase intent -> Consumers' purchase decisions path has also path coefficient value of ( $\beta = 0.817$ ), standard deviation of 0.018, t-value of 18.717 and p-value of 0.000. Therefore, H3 is supported and also accepted. The result implies that consumers' purchase intent had a significant influence on consumers' purchase decisions towards malt brands in Nigeria. For indirect hypotheses (mediating effect); Visual > consumers' purchase intent > Consumers' purchase decisions path has a strong path coefficient value of ( $\beta = 0.150$ ), standard deviation of 0.039, t-value of 3.798 and p-value of 0.000. Therefore, H4 is supported and also accepted. The result implies that consumers' purchase intent has a strong positive mediating effect on the influence of visual attribute of malt on consumers' purchase. In addition, Tactile -> Consumers' purchase intent -> Consumers' purchase decisions path has path coefficient value of ( $\beta = 0.064$ ), standard deviation of 0.020, t-value of 3.268 and p-value of 0.001. Therefore, H5 is supported and also accepted. The result implies that consumers' purchase intent has a strong positive mediating effect on the influence of tactile attribute of malt on consumers' purchase decisions. The result shows that complementary mediation exists between consumers' purchase decisions and visual as well as tactile attributes of malt in Nigeria.

**Table 5: Bootstrapping Result of the Structural Model and Path Analysis**

Hypotheses	Hypotheses Paths	Path coefficients	Std. error	T-values	p-values	Decisions
H1a	VIS -> CPI	0.691	0.028	14.795	0.000	Supported
H1b	VIS -> CPD	0.127	0.043	2.957	0.003	Supported
H2a	TAC -> CPI	0.295	0.027	10.787	0.000	Supported
H2b	TAC -> CPD	0.654	0.051	12.718	0.000	Supported
H3	CPI -> CPD	0.817	0.018	18.717	0.000	Supported
H4	VIS -> CPI -> CPD	0.150	0.039	3.798	0.000	Supported
H5	TAC -> CPI -> CPD	0.064	0.020	3.268	0.001	Supported
H6	VIS*Gender -> CPI	0.091	0.019	4.777	0.000	Supported



H7	TAC*Gender -> CPI	0.089	0.023	3.982	0.000	Supported
H8	VIS*Gender -> CPD	0.116	0.021	5.582	0.000	Supported
H9	TAC*Gender -> CPD	0.084	0.022	3.847	0.000	Supported

*Note: Path is significant at 5% level of significance; if the t-value is  $\geq 1.96$ , or p-value  $\leq 0.05$ .*

*Source: SEM-PLS Output, 2019.*

In addition, for moderating hypotheses (gender moderating influence) as shown on table 5; VIS\*Gender -> CPI moderating path has a strong path coefficient value of ( $\beta = 0.091$ ), standard error of 0.019, t-value of 4.777 and p-value of 0.000. Therefore, H6 is supported and also accepted. The result implies that gender has a strong positive interaction moderating effect on the influence of visual attribute of malt on consumers' purchase intentions. TAC\*Gender -> CPI moderating path has a path coefficient value of ( $\beta = 0.089$ ), standard error of 0.023, t-value of 3.982 and p value of 0.000. Therefore, H7 is supported and also accepted. The result implies that gender has a strong positive interaction effect on the influence of tactile attribute of malt on consumers' purchase intentions.

Furthermore, VIS\*Gender -> CPD interaction moderating path has a path coefficient value of ( $\beta = 0.116$ ), standard deviation of 0.021, t-value of 5.582 and p-value of 0.000. Therefore, H8 is supported and also accepted. The finding implies that gender has a positive moderating influence on the relationship between visual attribute of malt brand and consumers' purchase decisions. Also, TAC\*Gender -> CPD interaction moderating path has a path coefficient value of ( $\beta = 0.084$ ), standard deviation of 0.022, t-value of 3.847 and p-value of 0.000. Therefore, H9 is supported and also accepted. The finding implies that gender has a positive moderating influence on the relationship between tactile attribute of malt brand and consumers' purchase decisions.

## DISCUSSION

This research aimed to investigate the influence of physiosensory attributes on consumer purchase of malt brands in Nigeria. The study also examined how purchase intention predicts purchase decision and how gender moderates the relationship between the predicting variables and consumer purchase behaviour. To accomplish the study objectives, related literature was reviewed and formulated hypotheses tested based on data collected from malt consumers in south eastern part of Nigeria. The field survey findings on visual attribute of malt brands showed that consumers on the average consider to a great extent the colour, size, as well as the design of bottles/cans/packs while making purchasing decisions. Based on the results of tested hypotheses as presented on table 5; visual attribute of malt has a significant positive influence on consumer purchase intention. Also, visual attribute of malt has a significant positive influence on consumer purchase decision. This implies that malt visual attributes significantly and positively influence consumer purchase decision toward malt brands in Nigeria. This is in line with the findings of (Peck & Childers, 2003; Hulten et al., 2009; Krishna, 2012; Zia, 2017) who found that visual attribute of a product significantly influences consumer purchase behaviour.

Furthermore, the field survey findings on visual attribute of malt brands reported that consumers on the average consider to a great extent, the texture, weight and chillness of malt



bottles or cans while making purchase decisions in Nigeria. Similarly, based on the results as depicted on table 5 that indicated that tactile attribute of malt has a significant positive influence on consumer purchase intention south eastern part of in Nigeria. Also, tactile attribute of malt brand has a significant positive influence on consumer purchase decision in Nigeria. This implies that the visual attributes of malt significantly and positively influence consumer purchase behaviour in Nigeria. The research findings are consistent with the findings of (Balaji et al., 2011; Spangenhenn et al., 2005; Goel & Sathwara, 2016) who found that tactile attributes of a product significantly influence consumer purchase behaviour.

In addition, based on the results of tested hypotheses as presented on table 5; consumer purchase intention has a significant positive relationship with consumer purchase decision. Table 5 also presented the result on mediation analysis which shows that consumer purchase intention significantly and positively mediates on the relationships between the physiosensory variables and consumer purchase decision towards malt drinks in Nigeria. The implication of the findings is that complementary mediation exists since the results of both the direct and indirect effects are significant and positive. Furthermore, Table 5 also presented the result on interaction moderation analysis which shows that gender significantly and positively moderates the relationships between the predicting variables and consumer purchase decision of malt drinks in Nigeria. The findings are consistent with (Udo-imeh, 2015) that asserted that moderating variable such as gender significantly improves and promote the predictability of consumer purchase behaviour and also negates the findings of (Krishna, 2011; Solomon, 2011) who contended that gender is a poor moderator in terms of predicting consumer purchase behaviour.

## CONCLUSION

Physiosensory attributes significantly and positively influences consumers' purchase decisions of malt drinks in Nigeria. The findings have practical, theoretical and managerial implications to the malt manufacturers, managers and other stakeholders in beverage industry. The study predictor variables are paramount and significant drivers of consumers' purchase decisions of malt drinks. Gender moderation was found to strengthen and also promotes the predictability of consumer purchase intentions as well as purchase decisions. Consumers' purchase intent plays an essential role in mediating the relationship between the physiosensory and outcome variables. The study recommends that malt manufacturers and brand managers as well as other stakeholders in the beverage industry should try to invest more by ensuring that visual and tactile attributes of malt brands are continually improved for sustained consumers' patronage. Also, malt manufacturing companies should always assess consumers' purchase intentions because consumers are now more enlightened. This will be facilitated by periodic assessment in order to enhance consumer purchase of malt brands for ultimate satisfaction and patronage in Nigeria.



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