

## **Implications of Audience Responses to Caveats on Advertised Malaria Medication**

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### **Abstract**

Aside being a global pandemic, the prevalence and mortality rate of malaria in Nigeria has remained higher than any other disease over the years. Self-medicating for malaria consequently has become a popular practice following the categorization of malaria medication as an over-the-counter option; and the direct-to-consumer advertisements that promote malaria medication in a three days dosage for public consumption. Typically, these adverts include a caveat that directs the audience to consult a physician after three days of the medication use should the symptom persist. Motivated by the unimpressive figures in malaria prevalence despite this effort, this study sought to determine how residents of North Central Nigeria respond to this caveat and the impediments to their adherence. Employing the potentialities of a mixed method (survey & In-depth Interview), it used the questionnaire to collect data from 500 residents of North Central Nigeria who constituted the study population. It also collected data from nine medical doctors from the study area using the in-depth interview. The sample size was determined by Philip Meyer's table and multistage sampling was used for the study. Premised on the Health Belief Model, the study found out among others that there is an abysmally low adherence to the caveat among the respondents as only 16% attested to a regular adherence. The study also observed a significant relationship between the respondents' level of education and their adherence to the caveat. It was also observed that regular adherence is predominant amongst respondents who hold a postgraduate degree followed by HND/BSC holders and OND/Diploma which all had 53%, 21% and 13% adherence respectively. Also, knowledge of close substitute malaria medication accounted for the major impediment to the adherence to the caveat as 40% of the respondents attested to this. This was further substantiated by the qualitative findings. The study concluded that while direct to consumer advert for malaria medication may be important for the audience as well as pharmaceutical companies, it inadvertently serves the dysfunctional purpose of promoting unsafe self-medication. The study recommended that Malaria advert caveat should include associated risk resulting from non-adherence to the direction for use; as the perceive severity of non-adherence is more likely to promote adherence.

**Keywords:** Malaria, Advert Caveat, DTCA, Over-the-counter medication, Adherence

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### **I. INTRODUCTION**

The changing nature of the pharmaceutical industry leaves it with a dynamic market. It possesses a high level of investment in research and development. Contentions related to the safety associated with any new product are typically, extremely high. In most developed countries, it is one of the most regulated markets. This regulation spans from medication production to its promotion. Developing countries are also taking a cue from it too. From a marketing perspective according to Hester (2005), the industry is typically segmented, albeit not precisely, into those medication freely available for sale 'over the counter' (OTC) and those that may only be obtained by prescription. OTC drugs are offered for self-medication purposes with or without the recommendation of health professionals. Prescription drugs, however, can only be obtained with a prescription issued by a physician or certain other healthcare practitioners and only dispensed by registered pharmacists. According to Cox and Cox (2010), prescription drugs marketing and advertising, in a similar way to tobacco and alcohol, have become seen, in the past few decades, as controversial and even a "taboo". Albeit more recently public attitudes may be changing. One of the forerunners of this change is the United States. In the USA, the world's most developed consumer economy, it has become legal and advertising budgets continue to grow (Mehta and Purvis 2003).

Direct advertising of medicine via the media forms an integral part of the issues associated with pharmaceutical advertising. This is owing to its hydra headed consequences not just on the health sector but also on the entire populace. Popularly referred to as Direct to Consumer Advertising (DTCA), this form of

advertising in medicine are mostly sponsored by pharmaceutical companies in the bid to outwit each other and increase their market share. There is the assumption that audience exposure to these adverts would influence their preference both amongst the physician and the patients. According to Bradley and Zito (1997) cited in Kaphingst, Dejong, Rudd and Daltroy (2004), Direct-to-Consumer (DTC) advertising has been the subject of intense debate in both the medical literature and the popular press, stemming in part from the tremendous growth in television advertising. Proponents such as Ventola (2011) and Gibson (2014) have argued that DTC advertising can increase treatment of underdiagnosed conditions, inform consumers about new treatments, enhance treatment adherence, and help consumers make better informed health care decisions. While this may have emphasized on some of the potentials of this form of advertising, the opponents such as Wilkes, Bell and Kravitz (2000) maintain a contrary position. They insist that DTC advertising might confuse patients who lack specialized medical knowledge, interfere with the physician–patient relationship, and promote self-medication and ultimately drug abuse, lead to inappropriate prescribing, boost health care costs, and increase consumption of new, expensive brand-name products over older, cheaper, and safer alternatives.

Direct to consumer advertising is relatively common in Nigeria. Pharmaceutical companies exploit the potentials it avails them for the promotion of medication. One of the most popular amongst the lot is malaria medication. This is owing to the prevalence of the disease and its consequent high mortality rate. According to the Nigerian Malaria Fact Sheet (2011)

Malaria is a major public health problem in Nigeria where it accounts for more cases and deaths than any other country in the world. Malaria is a risk for 97% of Nigeria's population. The remaining 3% of the population live in the malaria free highlands. There are an estimated 100 million malaria cases with over 300,000 deaths per year in Nigeria. This compares with 215,000 deaths per year in Nigeria from HIV/AIDS. Malaria contributes to an estimated 11% of maternal mortality. The prevalence level is also higher in the Northern part of the country than in any other region.

Chukwuocha (2012) further substantiates the Malaria Fact Sheet with a summation that malaria is highly endemic in Nigeria as it accounts for 60% outpatient visits to health facilities, 30% childhood death, and 11% of maternal death (4,500 die yearly) and the financial loss due to malaria annually is estimated to be about 132 billion naira in form of treatment cost, prevention, loss of man-hours etc.

Malaria medication is typically available as an over-the-counter medication in Nigeria. It is thus not uncommon to find the advertising of same in the media consequent upon its availability and potency towards combating the disease over the years. While this encourages safe self-medication, there is always the tendency for abuse as it is with all over-the-counter medications. Motivated by the need to check abuse, advertisers of malaria medication usually include a caveat in its advert. Typically, for the broadcast media, they are announced at the end of the advert. They are usually printed underneath print adverts and they may also be contained in the leaflets that are included in medication packs. The rationale behind these caveats stem from the need to maximize the potentials of the drugs without necessarily compromising on the risk factors. It draws the line between safe self-medication and professional direction. Most of the caveats advise the patient to consult a doctor should the symptoms persist after a certain period of safe self-medication. The efficacy of this approach as mentioned earlier is dependent on the response of the patient to the caveat. Failure to adhere however also present consequence which sometimes may be fatal.

### **Statement of Problem**

According to Malaria Factsheet (2011) 'malaria is a major public health problem in Nigeria where it accounts for more cases and deaths than any other country in the world (p.4)'. To combat the spread of the disease, malaria medication is enlisted as an over-the-counter medication in Nigeria. This categorization makes it readily available for purchase without necessarily providing a doctor's prescription. It is thus not uncommon to find consumers self-medicate when they observe malaria symptoms. Self-medication portends a win-win situation for both doctors and the patient as it is cost effective for the patient and reduces doctors' workload. To mitigate against its abuse however, pharmaceutical advertisers typically include a caveat when advertising malaria medication. The caveat directs the audience to consult a doctor if the symptoms of the disease persists after three days. The potency of this social responsibility is dependent on the audience adherence and the drive to adhere is not unconnected to their knowledge of the implications and risk factors of non-adherence. Who among medication drug users pay attention and respond to the caveat if the symptoms of malaria still persist? This question is pertinent in the light of malaria still being considered as highly endemic in Nigeria despite the medical caveat on malaria drugs.



Figure 1: Malaria advert from a popular brand name in Nigeria

### Objectives of the Study

- (1) Examine how residents of North Central Nigeria respond to the caveats on malaria drugs advert.
- (2) Identify the impediments to the adherence of malaria advert caveats among residents of North Central Nigeria.
- (3) To determine the severity and implication of non-adherence to the caveat on the audience.

### Research Questions

- (1) How do residents of North Central Nigeria respond to the caveats on malaria drugs advert?
- (2) What are the impediments to the adherence of malaria advert caveats among residents of North Central Nigeria?
- (3) How severe is the implication of non-adherence to malaria advert caveat on the residents of North Central Nigeria?

### Theoretical Framework

#### Health Belief Model

According to Glanz & Bishop (2010), the Health Belief Model is one of the most widely applied theories of health behaviour. It is a psychological model that attempts to explain and predict health behaviours by focusing on the attitudes and beliefs of individuals. The HBM was first developed in the 1950s by a group of social psychologists: Hochbaum, Rosenstock and Kegels, who were working in the U.S. Public Health Services. It was developed in an attempt to better understand the widespread failure of a free tuberculosis (TB) health screening program. Since then, the HBM has been adapted to explore a variety of long- and short-term health behaviours, including sexual risk behaviours and the transmission of HIV & AIDS. Jones, Jensen, Scherr, Brown, Christy, and Weaver (2015). The Health Belief Model (HBM) posits that messages will achieve optimal behaviour change if they successfully target perceived barriers, benefits, self-efficacy, and threat. The theory posits that six constructs predict health behaviour: risk susceptibility, risk severity, benefits to action, barriers to action, self-efficacy, and cues to action Becker, 1974; Champion and Skinner, 2008; Rosenstock, 1974. Originally formulated to model the adoption of preventive health behaviors in the United States, the HBM has been successfully adapted to fit diverse cultural and topical contexts Griffin,2012; Scarinci et al,2012. The core assumptions of this theory is based on the understanding that a person will take a health related action if that person:

1. feels that a negative health condition (i.e., HIV) can be avoided,
2. has a positive expectation that by taking a recommended action, he/she will avoid a negative health condition (i.e., using condoms will be effective at preventing HIV), and
3. Believes that he/she can successfully take a recommended health action (i.e., he/she can use condoms comfortably and with confidence).

The HBM was spelled out in terms of four constructs representing the perceived threat and net benefits: perceived, *susceptibility*, perceived, *severity*, perceived *benefits*, and perceived *barriers*. These concepts were proposed as accounting for people's "readiness to act." The relevance of this theory to the study stems from not just in its popularity in health campaigns but primarily in its predictor function with regards to the audience propensity to act in a certain way given their knowledge of certain variables. In this regard, audience are likely

to adhere to the caveat that accompany malaria medication advert if they are knowledgeable of their susceptibility to the disease, its severity and the benefits that accrues when they adhere.

## **II. LITERATURE REVIEW**

### **Healthcare Delivery in Nigeria**

The Nigerian healthcare delivery system operates a referral system, thus making teaching hospitals the primary health institutions providing tertiary level of healthcare. In medical practice, tertiary-level healthcare specializes in consultative care, usually on referral from primary or secondary medical care personnel by specialists working in a center that has personnel and facilities for special investigations and treatment. They are also vital sites of education and research that bear considerable and varied expertise to clinical care. (Kupersmith, 2005). The functions expected of a teaching hospital will be difficult to attain without a well-organized, effective, and efficient health information management system in place. The amount and quality of information available to healthcare professionals in patient care impact the outcome and continuity of patient care. Furthermore, medical information needed for clinical decision making continues to increase, especially in developing countries. However, the organization and accessibility of medical information have remained poor, usually resulting in inappropriate decisions and medical errors. (Delpierre, Cuzin, Fillaux, Alvarez, Massip and Lang, 2004). Electronic health information management systems are therefore seen as crucial for increasing accessibility and management of medical information. Healthcare organizations around the world are recognizing the importance of investing in information technology as an efficient means to deliver high-quality care through rapid information retrieval and efficient data management. Studies have shown that, with the advent of information technology, traditional paper-based health information system can be replaced with flexible electronic means, which could lead to cost reduction and effectiveness.

Adler-Milstein (2009) opines that the expected efficiency and quality from Health Information Technology may become unrealistic except with change management in order to orchestrate meaningful use by both care providers and administrators. Classen, Bates and Denham (2010) opines that a good Health Information Technology application must not only be adopted and implemented but, must also be used in a meaningful way by providers so that the desired results such as reduced costs and improved care quality and safety are achieved. The standard of meaningful use strikes a balance between acknowledging the urgency of adopting the technologies to improve healthcare system and recognizing the challenges that may follow such implementations (Blumenthal and Tavenner, 2010). In the same vein, lack of systematic records management has been linked to the persistence of data corruption. There is also the problem of inadequate health information management systems in developing nations (Azubuike and Ehiri, 1999). Apparently, contemporary issues in health information management practice and healthcare systems management in Nigeria are capable of provoking the immediate adoption and implementation of Health Information Technology in order to revolutionize the moribund systems. For instance, most healthcare settings in Nigeria are predominantly on paper based health information systems clinical documentation in the prevailing manual system has been reported to be suboptimal and providers have been reported to lack the right computing skills relative to their responsibilities. (Adeleke, Lawal, Adio and Adebisi, 2014).

### **Malaria in Nigeria**

According to Bates (2003) Malaria is highly endemic in Nigeria and it accounts for 60% outpatient visits to health facilities, 30% childhood death, and 11% of maternal death (4,500 die yearly). The financial loss due to malaria annually is estimated to be about 132 billion naira in form of treatment cost, prevention, loss of man-hours etc. (Nigerian Demographic and Health Survey 2011). According to the Annual Malaria Report (2011) The National Malaria Control Program (NMCP) delivered about 17 million Insecticide Treated Nets during 2005-2007 (6.6 million Long Lasting Insecticidal Nets), enough to cover only 23% of the population at risk. The programme delivered 4.5 million single dose packages of ACT in 2006 and 9 million in 2007, far below total requirements. Funding for malaria control was reported to have increased from US\$17 million in 2005 to US\$60 million in 2007, provided by the government, the Global fund and the World Bank. This is unlikely to be sufficient to reach national targets for prevention and cure.

Most malaria deaths occur at home, without confirmation of the diagnosis. The reality is that in the poorest, rural areas, where malaria takes its highest toll, it is difficult to obtain accurate data and to derive meaningful malaria statistics. During their illness, many patients struggle, often unsuccessfully to access basic health care (Greenwood, Fidock, Kyle, Kappe and Alonso, 2008). For those that succeed, the care may be of dubious quality and ineffective (Bates, 2003). In response to this terrible situation, the global community is now taking steps to deliver more effective intervention throughout Africa, including drug combinations with an artemisinin derivative and anti-vector measures. The dramatic success of these measures in a few specific areas, such as KwaZulu in South Africa, Eritrea, and the Tanzanian Island of Zanzibar, has inspired a new call for global eradication (Bhattarai, Ali, Kachur, Mårtensson and Abbas, 2007). Achieving this ambitious goal

depends on the development of new tools to treat, prevent and monitor malaria. Furthermore, the recent availability of genome sequences for humans, Anopheles mosquitoes, and Plasmodium parasites has raised hopes of molecular diagnosis of the disease coupled with vaccine development.

### **Direct to Consumer Advertising (DTCA) of Prescription Medicines**

Direct to consumer advertising has grown to become a popular practice in the media all over the world. It serves as a veritable means of promoting medication and increasing the audience awareness of same. However, as it is with every form of specialized advertising, it is not devoid of fundamental and multidimensional arguments. One major position in this regard is the consumers' ability to understand information pertaining to treatments, and the form advertisements providing this information take. Unlike other product categories, where consumers know and use a number of competing brands, most consumers have little direct medical knowledge and often have no experience of the promoted drug. In particular, although they may understand the conditions for which the drug is indicated, they may know little about its side effects or the way in which it could react with other medication they take. Critics of DTCA thus argue that in this context a little knowledge is dangerous, since consumers may request a drug that is incompatible with other conditions they have. Promotions that prompt some consumers to request a drug when it is not fully appropriate may generate problems that doctors must then resolve. Opponents of DTCA have argued that advertising of prescription medicines can lead to tensions in doctor-patient relationships if doctors decline to prescribe drugs that their patients request (Burak & Damico 1999; Reast & Carson 2000). In some cases, patients refused a drug by their usual doctor may "doctor shop" until they find a practitioner willing to prescribe the drug, or they may obtain the drug via an Internet prescription (Sheffet & Kopp 1990). In both the latter examples, the prescriber is unlikely to have detailed information about patients' existing conditions, thus the safety of the prescription may be compromised.

Proponents of DTCA on the other hand claim that information provided in advertising empowers consumers, prompting them to seek more information about their health status and resulting in higher levels of adherence with treatment regimes. Moreover, they suggest that information provided through prescription medicine advertising encourages individuals to seek advice about health conditions they recognise, but have not been clinically diagnosed or treated (Burak & Damico 1999). That is, the presence of DTCA has increased the salience of health issues in general and has led consumers to become more aware of their health status and accept greater responsibility for this. However, although some findings suggest that DTCA can prompt high demand for a drug, the evidence of increases in consumers' general health awareness is more anecdotal. While it is logical that the increased prominence of health-related material will prompt greater awareness of the issues foregrounded, further work is required to assess the relationship between consumers' knowledge of their own health and DTCA.

Not surprisingly, advocates of DTCA have little patience with concerns that doctors come under considerable pressure to prescribe promoted drugs from patients. Instead, they view DTCA as part of a wider social change in which the parties interested in medications have expanded to include not only doctors and patients, but also insurance companies, health advocates, care organisations and caregivers (Basara 1996). Several researchers have noted the changing role of patients, who are no longer passive recipients of advice and treatment, but active participants in their own health management (Desselle & Aparasu 2000). Levitt (1995) concluded: "the fact that lay consumers may lack the requisite knowledge to decide whether to prescribe a drug does not mean they are incapable of accurately understanding prescription drug advertising per se" (p5).

In summary, although detractors from DTCA have argued that it will escalate the funding required to support growing demand for drugs, they have advanced little empirical evidence to support their claim. Similarly, arguments that DTCA will disrupt and impair the relationship doctors have with their patients also have little empirical support. Indeed, proponents of DTCA conclude that doctors' role as guardian and dispenser of privileged information has changed, irrespective of the presence of DTCA. Whether doctors feel comfortable with the role of gatekeeper or not, thus becomes irrelevant to proponents as they engage in the wider debate over the dissemination of information to interested parties. Overall, it is hard to dispute the general principle that consumers are entitled to access information that may help them better manage conditions they have, or to argue that companies do not have a right to promote products that could lead to these improvements (Levitt 1995).

### **Empirical Studies**

Fadare, Oshikoya, Ogunleye, Desalu, Ferario, Enwere, Adeoti, Sunmonu, Massele, A., Baker and Godman (2018) conducted a study titled *Drug promotional activities in Nigeria: Impact on the prescribing patterns and practices of medical practitioners and the implications*. This study aimed to explore the nature of encounters between Nigerian physicians and pharmaceutical sales representatives (PSRs) and how these encounters influence prescribing habits. The study was conducted as a survey. It used a cross-sectional questionnaire-based study conducted among practicing physicians working in tertiary hospitals in four regions

of Nigeria who constituted the population of the study. 176 questionnaires were completed. 154 respondents (87.5%) had medicines promoted to them in the previous three months, with most encounters taking place in outpatients' clinics (60.2%), clinical meetings (46%) and new medicine launches (17.6%). Information about potential adverse effects and drug interactions was provided in 41.5%, and 27.3% of cases, respectively. Food, in the form of lunch or dinner, was the most common form of incentive (70.5%) given to physicians during promotional activities. 61% of physicians felt motivated to prescribe the drug promoted to them, with quality of information provided being the driving factor. Most physicians (64.8%) would agree to some form of regulation of this relationship between medical doctors and the pharmaceutical industry. The study concluded that Interaction between Pharmaceutical sales and physicians is a regular occurrence in Nigeria, influencing prescribing practices. Meals and cheap gifts were the most common items offered to physicians during their encounters with pharmaceutical sales representatives. It recommended that there is the need for some form of regulation by professional organizations and the government was expressed by most respondents to address current concerns. This reviewed study is similar to the present study following its concentration on promotion of medicine but it is different in many ways. This reviewed study appraised this phenomenon by studying physicians and their interactions with pharmaceutical sales agents while the present evaluated the responses of drug adverts warnings on the audience using a mixed method.

Kornfield, Alexander, Qato, Kim, Hirsch and Emery (2015) did a study on *'Trends in exposure to televised prescription drug advertising, 2003-2011.'* The purpose of this study was to quantify average household exposure to branded and non-branded (help-seeking) televised prescription drug advertisements and describe variation over time and according to medication indication and geography. To achieve this, a certain TV rating called 'The Nielsen TV ratings' were compiled for prescription pharmaceutical advertising that aired between 2003 and 2011 for the top 75 U.S. media markets. All advertisements were coded as branded or help-seeking. Advertisements were further coded for one of eight prevalent indications (allergies, arthritis, asthma, erectile dysfunction, and high cholesterol, smoking cessation, depression, and sleep disorder) or as "other." The result of the study showed that televised ad exposure increased from 2003 to 2007 and then declined 43% by 2011, to 2015 monthly prescription drug advertisements per household. The examined indications were associated with varying amounts and patterns of exposure, with greatest declines among medications for allergies and sleep disorders. Help-seeking advertisements comprised 10% of total exposure, with substantial variation by indication. This similarity of this reviewed study with the present study is in their focus on audience exposure to pharmaceutical adverts. However, the major difference lies in the fact that the reviewed study evaluated trends in the audience exposure to televised advert and looked at this in the light of a number of diseases. This present study on the other hand, focused mainly on the caveat that accompany the advert and would do same in the light of malaria disease which was also not considered in the reviewed study.

### III. METHODOLOGY

This study used a combination of research methods (the survey methods and in-depth interview). It employed these quantitative and qualitative approaches for data collection. This include the use of questionnaire and in-depth interview as its primary means of collecting data. According to Hurmerinta-Peltomaki and Nummela (2006), mixed methods add value by increasing validity in the findings, informing the collection of the second data source, and assisting with knowledge creation. All residents of North Central Nigeria constituted the population of the study and according to the National Bureau of Statistics, the total number of residents in North Central Nigeria as at August, 2020 was 28,982,408. While the quantitative design sought to determine adherence to the caveat that accompany malaria medication advert amongst the audience, the qualitative design focused on investigating the implication of non-adherence to the caveat on the audience. It employed the use of an interview guide with open ended questions to collect data from medical doctors in selected government hospitals in the study area. The interview schedule was designed in a way that provided detailed background information on the rationale behind the caveat, its importance and the consequence of non-adherence. Multi stage sampling was used to select two towns each in Benue, Kogi and Nassarawa states amongst the North Central state. A sample size of 500 was determined for the study using Philip Meyers table. The return rate was 98 % (489). Data was collected using the questionnaire and was analysed using SPSS.

### IV. DATA PRESENTATION AND ANALYSIS

<b>Qualification</b>	<b>I Regularly</b> adhere to the warnings on the advert	<b>I occasionally</b> adhere to the warnings on the advert	<b>I Never</b> adhere to the warnings on the advert
<b>Below SSCE</b>	6%	28%	31%
<b>SSCE</b>	7%	23%	25%

<b>OND/DIPLOMA</b>	13%	21%	22%
<b>HND/BSC</b>	21%	18%	15%
<b>POST GRADUATE</b>	53%	10%	7%
<b>Total</b>	100%(N=78)	100%(N=210)	100%(N=201)

$\chi^2 = 36.22$ ; diff 20;  $p < .001$

**Table 1: Relationship between respondents' educational qualification and adherence to the caveat**

The table above capture the relationship between the respondent's educational qualification and their adherence to the caveat. The relationship captured in the table suggested overall that most of the respondents tend to increase their adherence level slightly significantly as their level of education. This was found to be statistically significant at .001 level. It was also observed that regular adherence is predominant amongst postgraduate respondents and followed by HND/BSC and OND/Diploma which has 53%, 21% and 13% respectively. Non-adherence level is also similar amongst the same category of respondents as they account for 7%, 15% and 22% in the same order.

<b>Impediments to Adherence to the caveat</b>	<b>Percentage</b>
The warnings are unclear	1%(N=5)
The warning does not emphasize the risk associated with non-adherence	47%(N=230)
Consulting Medical professional is expensive	12%(N=59)
I have knowledge of another substitute medication that will work	40%(N=195)
<b>Total</b>	100%(N=489)

**Table 2: Impediments to respondents' adherence to the caveat**

While the previous table shows a relatively low regular adherence level to the caveat that accompany malaria medication advert amongst the respondents, the table above captures the factors that deter the respondents from adherence. Data shows that nearly half of the respondents attested to a non-adherence as a result of the fact that the warnings does not emphasize the risk involved. This is evident in the 47% representation amongst the audience members. 40% of the respondent also attested to their knowledge of a substitute medication that they resort to if symptoms persist. This may not be unconnected to the availability of information resulting from increased access to media technologies such as the internet and all its potentialities. With the 12% of the respondent that claim that consulting a medical professional is expensive, it shows that cost of health care is not a significant reason why adherence level is low.

**Presentation of Qualitative Data**

The research objective which sought to determine the severity and implication of non-adherence to the caveat on the audience can be adequately addressed by an interview of a medical professional. The interview was conducted amongst Nine (9) medical doctors in the study area. Three doctors were selected from each of the states where the study was conducted. Major themes related to exposure to the advert, adherence, and particularly the severity of non-adherence were identified in the data. The in-depth interview allowed the interviewer to probe and control the discussion with the doctors to ensure that it remained within the boundaries of the discussion.

Issues covered in the interviews with the doctors.

- The rationale behind the caveat
- Consequences of non-adherence to the caveat
- Level of Patients Adherence to the caveat

**The Rationale behind the caveat**

Six (6) of the doctors confirmed that including the caveat to an advert may be a statutory provision but it tilts more on the side of a social responsibility from the advertiser. This is because there are medication adverts that do not include the caveat and have not been known to face any penalty. A doctor in Benue state substantiates this by saying that:

It is important to include the caveat so as to provide adequate direction for the patient. Although there are some adverts that do not carry the caveat, you are likely to find the warning in the leaflet added to the medication pack. We have not witnessed any instance where an advertiser was penalized for not including the caveat in their advert.

They also reiterated the fact that there is basic information manufacturers are expected to acquaint medication consumers with such as composition, adverse reactions, contraindication etc. All these are typically contained in the leaflets included in medication packs. They commented on the fact that self-medication is usually promoted by advertisers of these medication and that consumers should know that all the claims are from non-professional sources. A doctor in a government owned hospital in Benue State corroborated this when he asserted that:

The warning to consult a doctor after three days is first common sense. Every right thinking person is supposed to know that. However, it is important to state that consulting a physician as the first response will always be better than self-medication even though safe self-medication is permissible. The claims by the advertisers about a medication and its potency is from a non-professional point of view and consumers must understand that. Including the caveat is necessary to warn the consumers not to depend entirely on their intuition as a means for diagnosis. These warnings are regulatory provisions however, adherence is dependent on the effectiveness of the regulators. The inclusion of the caveat is also necessary to save someone who assumes he or she is treating malaria but had a different ailment.

### **Consequences of non-adherence to the caveat**

Perceived severity is one of the major reasons why people comply with medical instructions. The study sought to investigate the consequence respondents may face should they fail to adhere to the caveat that accompany advertised malaria medication. All (9) of the doctors interviewed reiterated the risk patients face should they disregard the caveat. A doctor commented on this in no small terms:

A patient who practice self-medication for malaria is actually exposed to so many risks. Even though they have been informed of the necessary steps to take by adverts, it should be the last resort and not the first. Where there is no physician available, safe self-medication may be considered.

These consequences vary according to the health condition and medical history of the patient. Even though the interviewee discouraged self-medication in very strong terms, they opined that it is important to ensure strict adherence with the caveat. Some of the consequences include but are not limited to a misdiagnosis and complications resulting from the ailment. A doctor in Kogi State who was interviewed summarised it thus:

Patients who self-medicate for malaria exposes themselves to serious risks. This is because they are not trained to diagnose ailment by mere observing symptoms and it is not only symptoms that are used to diagnose malaria. There are medically defined ways to conduct an investigation and that is what must be encouraged. Self-medication is promoted by information provided by advertisers who try to show describe some symptoms while promoting their brand. The least anyone who self-medicate can do for themselves is to ensure that they comply with the warning. Failure to do so exposes them to so many risks resulting from complications related to improper treatments in the past. Some include fibril convulsion, cerebral malaria (the type that affects the brain), Nephropathy which can affect the kidney, Hypoglycaemia and even shortage of blood.

### **Level of Patients adherence with the caveat**

The study also sought to evaluate the extent of adherence of the respondents to the caveat. This was established using the questionnaire. There was also the need to also investigate this from the prisms of doctor's experiences with their patients. Out of the nine doctors interviewed, eight of them reported a relatively low adherence level from their experiences with patients. They blame this trend on the increased awareness of medication types and the bogus claims by advertisers of pharmaceutical products. They opined that patients now typically consult doctors not as a first reaction to persistent symptoms but as a last resort after trying all the medication and tactics they know. A doctor in Nassarawa state aptly captures it thus:

Most of the times, when a patient comes to the hospital with a suspicion of malaria, we observe that they must have exhausted their options before they come to the hospital. A lot of times, they confess to have been treating the ailment for weeks to no avail. Patients are very knowledgeable now and are familiar with so many options of medicines to be used to treat malaria. In many cases as well, they visit a local drug store and purchase medication from the seller who they convince themselves are pharmacist. Even if they are, pharmacists are not trained to diagnose ailments and prescribe medication for patients. Ultimately, this poor adherence is because they do not know the risk they face and of course, the poorly regulated nature of our healthcare industry.

## **V. DISCUSSION OF FINDINGS**

The major crux of this study was to determine how the audience respond to the caveat that accompany advertised malaria medication and the implication on non-adherence to same. Research Question 1 sought to determine how residents of North Central Nigeria respond to the caveat. Captured by table 1, the study observed an abysmally low regular adherence among the respondents. 14% (71) of the respondents attested to a regular adherence. 210(43% attested to an occasional adherence while 201(41%) attested to an absolute non-adherence. This low adherence obviously have far reaching consequences This is further substantiated by Jimmy and Jose(2011) who opine that non adherence can have negative consequences not only for the patient but also for the provider, the physician, and even the medical researchers who are working to establish the value of the medication on the target population. Findings of the study also revealed a relationship between the respondents' level of education and their level of adherence. It observed a significant increase in the audience levels of adherence as their level of education increase. It was also observed that regular adherence is predominant amongst postgraduate respondents and followed by HND/BSC and OND/Diploma which has 53%, 21% and 13% respectively. Non-adherence level is also similar amongst the same category of respondents as they account for 7%, 15% and 22% in the same order. This shows that patients' knowledge is critical to their understanding and responses to medication adverts. This is further corroborated by Ayodapo, Elegbede, Omosanya and Monsudi who asserts that education as revealed by patient depth of knowledge enhances medication adherence among the patients. Hence, patient level of education, which is an overlooked aspect of disease management should always be a consideration underscored.

Research question 2 sought to determine the impediments to the adherence of the caveat that accompany malaria medication advert amongst the respondents. The study observe that 47% of the respondents attested to a non-adherence as a result of the fact that the warnings does not emphasize the risk involved. 40% of the respondent also attested to their knowledge of a substitute medication that they resort to if symptoms persist. This may not be unconnected to the availability of information resulting from increased access to media technologies such as the internet and all its potentialities. This knowledge of close substitute may be part of the setbacks being referred to by Chukwuocha (2012) who opines that despite several efforts being put in place to control malaria in Nigeria, several setbacks have been encountered which have actually made effective and sustainable control of the diseases a mirage. Greene and Kesselheim (2011) further buttress this as the asserts that as consumers are exposed to more pharmaceutical advertising, health professionals need to be conscious of the impact that these messages can have on patient interactions with the health care system. With the 12% of the respondent that claim that consulting a medical professional is expensive, it shows that cost of health care is not a significant reason why adherence level is low.

Research Question 3 sought to determine the implications of non-adherence to the caveat among the respondents. To achieve this, the opinion of doctors were sought. The data is contained in the in-depth interview of the respondents who stated innumerable risk associated with non-adherence. One of the doctors insisted that patients who constantly self-medicate for malaria and neglect the warnings expose themselves to serious risks. This is because they are not trained to diagnose ailment by mere observing symptoms and it is not only symptoms that are used to diagnose malaria. Some of the risks resulting from complications related to improper treatments in the past include fibril convulsion, cerebral malaria (the type that affects the brain), Nephropathy which can affect the kidney, Hypoglycaemia and even shortage of blood.

The qualitative data confirmed a high prevalence of self-medication for malaria and confirmed that the knowledge of other substitute malaria medication brands appear to be a major impediment to the adherence of the caveat. One of the respondents remarked that most patients would have exploited all options available to them before resorting to visiting a physician for diagnosis and treatment. The study also found out that while promoting their brands as pharmaceutical advertisers, they inadvertently promote self-medication without recourse to the implication on the audience. This is in consonance with the position of Babar, Siraj and Curley (2018) who opine that some techniques used by pharmaceutical advertisers, although beneficial to pharmaceutical promotion, need to be monitored by policymakers and regulatory advisors, as they have the potential to negatively impact consumer health knowledge.

## **VI. CONCLUSION AND RECOMMENDATIONS**

The media is considered a strategic partner in the health development of any nation and its effort in this regard is reflected in the process of warning the audience on associated risk while self-medicating for malaria. This role is however not devoid of some dysfunction as according to the findings of this study, the major rationale for non-adherence to the caveat that accompany malaria medication among the respondents is their knowledge of close substitutes. Also, the abysmally low adherence level. Also, since the accompanying caveat does not emphasize on any risk factor, it becomes clear where the abysmally low adherence to the caveat originates from. DTC advertising for malaria medication in Nigeria is not satisfying its goals of providing

accurate and balanced information to patients, and is most certainly leading to increased costs for the system and for patients. The major findings of this study, necessitates the following recommendations:

1. Malaria advert caveat should include associated risk resulting from non-adherence to the direction for use. The perceive severity of non-adherence is more likely to promote adherence.
2. Following the effect of close substitute availability of adherence to the caveat, pharmaceutical advertisers should include graphical effects of malaria medication abuse in their adverts. This would encourage a sense of caution in self-medicating for malaria.
3. Consequent upon the prevalence of prescription medicine abuse in recent times and the relationship observed between educational levels and adherence levels, pharmaceutical adverts especially for malaria medication should take cognizance of the educational levels of the audience. Rather than using a one size fit all approach, different adverts for the same medication should be conceptualized and targeted at the audience according to their levels of education.

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