

Regulatory Activities of National Agency for Food, Drug Administration and Control (NAFDAC) and Compliant Buying Decision Of Low and Medium Income Earners in South-East, Nigeria: The Packaged Water Context

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Abstract

The aim of this empirical investigation was to determine the extent to which low and medium income earners in South-East of Nigeria comply, in their food and drug buying decision, with regulation of National Agency for Food, Drug Administration and Control (NAFDAC) for their health benefits. Though, NAFDAC, under Decree No. 20 of 1990, is empowered to regulate and control the manufacture and marketing of certain products in Nigeria, the impact of such regulatory and control practices on the compliant behavior of these consumers seems to be uncertain. Drawing on social marketing theories, in general, and perception theories in consumer behavior, in particular, we argue that consumer compliant buying decisions are linked to NAFDAC regulatory activities. However, from general observation, it seems that much uncertainty still beclouds consumers' behavioral responses towards products with or without NAFDAC "Seal of Approval Numbers," on them. Given that this area has suffered a dearth of research till date, this paper represents a latest attempt to explore this uncertainty. Using structured questionnaire, primary data generated from 337 randomly selected low and medium income earners located in major cities of South-East Nigeria, were analyzed using Pearson and simple regression statistics. Some interesting findings were made and discussed in line with the study implications.

Key words: Compliant buying-decision, consultative meetings, NAFDAC Regulatory Activities, Packaged water, product registration, and public enlightenment

1. Introduction

To function more effectively in protecting economies, safe-guarding public health, property and environments and managing natural disasters, governments institute schemes, agencies, parastatals, policies and programmes within their ministries. One of such policies is national food safety policy, which focuses on addressing specific food needs and priorities of countries. It is worthy of note that National food control schemes vary according to nations, but they comprise mainly food registration and regulations, policy and institutional frameworks, food inspection and monitoring, food laboratory services, involvement of all stakeholders and communicating to them (Omojokun, 2013). National food safety policy provides laws and regulations that direct desired behavior and conduct individuals, and organizations or institutions industries. In Nigeria, one of these regulatory agencies of government is National Agency for Food and Drugs Administration and Control (NAFDAC). The Federal Government of Nigeria established NAFDAC to handle health-related programmes as with focus on food and drugs that are distributed to the general public, their safety for human consumption, and sensitizing the masses on the need and how to detect and buy only products that are allowed to be sold and consumed.

All food and drugs producing and distribution firms operating in Nigeria must seek and obtain NAFDAC approval that their products are safe for human consumption before they commence their businesses. NAFDAC, on the other hand, communicates the approval information to the general public by the Registration Number given to these food and drug companies to include in the information they communicate on their product labels. Also, NAFDAC puts in place phone-in program which provide the public the opportunity to make inquiries and be more enlightened. Further, NAFDAC uses television and radio advertisements and jingles to educate the public on the need to be adopt *caveat emptor* in the purchase of food and drug-related products. In addition, NAFDAC provides information periodicals such as bulletins, magazines, pamphlets, and fliers that offer technical information to the general public (Omojokun, 2013). With NAFDAC in place, the Government hopes to effectively safeguard public health if the stakeholders comply with NAFDAC regulation. One of the latest attempts by NAFDAC to safeguard the life of patent drug consumers is the introduction of Pin code on the most frequently patronized drugs like antibiotics, antimalarial drugs etc. By sending the PIN to a designated number, it can be confirmed whether the drug is original or not.

However, the big question is “To what extent do low and medium income earners in Nigeria in general, and South-East, Nigeria in particular, examine products informative labels with a view to ascertaining whether or not such products/brands have obtained genuine NAFDAC approval registration numbers before buying them, knowing that this is a health protective initiative?” Focusing on packaged (bottled and sachet) water consumption with South-East Nigeria, this paper empirically investigated the extent to which these buyers insist and/or ensure that packaged water brands, they buy have genuine approval/registration numbers on their labels before making actual buying decision.

The aim of this study, therefore, was to determine the extent to which NAFDAC regulatory activities affect compliant buying decisions of low and medium income earners in South-East Nigeria. In this report, we present the theoretical foundation, and hypotheses, the methodology, findings, conclusions and recommendations.

2. Theoretical Foundation and Hypotheses

2.1 National Agency for Food, Drugs Administration and Control (NAFDAC) Regulatory Activities

In line with worldwide food safety policy that cuts across nations, the Federal Government of Nigeria established National Agency for Food and Drugs Administration and Control (NAFDAC) to ensure that food and drugs distributed and consumed in Nigeria meet specified minimum standards of quality for healthy living. NAFDAC is a parastatal of Federal Ministry of Health established by Decree No. 15 of 1993, and later amended by Decree No. 20 of 1999, to regulate and control quality standards for all locally manufactured and imported food, drugs cosmetics, medical devices, chemicals, detergents and packaged (Bottled and sachet water), that are distributed and consumed across the country ([www.http//nafdacnigeria.org.com](http://nafdacnigeria.org.com)).

Specifically, NAFDAC is entrusted with a number of responsibilities, some of which include but not limited to the following:

- * Register and ensure proper inspection of all food, drugs, packaged (bottled and sachet) water, medical devices and chemicals.
- * Prevent the sale of foods which are not produced under its terms and conditions
- * Protect the populace from harm due to unwholesome food consumption.
- * Sensitize the public on the need for sound hygiene and safety practices and healthy living.
- * Establish standard specifications and regulations and guidelines for the population, importation and exploration, sale and distribution of food, drugs, packaged water, medical devices and chemicals (Erhun, *et al*, 2001; [www.http//nafdacnigeria.org.com](http://nafdacnigeria.org.com)).

NAFDAC also ensures and oversees Good Manufacturing Practice (GMP). Good Manufacturing Practice denotes applying methods used in the production of regulated products for public use or consumption to greatly minimize human errors, avoid contamination, and ensure consistency and healthy living. GMP varies in contents and dimensions with products and the contexts, but the aim is the same in all cases – effective, consistent and safe products that guarantee sound and robust public health. Sequel to this, and in exercise of its mandate as provided in Section 5(s) of its enabling Decree No. 15 of 1993, NAFDAC as unfit for human consumption declares all products or brands found not to be consistent with this aim, and confiscates and destroys them as well.

It is essential to point out that engaging in exchange involving products such as packaged water which have not obtained NAFDAC’s registration seal of approval is unlawful and constitute a threat to public health, and attracts heavy penalties. All products found not registered with NAFDAC are seized, forfeited and dealt with in such a manner as the Honorable. Minister of Health may determine ([www.http//nafdacnigeria.org.com](http://nafdacnigeria.org.com)). The essence of establishing NAFDAC is to guide consumers in their purchase decision to patronize only brands with NAFDAC’s approval number on their labels.

Hence, with the establishment of NAFDAC, it is apparently imperative and binding that every product brand that is covered under this law, is registered with NAFDAC, as a reflection of government’s effort to safeguard the health of the generality of consumers in Nigeria. To ensure compliance NAFDAC carries out a number of regulatory activities, some of which are but not limited to product registration, consultation with stakeholders, and public enlightenment campaigns.

2.2 Consumer Compliant and Non-Compliant Buying Decision

Fishbein model proposed that a person’s overall attitude toward a stimulus object is derived from his beliefs and feelings about various attributes of the object (Ahtola, 1975; Loudon and Della Bitta, 1993, Solomon, *et al*,

2006). Fishbein model was developed further, and significantly extended, to not only assess attitudes, but behavior (Ajzen and Fishbein 1980; Fishbein and Ajzen 1975), and became known as the Theory of Reasoned Action (TRA). The reason behind the establishment of NAFDAC by the Federal Government of Nigeria is to ensure that people living in the country buy and use only products that are protective and harmless to their lives and well-being.

The Theory of Planned Behavior (TPB) (Ajzen, 1985), an extension of the TRA construct adds another construct – perceived behavioral control, which refers to the extent to which a person has the skills, resources, and other prerequisites needed to perform a given behavior. Theory of Planned Behavior (TPB) has been found to be applied in a variety of behavioral domains (Shaw et al, 2000) and more significantly improve the predictive ability in specific contexts over TRA (Beck & Ajzen, 1991; Giles and Cains, 1995). The predictive ability of the TRA and TPB (Ajzen, 1985) relies on the researcher's ability to accurately identify and measure all salient attributes that are considered by the consumer in forming their attitude (Solomon *et al*, 2006) toward making decision to buy a particular product or brand. NAFDAC has been planned to undertake some regulatory activities that will ensure that the Federal Government goal to safeguard lives is realized.

Goal directed behavior draws heavily on the theory of planned behavior, with each of its constructs being represented and so on expects the model of goal-directed behavior to have greater predictive ability. (Perugini & Bagozzi, 2001; Bagozzi et al, 2002). This behavior is taken to be synonymous with behavioral intention, which can be derived from a combination of the consumer's attitude toward purchasing the product and the subjective norms about the behavior. Subjective norm suggests the power of other people in influencing behavior (Solomon *et al*, 2006). NAFDAC regulatory activities are expected to be effective in directing the consumers to comply in their buying decisions.

Consumer buying decision is the focus of consumer behavior. A number of consumer decision making scholars in consumer behavior literature are notable (Richarme, 2007; Loudon and Delala, 1993; Schiffman and Canuk, 2007; Zinkhan, 1993; Blackwell *et al*, 2001; Solomon *et al*, 2006; Foxall, 1990). Consumer behavior is the study of individuals, groups, or organizations and the processes they use to select, use, and dispose of products experiences, or ideas to satisfy needs and the impacts that these processes have on the consumer and society (Hawkins *et al*, 2001).

Utility theory, in economics, states that consumers, as rational decision makers, make choices based on the expected outcomes of their decisions (Schiffman and Kanuk, 2007; Zinkhan, 1992). However, contemporary research on consumer behavior are of the view that this rational decision making involves these stages; need or problem recognition, information search, evaluation of alternatives, purchase intention, evaluation and actual purchasing, consumption, post disposal (Schiffman and Kanuck, 2007; Blackwell *et al*, 2001; Engel, *et al* 1995; Bearden *et al*, 1995; Hawkins *et al*, 2001).

Consumers need information sources to get solutions for identified problem of needs or desires that are in tandem with their self-concepts and lifestyles, which are, in turn, determined by external and internal influences (Hawkins *et al*, 2001). In the bid to satisfy an identified need, consumers seek information from different sources including personal memory (internal sources), friends, colleagues, and family (group sources), advertisement promotion, personal selling (marketing sources), and others. However, the extent to which the consumer will be involved in the information search depends largely on level of importance or interest attached to the involvement associated with the decision (Bearden *et al*, 1995). High involvement decisions are made when the purchase is of high level of importance, requires thorough information processing, and substantial differences between choices. The consumer is motivated to process or learn the information. This is a case of high ticket or expensive products. On the other hand, low-involvement decisions occur when there is relatively little personal interest, relevance, or importance, attached to a purchase. The consumer has little or no motivation to process or learn the information (Huffman and Houston, 1993). Thus, it does not require extensive amount of information. This is a case of low ticket items such as packaged water.

Alba and Hutchinson (1988) observe that some purchase decisions made with minimal effort and without conscious effort, involving seemingly thoughtless activity may seem dangerous or at least stupid. This paper is of the view that among the low and medium income earners in South-East, Nigeria, decision to buy packaged water is likely of low-involvement type. Situations in which consumers are thirsty and are in dire need of drinking water to quench it, such as in hot environment, virtually no attention may be given to seeking information on packaged water brands to know if they are approved by NAFDAC or not. This may lead to

consumers' non-compliance with NAFDAC's directive that only NAFDAC's approved packaged water brands should be bought and consumed.

2.2 NAFDAC Regulatory Activities and Consumer Compliant Buying Decision

To ensure healthy lifestyle, through consumer compliance with NAFDAC regulation; the following regulator activities: Product registration, Public enlightenment campaign and consultative meetings ([www.http//nafdacnigeria.org.com](http://nafdacnigeria.org.com)).

Product Registration: The product registration process is one of the regulatory strategies of NAFDAC. The agency uses product regulation to establish and monitor the ownership and/or distributorship of the products, it regulates, generally known as regulated products (*i.e.*, food, drugs, cosmetics, medical devices, chemicals, detergents and packaged water); their safety, quality, labeling, claims *etc.* NAFDAC employs a structured and systematic procedure for product registration at the end of which the product is assigned a NAFDAC Registration Number which is an attestation to the safety, quality and appropriateness of its intended use.

Public Enlightenment Campaigns: The agency organizes public enlightenment campaigns on topical and emerging issues using the electronic media, print media, and physical presence at campaigns held at grass-root levels where the rural dwellers are invited with the cooperation and involvement of their local chiefs to inform and educate the populace. Television and radio are NAFDAC enlightenment media which NAFDAC uses. Churches are also used by NAFDAC to disseminate important safety information. Hence, public enlightenment campaigns are used in educating the public on the need and how to identify, and buy only products that are registered with NAFDAC.

Consultative Meetings: NAFDAC encourages sectorial groups, small and medium scale entrepreneurs *etc.* to form umbrella associations such as:

- * Association of Food, Beverage and Tobacco Employers (TFBTE)
- * National Association of Small Scale Industrialists (NASSI)
- * Association of Fast Foods and Confectionaries Operators of Nigeria (AFFCON) *etc.*

These organizations are encouraged to self-regulate their practices and can easily arrange for consultative meetings with the Agency where their views and concerns are addressed and taken into account when making regulatory decisions that concern.

Recognizing that buying and drinking unapproved package water may result in health related problems, there is need to sensitize consumers to comply with NAFDAC regulation when they buy packaged water. In the view of this paper, NAFDAC is expected to improve its effort in making consumers consciously make inquiries to find out if products, they are buying have NAFDAC approval. For NAFDAC to be effective in these campaign strategies, social marketing is apt in this regard. Social marketing is the application of marketing strategies and tactics to alter or create socially desired behaviors that have positive effects on the targeted individuals and society as a whole (Andreasen, 1994; Muehling *et al*, 1993; Olsen, 1997; Sengupta *et al*, 1997; Nord and Peter, 1980; Janiszewski & Warlop, 1993). Social marketing uses marketing techniques to encourage positive behaviors such as increased literacy and to discourage negative activities such as drunk driving. (Wells, 1993, Ozanne 1991), use of drugs, buying and using products that are not approved by NAFDAC, such as packaged water.

Social marketing has been used to reduce smoking (Jones *et al*, 1996), encourage environmentally friendly behaviors such as making people not to litter the environment, but be involved in recycling (McCarty & Shirun, 1994), reduce unwholesome behaviors potentially connected to AIDS and reduce drug abuse (Kelly *et al*, 1996). Social marketing can effectively improve the learning, sensations and perceptions of the consumers for better compliant buying decision-making. Perception, sensation, learning and indeed involvement are determined by the interaction among the individual, the stimulus object, and the situation (Muehling *et al*, 1993). According to learning theory, when individuals are exposed to strong motivations and positive reinforcements, their buying decisions are altered (Okpara, 2012). Sensation refers to the immediate response to the sensory receptors (in the eyes, ears, nose, mouth, skin) to basic stimulus such as light, color, sound, odor/smell, textures or feelings (Solomon, 2002). According to him, bright colors such as red, blue or yellow are naturally eye or attention-catching, and can be very effective in enhancing sensation.

Learning which occurs in both high-involvement and low-involvement situations, is essential to consumption process, and consumer behavior is, to a large extent, learned behavior (Huffman & Houston (1993). Learning

describes the complex processes by which memory and behavior are changed or reorganized as a result of conscious and non conscious information processing (Hawkins *et al* 2001). Learning is any change in the content or organization of long-term memory and/or behavior (Mitchell, 1983). Perception describes information processing which involves series of stages by which stimuli are perceived, transformed into knowledge and stored perception is the process by which sensation brought about by exposure to information are selected, organized and interpreted (Solomon, 2002). According to Hawkins *et al*, (2001), an information process has four notable steps: exposure of the consumer to information, paying attention to the information, interpretation or giving meaning to the information and storing the knowledge in memory. Perception encapsulates exposure, attention and interpretation. Exposure occurs in commercial message, when the message comes within the purview of the recipient individual's, sensory receptor nerves such as eye (vision), ear (sound), nose (smell or odor), tongue (taste), and skin (touch) (Hawkins *et al*). Thus, for the consumer to be exposed to NAFDAC commercial messages means that these messages be placed within the consumers' relevant environments such as the particular stations, time and position in the relevant media – print, electronic and outdoor, that will be convenient to them.

Individuals can exhibit selective exposure in their zipping, zapping and muting of commercial messages (Stanford & Stanford, 1996; Danaher, 1995; Abernethy, 1991; Fisher, 1993; Speck & Eliot, 1997; TeleNaton, 1998). Zipping occurs when an individual fast-forwards through commercial on a program. Zapping describes switching from one channel to another during commercials, to avoid communication messages. Muting is turning off the sound during commercial break (Hawkins *et al*, 2001). Social marketing can beat this by using multiple media sources, repeated insertions of advertising messages (Chook, 1985), and creative enlightenment messages (Cronin & Mendly, 1992). Situational context of an ad can be varied to increase its recall and effectiveness (Melton, 1970). Also, unique ads and ads eliciting positive affect are less zipped (Olney *et al*, 1991). Individuals show selective attention when they devote different levels of attention to the same stimulus in different situations or different stimuli in different situations. Attention occurs when the commercial messages which the individual consumer has selected to be exposed to activate one or more receptor nerves and the resulting sensations transmitted to the brain for processing (Hawkins *et al*, 2001). Selective attention occurs according to type of situations, nature of individual consumer, and message itself (Hawkins *et al*, 2001). According to them, attention is determined by three influences, namely: stimulus, individual, and situational influences.

Stimulus influence include size and intensity, color and movement, position of the stimulus, as well as format, contrast, isolation. NAFDAC can use appropriate selective strategies to solve the problem of selective attention and information quantity (Meyers-Levy & Peracchiot 1995; Olsen, 1995; Janiszewski, 1998; Goodstein, 1993). Individual influences include the fact that individuals vary in their ability to attend to information (Maheswaran & Sternthal, 1990; McInnis *et al*, 1991), and will likely attend to information about the brand or product of interest to them (Rosenberger *et al*, 1997). Thus, we expect NAFDAC to recognize the individual and group differences when designing commercial messages. Situational influences include when the information is found be among many other information that also seek attention (Hawkins *et al*, 2001). Consumers do not seem to give attention to a commercial in a large group of commercials (Pieters & Bijmolt, 1997). Hawkins *et al* (2001) suggest that situations in which the headlines, colors, jingles, designs of the ad contrast with viewer expectations, they will cause greater number of them to give the required attention to the message. Hence, we expect NAFDAC to appreciate and recognize these in the design of commercial messages for more attention to be paid to them.

Individuals can exhibit selective interpretation when they give meanings to messages (Hawkins *et al*, 2001). Interpretation occurs when the brain assigns meaning to sensation received from the receptor nerves. Also, selective interpretation depends on the characteristics of the commercial message itself, the individual consumer's ability to interpret, and the situation (Hawkins, *et al*, 2001). Furthermore, avoiding subliminal and masked messages can help to achieve better interpretation of commercial messages (Key, 1973; Rosen and Singh, 1992; Rogers and Smith, 1993; Rogers and Seiler, 1994). Recognizing that it is the individual's interpretation not objective reality, that influences behaviors, marketers use psychological meaning of words to influence cognitive interpretation of commercial messages (Hawkins *et al*, 2001; Friedman, 1986; Friedman & Zummer, 1988). This is because psychological meanings (contextual or dictionary meanings) of words play greater role in enhancing accurate interpretation than semantic (conventional) meanings of words. Thus, we expect NAFDAC to use psychological meanings of words in its commercial message to consumers. Also the nature and structure of ad, including its presentation have a great impact on the mental processing that are activated and the final meaning assigned to messages (Sprott *et al*, 1998).

Consumers' knowledge about anything is always revised or reorganized as they get exposed to new information even in similar situations at a later time (Baron, 1989). Learning is any change in the content or organization of long-time memory and/or behavior (Mitchell, 1983). Information that enters the memory from perception influences the memory, and memory also shapes the information it receives from perception. Both perception and memory are highly selective in selecting information to be exposed to, to give attention to interpret and to store (Hawkins et al, 2001). The main obstacle to enhancing compliance rates is insufficient information about the nature of the problem that the regulation is supposed to solve. Where appropriate and adequate information is disseminated, it can greatly improve the impact of regulatory programmes of NAFDAC on achieving health policy objectives of Nigerian government.

This paper is of the view that if NAFDAC involves these strategies in their regulatory activities, greater impact is mostly likely to be achieved in influencing consumer compliant decision to buy NAFDAC approved packaged water (Figure 2.1).

It is our belief that if NAFDAC adapts these perception theories in its regulatory activities, there will most likely be high level of compliance with its regulation in the buying decisions of medium income earners in South-East of Nigeria. From the foregone discussion, we are inclined to believe that the compliant buying decisions of the low and medium income earners in South-East Nigeria correlate with NAFDAC regulatory activities. Thus, we state the hypotheses that guide our study.

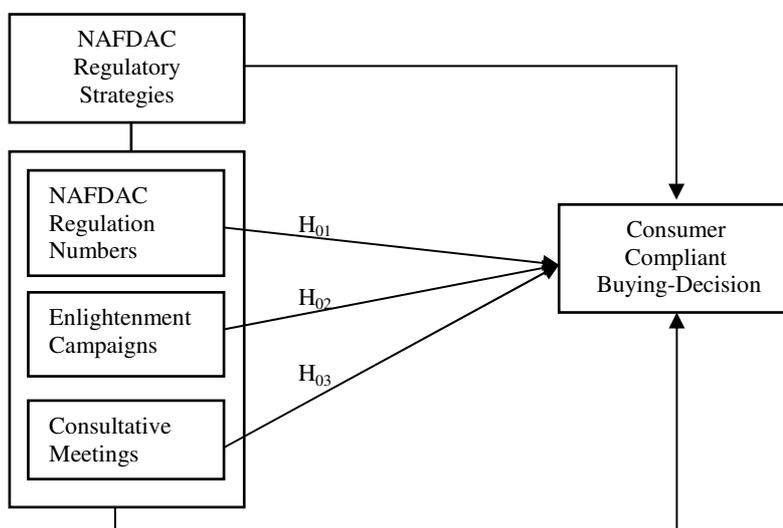


Figure 2.1: Operational Conceptual Framework of the Relationship between NAFDAC Regulatory Strategies and Consumer Compliant Buying-Decision.

Source: Researchers Conceptualization from Review of Extant Literature, 2014.

H₀₁: There is no significant relationship between NAFDAC Product Registration and buying decision of medium income earners in South-East Nigeria.

H₀₂: There is no significant relationship between NAFDAC Public enlightenment campaigns and buying decision of medium Income Earners in South-East Nigeria.

H₀₃: There is no significant relationship between NAFDAC consultative meetings and buying decision of medium Income Earners in South-East Nigeria.

3.0 Methodology

This is a causal study, considering the fact that it focused on the generation of data on NAFDAC regulatory strategies (explanatory variable) and consumer compliance decision as (criterion variable) of low and of medium income earners in South-East Nigeria. Primary data were generated using structured questionnaire administered

to packaged water consumers who were made up of low and medium income earners from major cities in South-East Nigeria. Specifically, two metropolitan cities were selected per states.

Taro Yemen's formula for sample size determination, as contained in Alugbuo (2005) was adopted in arriving at a sample size of 374 respondents from a target population of 5787 (2950 – low income earners, 2837 – medium income earners). However, only 337 copies (90%) of the questionnaire were found usable. Simple random sampling method was used to select members of the sample from the frame. Pearson's Products Moment Correlations and simple regression techniques as contained in SPSS version 16 were used to test the strength of association between NAFDAC regulatory activities and consumer compliant buying decision.

4.0 Results, Findings and Discussion

The results of the various tests of hypotheses are hereby presented here. For hypothesis one, the result of the analysis showed a positive but weak relationship between NAFDAC registration number and consumer compliant buying-decisions. Our computation gave Pearson $r = 0.53$, and computed value of 0.330, at 0.05 sig., 2-tailed test. Again, test of hypotheses gave an r -value of -0.3995, for a two-tailed test at 0.05 level of significance with a z -critical value of ± 1.96 . Given that this computed z -value, 0.330, is less than the critical z -value of ± 1.96 , we accept the Null hypotheses that there is no significant relationship between NAFDAC registration number and consumer compliant buying-decision of packaged water among the low and medium income earners in the South-East of Nigeria.

This result is in consonance with the outcome of the empirical study of Modjeska, Caswell and Harris (2008:81-108) writing on consumer choice for food products and the implications for price competition and government policy, observed that government policies have little or no impact on consumer purchase behavior towards brands but disagrees with Hirogaki (2012), submissions that confidence in health claim regulation systems had a significant impact on shaping consumer choices for FOSHU foods This shows that no matter how effective NAFDAC registration number may be, consumers still have the tendency to choose their favorite brands of packaged water irrespective of whether it has NAFDAC number or not especially for low ticket items.

Our test of hypotheses two gave an r -value of -0.60, and a computed z -value of -1.2, for two-tailed tests at 0.05 level of significance, with a critical z -value of ± 1.96 . The outcomes of the tests of hypotheses two necessitated the acceptance of the null hypothesis that there is no significant relationship between NAFDAC enlightenment campaigns by NAFDAC and consumer compliant buying-decisions.

The tests of hypothesis three showed an insignificant relationship between NAFDAC consultative meetings and consumer compliant buying-decision, given a two-tailed test result of r -value of -0.52, and computed z -value of -1.05, which is less than the critical value of ± 1.96 . Hence, we accept the null hypothesis, that there is no significant relationship between NAFDAC' consultative meetings with stakeholders and consumer compliant buying-decision. It is, therefore, surprising to find that these South-East low and medium income earners did not show significance evidence that they comply with NAFDAC regulation when they buy packaged water.

The outcomes of these tests agrees to an extent with the Kim and Boyd (2008) conclusions that various food safety and quality labeling information, concern for food safety issues, and attitude towards grocery food products in Japan, are important in Japanese consumers' GM food choice behavior but that inadequate information and deficient understanding among consumers regarding GM foods have a negative influence on their attitudes, perception, and interest in GM foods and this may be reflected in the significant degree of importance of food labeling perceived by consumer. Quality certification labeling of GM foods may provide an effective solution to informational problems, and may contribute to an increased level of understanding and knowledge of GM food.

Nigerian consumers seem to have become complacent with regards to the ability of NAFDAC to perform its legally-assigned duties and to an extent, they seem not to understand the full implications of the NAFDAC law. This has affected their behavior towards the agency and its activities. They now view with distrust step taken by the agency whether in good faith or not. There is, therefore, a total lack of confidence and trust. This may not be unconnected with the various cases of confiscated regulated products that later found their ways into the Nigerian market and the offenders who were never brought to book.

This outcome is equally in consonance with The Australian Government Best Practice Regulation(2010) which opined that the effectiveness of government regulations is determined by its effectiveness in changing people's behavior but disagrees with Love, Plumly and Kaicker (2008) submission on effects of nutrition label regulation

on consumer choice, a conceptual approach, with respect to the U.S. government Nutrition Labeling and Education Act (NLEA) of 1990 that new nutrition labels are found to likely influence consumer purchase behavior. The success of NAFDAC regulation can, therefore, be predicated on first and foremost, re-orienting the Nigerian consumers and winning back their confidence and trust through sincere implementation of the demands of the NAFDAC Act.

5.0 Conclusion and Recommendations

5.1 Conclusions

Based on the above discussion, we conclude as follows:

- i. Majority of the low and medium income earners in South-East Nigeria are aware of NAFDAC regulation but they are far from its full compliance in their buying decisions.
- ii. NAFDAC registration numbers on products or brands do not influence compliant buying decisions of low and medium income earners in South-East, Nigeria.
- iii. NAFDAC enlightenment campaigns do not influence compliant buying-decisions of these consumers.
- iv. NAFDAC consultative meetings with product manufacturers, consumers and other stakeholders do not influence compliant buying-decisions of these low and medium income earners South-East, Nigeria.

5.2 Recommendations

Based on our findings, discussions and conclusions, we recommend that for NAFDAC regulatory activities to be more effective in making the low and medium income earners in South-East of Nigeria exhibit the required compliant buying-decisions, the following should constitute its attitude:

- i NAFDAC should involve more robust social marketing strategies to elicit the socially desired consumer compliant buying behavior.
- ii NAFDAC should be carrying out enlightenment campaigns that have the capacity to enhance consumer' sensation, perception and involvement in their buying decisions.
- iii NAFDAC should design commercial messages with brilliant colors, such as red, blue, and yellow, to enhance sensation, exposure, and attention of consumers.
- iv NAFDAC should make repeated insertions of creative messages in multiple media – print (tabloids and other periodicals), electronic (television, radio, cable) and outdoor (Billboards, banners, fliers, handbills) to minimize zipping, zapping, and muting, and thus, increase consumer involvement, perception and learning.
- v NAFDAC should expose consumers to their enlightenment messages at the strategic time, place and position, using appropriate formats and contrasts in the media vehicles, to reduce selective exposure, attention and interpretation, which can affect NAFDAC communication messages effectiveness.

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