

**AUDIENCE AWARENESS AND USE OF MOBILE AUTHENTICATION SERVICE
(MAS) IN IDENTIFYING FAKE AND SUBSTANDARD DRUGS IN NIGERIA**

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Abstract

This study examines the level of audience awareness of, and determining the effectiveness of the National Agency for Food and Drug Administration and Control (NAFDAC)'s use of, the Mobile Authentication Service (MAS) in identifying fake and substandard drugs in Nigeria. The study, anchored on the Uses and Gratification Theory, posits that people actively seek out specific media to satisfy specific needs. The theory was used to facilitate the understanding of NAFDAC's choice of MAS as a new strategy in identifying fake and substandard drugs in Nigeria. Mixed research methods (Survey, In-depth Interview and Focus Group Discussion) were used for this study. Data gathered from a total of 191 respondents in two communities (Warri and Ughelli) representing Delta State Nigeria were analyzed. Results from the study indicate that the audience level of awareness and use of MAS is relatively low and was considered ineffective in the studied areas due to the following reasons: low mobilization of the population especially in rural communities, poor network services, partial implementation of MAS among drug manufacturers and poor infrastructures. Based on the research findings, this study therefore recommends an increased level of awareness through a multi-media approach, improved network services, as well as getting all drug manufacturers registered for the issuance of MAS number so as to enhance the effective use of MAS in identifying fake and substandard drugs in Nigeria.

Key Word: Awareness, Use, Mobile Authentication Service, Fake Drugs, Sub-standard Drugs.

Introduction/Background to the study

The manufacturing, trading and use of substandard and fake drugs in treating life-threatening conditions has been documented as one of the causes of high morbidity, mortality and loss of public confidence in the Nigerian health sector. Fake and substandard drugs are drugs that are not authentic and have been manufactured using incorrect quantities, or incorrect ingredients, to either reduce the potency, or nullify the potency of drugs. Reports indicate that fake and substandard drugs have had adverse effects on consumers, which range from injury, disability, paralysis, complications and treatment failure, and even death in some cases (IMPACT, 2013). Thus, counterfeiting of drugs has been acknowledged as a significant public health problem that has assumed global dimensions and is rapidly gaining grounds daily with scores of new reported cases (Factsheet, 2013). However, it has been widely observed that counterfeiting of drugs is an organized crime that fetches perpetrators millions of naira in profits. According to a report, “criminals in many parts of the world have discovered that the counterfeiting of medicines is financially lucrative and of relatively low risk. As a result, organized crime has shifted from the smuggling of narcotics and running of weapons to counterfeiting of medicines” (Akunyili, 2005, p. 5).

Generally, it has been reported that counterfeiting of drugs affects different countries in different ways, but the statistics of global and regional prevalence of counterfeiting are scarce, and where available, the figures are grossly inaccurate partly because they are underreported and partly because they have not been updated. Consequently, what obtains as statistics are mere estimates of the crime. This point has been unequivocally made by Factsheet (2013) which asserts that: Counterfeiting of medical products and similar crimes affect all countries, whether as countries of origin, transit or marketplace. As with all clandestine criminal activities, it is impossible to gauge exactly the extent of the problem. The latest estimates suggest that global sales of counterfeit drugs are worth more than €57 billion, having doubled in just five years between 2005 and 2010. Thus, counterfeit drugs have become a critical issue for developing nations, with an impact measured in lives. For example, of the one million malaria deaths that occur worldwide each year, 200,000 are reportedly the result of counterfeit anti-malaria drugs. Additionally, the WHO indicates that 700,000 Africans die annually from consuming fake anti-malaria or tuberculosis drugs (biztechafrika.com, 2013, p. 1).

These high incidents of counterfeit medicines across the globe have ushered in recent years, the epoch of anti-counterfeiting, which dovetails to the fight against the menace. The fight is gaining global momentum and a flurry of activities and strategies are being engaged by anti-counterfeiting regulatory agencies towards curbing the menace. Nigeria is not left out in this move, and has established a regulatory agency - the National Agency for Food and Drug Administration and Control (NAFDAC), which has been in the vanguard of the fight. NAFDAC was established by the Federal Government of Nigeria in 1993 with the mandate of safeguarding the health of the nation through the provision of effective regulation of the food, drug and chemical sector of the economy. One of the objectives of the agency was to make available at all times to the Nigerian populace, adequate supplies of drugs that are effective, affordable, safe and of good quality. The high prevalence of counterfeit medicines particularly anti-malaria

medicines, antibiotics, and vitamins in Sub-Saharan Africa generally and Nigeria particularly, necessitated this decision.

Over the years, the agency has engaged different strategies in an attempt to combat the menace of counterfeiting. According to NAFDAC News (2013, p. 11), “in the past, a common strategy adopted by NAFDAC was the use of NAFDAC Registration Number on packages to be able to detect fake drugs.” However, as earlier observed, growing access and sophistication in printing technology now enables counterfeiters to manufacture fake drugs affixed with fake NAFDAC Registration Number. As a result, cloning of fast moving drugs is so perfect that even the brand owners find it difficult to differentiate between fake and original. It is against this backdrop and the drive towards achieving the then President’s target of Zero Tolerance to counterfeit, fake, sub-standard, spurious, adulterated and expired medicines in the country that the agency has resorted to the fight against counterfeiting of medicines through the adoption of cutting edge technologies, the objective being to rid the country of the “activities of counterfeiters who are merchants of death, trying to benefit at the expense of the health of others” (NAFDAC News, 2013, p. 4).

Some of the anti-counterfeiting cutting-edge technologies engaged by the agency include: Truscan, Black Eye and Radio Frequency Identification (RFID). The Truscan is a hand held device for carrying out on-the-spot detection of counterfeit medicines; The Black Eye is an infra red technology used for speedy evaluation and detection of counterfeit medicines; while the Radio Frequency Identification (RFID) helps in authenticating sensitive documents.

Considering some challenges faced by NAFDAC in the use of the above stated technologies to fight counterfeits, the agency therefore developed and launched Mobile Authentication Service (MAS) that empowers consumers in detecting counterfeit medicines. Using this technology, consumers can send a direct message (the assigned 12 digit NAFDAC PIN on the product they are about to buy) to 38353, and receive an instant reply from NAFDAC, telling you whether the drug is fake or original. Stressing the value and mode of operation of the MAS, NAFDAC News (2013, p. 20) observes that “the agency has deployed the use of SMS text messaging technology to authenticate medicines at the point of purchase, putting the power of detection of counterfeits in the hands of Nigerian consumers, thereby enlisting the entire Nigerian public in the war against counterfeiting.” Considering the fact that the launching of Mobile Authentication Service (MAS) put the power of fake drugs detection into the hands of the consumers, it became necessary therefore to assess the level of these consumers’ awareness and the extent of utilisation of Mobile Authentication Service (MAS) in order to determine the effectiveness of MAS in the control and regulation of drug counterfeiting in Nigeria.

Objectives of the Study

The specific objectives of the study therefore include:

1. To ascertain Nigerians’ level of awareness of the use of Mobile Authentication Service (MAS) in identifying fake and substandard drugs.
2. To find out Nigerians’ level of utilisation of Mobile Authentication Service (MAS) in detecting fake and substandard drugs.
3. To examine the effectiveness of the use of Mobile Authentication Service (MAS) in identifying fake and substandard drugs in Nigeria.

Research Questions

Based on the research objectives, the following research questions were posed for investigations:

1. To what extent are Nigerians aware of the use of Mobile Authentication Service (MAS) in identifying fake and substandard drugs?
2. To what extent do Nigerians utilise Mobile Authentication Service (MAS) in detecting fake and substandard drugs?
3. How effective is the use of Mobile Authentication Service (MAS) in identifying fake and substandard drugs in Nigeria?

Review of related Literature

The issue of manufacturing and trading on substandard and fake drugs (counterfeit drugs) is a global public health problem causing death, disability and injury. These products often contain insufficient quantities of active ingredients or with the addition of toxic substances or even without any active ingredient. With these, a consumer does not receive the complete treatment benefits and will either not recover from or will have a delayed recovery (WHO, 2006).

However, there is no universal definition of fake drug as every country has their own meaning. World Health Organization defines a “counterfeited drug” as “a medicine, which is deliberately and fraudulently mislabeled with respect to identity and/or source. Counterfeiting can apply to both branded and generic products and counterfeit products may include products with the correct ingredients or with the wrong ingredients, without active ingredients, with insufficient active ingredients or with fake packaging” (WHO, 2006).

In this context, the definition of fake drug as given by the Nigerian Counterfeit and Fake Drugs and Unwholesome Processed Foods (Miscellaneous Provisions) will be used, which is:

- Any drug product which is purported to be; or
- Any drug or drug product which is so coloured, coated, powdered or polished that the damage is concealed or which is made to appear to be better or of greater therapeutic value than it really is, which is not labeled in the prescribed manner or which label or container or anything accompanying the drug bears any statement, design, or device which makes a false claim for the drug or which is false or misleading; or
- Any drug or drug product whose container is so made, formed or filled as to be misleading; or
- Any drug product whose label does not bear adequate directions for use and such adequate warning against use in those pathological conditions or by children where its use may be dangerous to health or against unsafe dosage or methods or duration of use; or
- Any drug product which is not registered by the Agency in accordance with the provisions of the Food, Drugs and Related Products (Registration, etc) Decree 1993, as amended (WHO, 2008).

There are different methods of drug faking such as, tampering with original packages of large pack sized drugs, label swapping of two products manufactured by the same company, making the appearance of a counterfeit product look like original, labeling a low price drug

products as the same with high price product label, passing off a company product for another product (Erhun, Erhun & Babalola, 2004). Most fake drugs are identical to the real ones in terms of packaging, labels and even appearance because they are faked not by amateurs in drug business, but scientists and knowledgeable individuals whose aim is profit oriented (Lerer, 2006). Thus, the manufacturing, trading and consumption of fake and substandard drugs causes morbidity, mortality and a significant burden on the economy

In most African countries, fake drugs can come into both the legal, regulated chain and the illegal chain made of corner kiosks and informal drug sellers as sources of medicines. Though the sources are easily accessible, customers often receive inappropriate medicines of poor quality that can be fakes mostly from illegal chain because it is unregulated. The sale of drugs by unqualified peddlers is a common trend in the developing world. These drug sellers often are the first point of contact for health care by consumers who patronize them for reasons such as convenience, dependability of supply, and affordability of price. The reasons being that, most times, consumers do not find medicines in government clinics and the licensed pharmacies are often far and expensive. The consumers' inability to judge the quality of medicines they take becomes a big public health problem as such drugs can be ineffective and harmful (BMJ, 2005). Fake drugs have the capacity to deceive, particularly if they are copied to make them look like the original products so that purchasers are unlikely to be suspicious. Moreover, the process by which patients get their drugs is different from that for other consumer goods: doctors or health workers prescribe them. Even when patients choose their own drugs, they may lack the specialized knowledge to detect whether the product they are buying is of good quality let alone be able to detect whether the product is faked or not (WHO, 2007).

The problems of Fake drugs have embarrassed our healthcare providers and denied the confidence of the public on the nation's healthcare delivery system. The result of fake drug proliferation has led to treatment failures, organ dysfunction or damage, worsening of chronic disease conditions and the death of many Nigerians. The situation became so bad that even when patients were treated with genuine drugs, there was no response due to resistance caused by previous intake of fake drugs. (Akunyili, 2005)

According to Dhikav (2003), the problem of laxity of ineffective judicial system and widespread corruption are major reasons why it is easy to produce and sell fake drugs. It enables fake drug producers to sell their products cheaply to chemists who in turn sell to the consumers. The ultimate losers are the consumers and the doctors who are treating, as patients would not get relieved or cured and the doctor's reputation would be damaged as a result, giving bad image to the health system. Access to essential medicines by the population irrespective of their income status is very important for healthcare delivery services to succeed. Prices people pay for medicines are very high, making access to medicine very difficult (Lambo 2006). The chaotic drug distribution network and many unauthorized outlets, help in fake drug circulation. There is poor accountability to the disposal of medicine, which complicates the work of drug regulatory agency, NAFDAC (WHO, 2006). The high incidence of fake drugs in Nigeria is a fallout from the haphazard ways import license on drugs were issued to anyone, by then politicians and military leaders in the 80's, disregarding the eventual public health implications of their actions. Some of the beneficiaries of the import license found out that a lot of money could be made from the drug business, and suddenly became emergency drug importers. With the booming market

and competition, some of them looked at the option of importing fake products in order to have an edge over their competitors.

Some of the factors encouraging counterfeiting of drugs in Nigeria include:

Corruption: According to the World Health Organisation (1999, p. 16) “the efficiency of personnel is adversely affected by corruption and conflict of interests resulting in laws not being enforced and criminals not being arrested, prosecuted and convicted for crime.” This situation smacks of corruption and has been the case with counterfeiting of medicines in Nigeria.

Economic factors: The adverse economic situation in the country has given impetus to the high incidence of counterfeiting. It has been observed that counterfeit drugs are usually cheaper and low priced compared to genuine ones. As a result, they are preferred and heavily patronized at the expense of the genuine drugs. A study by Adeagbo (1998) in Ibadan, a city in South West Nigeria, showed that high cost of drugs and related health services were responsible for seeking alternative options like itinerant drug sellers.

Poor health seeking behaviour: Olujimi (2007) found that the health seeking behaviour of an average Nigerian is poor. Earlier, Downs (1970) observed that self-medication is usually the first step taken immediately the symptom of an illness is expressed or recognised. Self-medication, as Olujimi (2007, p. 59) further observes, “includes purchase of drugs, collection of herbs and preparation of concoction that is equally applied . . .” This attitude, to say the least, encourages counterfeiting.

Chaotic drug distribution system: Drug distribution in Nigeria has been said to be very chaotic with drugs marketed like any other commodity of trade. It has also been observed that due to poor regulation over the years, drug markets have evolved and got deeply established all over the country despite the illegality of such activities. As a result, almost all drug manufacturers and importers supply to these drug markets. Drug sellers and even health professionals have been acknowledged to patronize the drug markets, which also service the hawkers that sell in streets and commercial buses (Akunyili, 2005). NAFDAC has recently, however come up with a policy document – the National Drug Distribution Guidelines in attempt to address this systemic problem and ensure drug quality and safety.

Heightened global control of narcotics: It has been observed that the high global surveillance on the smuggling of narcotics and associated penalties has diverted attention to the low risk, yet highly lucrative crime of counterfeiting of medicines.

Sophistication in clandestine drug manufacture: According to NAFDAC News (2013), drug counterfeiters have taken advantage of the growing access and sophistication in printing technology and now manufacture fake drugs affixed with fake NAFDAC registration number. “This is why cloning of fast moving drugs is so perfect that even the brand owners find it difficult to differentiate between fake and original” Akunyili (2005, p. 8).

Lack of/inadequate legislation: Nigeria is said to have a multiplicity of drug control laws that are unwieldy, overlapping and sometimes conflicting. Some of the laws are said to be so old and would need to be amended or updated to meet the demands of present day realities for effective regulation. This perhaps explains the rationale behind the revised NAFDAC Law, “presently receiving attention of the Federal Executive Council” which tilts essentially towards greater use of criminal enforcement (NAFDAC News, 2013, p. 20).

In Nigeria today, it is common knowledge that drugs are treated as general merchandise, which can be obtained easily from open markets, moving vehicles, faceless medicine stores, ferries, and even in the provision stores. This is because the drug distribution business has been left in the hands of non-professionals who just want to make profit at the expense of the consuming public. Poor people are faced with a confusing myriad of health providers and drug sellers (NAFDAC Consumer Safety Bulletin, 2006). The problem of fake drugs was so severe that neighboring countries such as Ghana and Sierra Leone officially banned the sale of drugs made in Nigeria. The issue of fake drugs did not just stop there, but it went to the extent that drugs were hawked even in commercial buses. All these problems affected Nigeria as a whole.

However, with the inception of the “new NAFDAC” in April 2001, some achievements were reached causing a reduction of the problems (NAFDAC consumer bulletin, 2003). NAFDAC, in 2007 seized 82 truck-loads of fake, banned and expired drugs and closed five fake drug warehouses at the well known Onitsha drug market, which according to a World Health Organization survey, has a 30 percent fake drug prevalence as against 10 percent in other parts of the country (Nigerian Tribune, 2007). The seizure of these products led to a more professionalized production and packaging of fake and substandard drugs in order to avoid detection. Thus, NAFDAC establishes and implements different strategies towards detecting these fake and substandard drugs. Some of the fake drugs detecting technologies introduced by NAFDAC include: Truscan, Mobile Authentication Service (MAS) using Short Message Service (SMS), Black eye, and Radio Frequency Identification (RFID).

Findings from previous studies indicate that these technologies are being deployed to a large extent in the fight against counterfeit medicines in Nigeria. Furthermore, the impact of these technologies on the control and regulation of counterfeiting in the country is reported to be positive and massive as recent studies have shown progressive reduction of counterfeit medicines. The recent study on the Quality of Anti-Malaria Medicines in Sub-Saharan Africa (QAMSA) which showed significant decline in the incidence of the counterfeiting of anti-malaria drugs in Nigeria from 64.9 percent in 2008 to 20 percent in 2012 is a watershed case of success (NAFDAC Survey, 2012). The strong correlation between the Agency’s 2012 National Survey on Quality of Medicines using Truscan device and laboratory analysis which put the failure rate of anti-malaria drugs in Nigeria currently at 19.6 percent is again a significant milestone on NAFDAC’s path of winning the war against counterfeiting. Holistically, evidence shows that the incidence of counterfeiting has significantly been reduced by the agency via deployment of the anti-counterfeiting technologies. Results from the National Survey on Quality of Medicines across the 36 states of Nigeria and the Federal Capital Territory (FCT) by NAFDAC between January 2010 and April 2012 using Truscan, for instance, showed that the incidence of counterfeiting has been reduced to 6.4 percent. The foregoing results by all standards clearly attest to the remarkable successes NAFDAC has achieved in the fight against counterfeiting through the adoption of anti-counterfeiting cutting-edge technologies.

Theoretical framework

The study was anchored on Blumler and Katz's Uses and Gratification Theory which is an approach to understanding why and how people actively seek out specific media to satisfy specific needs. Uses and gratifications theory attempts to explain the uses and functions of the media for individuals, groups, and society in general. There are three objectives in developing uses and gratifications theory: (1) to explain how individuals use mass communication to gratify their needs. "What do people do with the media". (2) to discover underlying motives for individuals' media use. (3) to identify the positive and the negative consequences of individual media use (West, & Turner, 2000).

At the core of uses and gratifications theory lies the assumption that audience members actively seek out the new media to satisfy individual needs. Specifically, media dependency theory which was expanded from uses and gratification theory opined that the audience learning from the real life is limited, so they can use media to get more information to fulfil their needs. An extensive use of media generates dependent relation in audience and also media can help in creating dependence relationship with target audiences to achieve their goals by using their media power (Griffin, 2000).

In this study, NAFDAC as an agency made the choice of Mobile Authentication Service (MAS) as a media and strategy that will enable them through the help of consumers in detecting fake and substandard drugs in Nigeria. This theory will be useful in assessing the effectiveness (gratifications) of the use of Mobile Authentication Service (MAS) in the fight against fake and substandard drugs in Nigeria.

Research Methodology

This study used a mixed research method which includes: Exploratory research/In-depth interviews, Focus Group Discussion and Survey. Because the study intends to address multiple qualitative and quantitative features, the research methods were selected to complement each other, which "reflect an attempt to secure an in-depth understanding of the phenomenon in question... [It is] a strategy that adds rigour, breadth, complexity, richness, and depth to any inquiry" (Denzin & Lincoln, 2003, p. 8).

Exploratory research method according to Hahn, Lippert and PzAaynton (2014) often relies on secondary research such as reviewing available literature and/or data, or qualitative approaches such as informal discussions with the subjects under study, and more formal approaches through in-depth interviews, case studies or pilot studies, Focus Group Discussion and projective methods. Specifically, this study used in-depth interviews and Focus Group Discussions. In-depth interviewing is a qualitative research technique that involves conducting intensive individual interviews with a small number of respondents to explore their perspectives on a particular idea, programme or situation (Dudu & Danjuma, 2016). In-depth interviews are useful when you want detailed information about a person's thoughts and behaviour, or want to explore new issues in-depth. Using in-depth interview, this study evaluates the effectiveness of the use of Mobile Authentication Service (MAS) in identifying fake and substandard drugs in Nigeria.

Furthermore, a Focus Group Discussion is a form of qualitative research in which a group of people are asked about their perceptions, opinions, beliefs, and attitudes towards a product,

service, concept, advertisement, idea, or packaging. Questions are asked in an interactive group setting where participants are free to talk with other group members. In this study, participants were asked questions on the effectiveness of their use of NAFDAC's MAS in identifying fake and substandard drugs in Nigeria.

Considering one of the attributes of exploratory research that, the results of qualitative research can give some indication as to the "why", "how" and "when" something occurs, but it cannot tell us "how often" or "how many", there is the need for a survey research method in order to assess the level of audience awareness and use of Mobile Authentication Service in identifying fake and substandard drugs in Nigeria. The survey could also be used to examine the effectiveness of the use of Mobile Authentication Service (MAS) in identifying fake and substandard drugs in Nigeria. Survey research method is a specific type of field study that involves the collection of data from a sample of elements drawn from a well-defined population through the use of a questionnaire (for more lengthy discussions) (Babbie, 2007). According to Visser, Krosnick, and Lavrakas (2000), surveys offer the opportunity to execute studies with various designs, each of which is suitable for addressing particular research questions of long-standing interest to social psychologists.

Data Collection

The study took place in two Local Government Areas (LGAs) of Delta State where two towns of Warri and Ughelli were selected purposively in Warri South and Ughelli North Local Government Areas respectively due to their centrality and two of hubs of very high economic activities of the state with the presence of pharmacies as well as medicine stores. At another level, six rural communities with three each adjoining Ughelli town as well as three villages which were closed to Warri were selected for the study. These six communities depicted the characteristics of rural dispositions were selected that have high volume of the activities of patent medicine stores and their dealers observed from earlier recognisance visits.

The study began with contact setting and visits to relevant stakeholders and authorities to inform them of the purpose of the study and request permission to conduct the research-including local government authorities responsible for health care practitioners, community leaders and pharmaceutical management bodies responsible for regulations of their members and practice.

Due to the nature of the study which was basically exploratory and in view of the nature of the subject being studied, the questions asked were limited but sufficient enough to meet the objective of the study. The questionnaire sort information such as: sex, age, educational status, occupation, marital status, religion, and audience awareness of campaigns against fake and counterfeit drugs, audience source of information of the campaigns against fake drugs, audience awareness of NAFDAC Mobile Authentication Service (MAS), source of information on MAS, use of the MAS, constraint for effective use of MAS and solution to perceive constraints of the usage of MAS. A 20-item questionnaire were administered to 151 persons (74 in Urban areas and 77 in rural areas). The study took place from April to May, 2016. In each study location, the customers in pharmacies as well as patent medicine stores were targeted. After the initial introduction/consent seeking and based on the mood of the customer in question, a brief administration of the questionnaire took place with a further request if such a person will be willing to participate in further discussions about the subject. Usually, the people who receive

this kind of request would have shown a very high enthusiasm on the subject. In this way, his/her phone numbers or contact details were collected for further interaction either for an interview or to participate in Focus Group Discussion also considering other factors such as the ease of getting the person to convenient locations on the days of discussion and the availability. In all, those who agreed to take part in the survey were given a unique number to make sure that such persons were never asked to participate a second time in the quantitative survey.

Interviews and Focus Group Discussions (FGDs)

In all, ten in-depth interviews were held with different stakeholders on drugs sales, their knowledge on drug counterfeiting, regulations, awareness and the use of MAS. Regarding FGDs, four of them were held (one each in Warri and Ughelli towns and two in the rural communities). At the rural areas, three communities were grouped together based on their proximities to one another. In all, ten persons (6 males and 4 females) participated in the in-depth interview. On the other hand, a total of 30 participants were used for the FGDs (8 participants in Ughelli - five males and three females; 8 participants in Warri - four males and four females and 14 participants in the rural communities - eight males and six females) – with each group of FGDs having four males and three females.

Data Analysis

Quantitative data were analysed using SPSS software IBM version 21. Being an exploratory study, analysis was done using simple percentages and cross tabulations. Analysis of qualitative data entailed the use of N6 software after transcription of data and coding and content analysed in terms of the themes and objectives that the study tried to achieve. In analyzing the transcripts from the Focus Group Discussions, in-depth interviews, the thematic analysis technique was used to uncover themes and trends. Comments on each aspect of the objectives of the study were compared by place of interview. Excerpts of the transcripts were used to complement the quantitative results where possible.

DATA PRESENTATION AND DISCUSSION OF FINDINGS

Table 1: *Demographic Data of Respondents*

Variable	Percentage
Residence	
Urban	51%
Rural	49%
Total	100% (N = 151)
Sex	
Male	55%
Female	45%
Total	100% (N = 151)
Marital Status	
Married	82%
Single	10%
Separated	5%
Divorcee	3%
Total	100% (N = 151)
Age	
21-30	12%
31-40	29%
41-50	27%
51-60	23%
61 and above	9%
Total	100% (N = 151)
Highest Education Qualification	
First School Leaving Certificate	18%
O'Level	32%
Higher Education	45%
None of the above	1%
Total	100% (N = 151)
Occupation	
Civil Servants	17%
Self Employed/entrepreneur	38%
Traders	19%
Farmers	25%
Others	1%
Total	100% (N = 151)

Source: Field Survey, 2016

The data in table 1 shows that 51 percent of the respondents live in urban area, while 49 percent of the respondents live in rural area. The table also indicates that 55 percent of the respondents are female, while 45 percent are male. 82 percent of the respondents are married, 10 percent are single, and 5 percent are separated, while 3 percent of the entire respondents are divorcees. 29 percent of the respondents fall under the age bracket of 31-40, 27 percent of the respondents fall under 41-50 years, 23 percent of the respondents fall under 51-60 years, 12 percent of the respondents fall under 21-30 years, while 9 percent of the entire respondents fall under 61 years and above. 48 percent of the respondents obtained their higher education certificates, 32 percent of the respondents had their O level, and 18 percent of the respondents had their FSLC, while the remaining 1 percent of the entire respondents did not have any school certificate. The data in table 1 also shows that 38 percent of the respondents are self employed/entrepreneurs, 25 percent are farmers, 19 percent are traders, 17 percent are civil servants, while only 1 percent of the respondents are doing jobs other than the one mentioned in this study.

Interviewees And Focus Group Discussants' Profiles

Forty persons took part in the in-depth interviews and focus group discussions (10 persons for interviews and 30 persons for FGDs), 6 men and 4 women participated in the in-depth interview with average age of 46 years, all married, 3 with secondary education, 5 with tertiary education and 1 each with primary and no schooling. The FGDs participants included 17 men and 13 women who were also married except 5 who were single and 2 who were separated from their marriages. More of them were from 40-50 years age range with 14 of the participants having post-secondary level of education, 8 of them had secondary education, 5 with primary education and 3 with no schooling.

Audience Awareness of Campaigns on NAFDAC's Mobile Authentication Service

In order to answer research question one that seeks to find out the audience level of awareness of NAFDAC's Mobile Authentication Service, respondents were asked a number of questions and the data gathered were stated in table 2 below:

Table 2: *Audience Awareness of NAFDAC's Mobile Authentication Service*

Variable	Percentage (%)
Knowledgeable of government campaigns on fake drugs?	
Yes	44%
No	56%
Total	100% (N = 151)
Have heard about NAFDAC's Mobile Authentication Service	
Yes	42%

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No	58%
Total	100% (N = 151)
Sources of information on NAFDAC's Mobile Authentication Service	
Friends and Relatives	29%
Television	12%
Radio	19%
Newspaper	6%
Churches	10%
Patent store/Pharmacies/Hospitals	15%
Internet	9%
Total	100% (N = 151)

Source: Field Survey, 2016

Evidence from Table 2 shows that 56 percent of the respondents are not aware of government campaigns on fake drugs, while 44 percent of the respondents are aware of government campaigns on fake drugs. The table also revealed that 58 percent of the respondents are not aware of NAFDAC's Mobile Authentication Service, 42 percent of the respondents are aware of NAFDAC's MAS with their major sources of information on these services being friends/relatives (29%), radio (19%), patent store/Pharmacies/Hospitals(15%), television (12%), churches (10%), Internet (9%) and newspaper (6%).

This therefore suggests that a very high proportion of the population in the study locations have relatively low awareness of NAFDAC's Mobile Authentication Service. This finding confirmed the assertion by WHO (2002) that the business of fake drugs and drugs counterfeiting only comes to limelight in the events of deaths. An excerpt from one of the interviews brings this home:

We cannot really say that our people know about the business of drug counterfeiting and the activities of NAFDAC. Most of what goes on in the fake drugs is only known when a drug fails to heal as expected and when there are adverse effects and all these things are only in the cities and not what happens to our people in the villages?

Equally, another participant in an FGD has this to say about the low level of awareness of drugs counterfeiting:

It is a statement of fact that our people know little about fake drugs. Until NAFDAC started fighting, nothing was really known. In fact, it was Akunyili personal sacrifice that brought some awareness to Nigerians but what can only a few people do? Today, awareness is no longer there as it used to be in her time. Even in her time, it was more for the educated in the cities

Another participant's view from the FGDs indicates that:

The problem with the Mobile Authentication Service is from inadequate publicity and mobilisation of the population to use the service. Yes! the service is an improvement on the attempts by government to fight counterfeit drugs but the people were not educated enough on the service and its benefits. All the radio and television adverts will not solve the problem

From the analysed quantitative data in table 2 and FGDs, it is clear that awareness of fake drugs and NAFDAC’s MAS in the fight against fake drugs is low. It was an awareness centred on a personality who had a personal passion to excel rather than an institutional drive. The introduction of the Mobile Authentication Service had not entirely changed the situation due to lack of adequate mobilisation of the populace on the services.

Respondents’ Use Of Mobile Authentication Service (MAS)

One of the essences of this study was to find out the level of usage of NAFDAC’s mobile authentication service. The data gathered in respect to this objective is stated in table 3 below.

Table 3: *Respondents’ Use of NAFDAC’s Mobile Authentication Service*

Variable	Percentage (%)
Have you ever used NAFDAC Mobile Authentication Service (MAS)	
Yes	27%
No	73%
Total	100% (N = 151)
Are you currently using NAFDAC Mobile Authentication Service (MAS)	
Yes	22%
No	78%
Total	100% (N = 151)

Source: Field Survey, 2016

The data in table 3 shows that majority (73%) of the respondents have not used MAS for the first time, while only 27 percent of the respondents attest to have used Mobile Authentication Service. The information in table 3 also revealed that only 22 percent of the respondents are still using MAS. This shows a decline in the usage, because out of 27% of the respondents who attested to have used MAS, only 22 percent attest to be current users of MAS. In other words, there is a relatively low awareness as well as low utilisation of MAS in the studied locations and may be an indication of low level of awareness and use of MAS in Delta State and Nigeria – agreeing with Eronmhonsele (2015) that awareness and use of MAS is low in the study in Edo State, Nigeria. The findings therefore suggest that there is a disparity between the level of awareness and the rate of usage, presenting a view that awareness may not necessarily lead to usage as earlier observed from various studies (Adunola, 2004; Bamise, Bamise&Adedigba, 2011; Ejohwovbo, 2005; Kanuga& Rosenfeld, 2004 and Kolawole, 2010).

Comparing the Awareness Level and Use Of MAS among Respondents in Urban and Rural Communities

When this study sought to find out whether there are disparities in the awareness level between urban and rural dwellers, the data in figure one shows that there are differences in the awareness level of urban and rural dwellers.

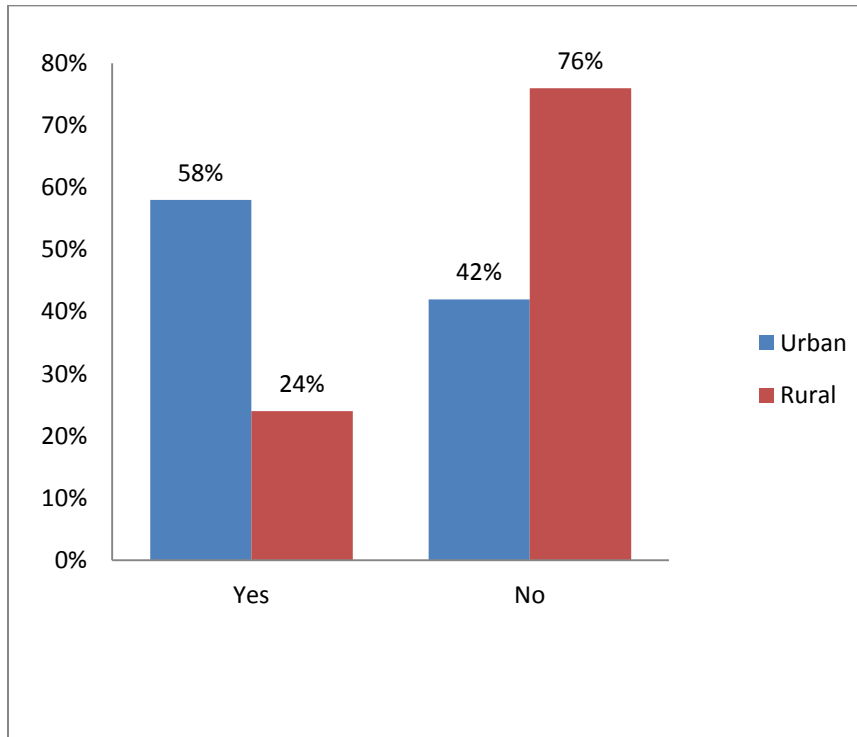


Figure 1: Comparing Respondents’ Residence and Awareness of NAFDAC’s MAS

The data in figure one indicates that 58 percent of the respondents are aware of MAS in urban settings, while only 24 percent of the entire respondents are aware of MAS in rural communities. Thus, it is evident that majority of the respondents are aware of MAS in urban areas, while very few respondents (a one-third) are aware of MAS in rural localities. Furthermore, if the revelation that more awareness leads to increase in use of services is applied here, the tendency is that there will be more users of the MAS service in the urban locations as pointed out also from the extract from the qualitative data as seen below:

“Therefore the use of the service will always be very low, especially in rural communities” -----*extract from an interview in Warri.*

Another discussant has this to say about awareness level between rural and urban dwellers:

“If most of us, the city dwellers, who are at least better educated find it difficult using the new service and having challenges, what then will be of rural dwellers with low level of education, poorer facilities and burden of ignorance?”

Table 4: Audience perception of the effectiveness of MAS in identifying fake drugs

Reason for not using NAFDAC Mobile Authentication Service (MAS)	Percentage (%)
No time to use it	13%
The service is not effective	71%
Do not know how to use it	16%
Total	100% (N = 151)

The data in table 4 revealed the reasons for the low usage of MAS. From the table, it is evident that the respondents consider the use of MAS services as not effective as 71% of them indicated this as the most important reason why they are not or did not continue using the service. Other reasons revealed in table 6 were lack of knowledge on how to use the service as well as time constraint. In view of the limited responses from the quantitative data, attempts were also made to explore the reasons for low usage/ineffectiveness of MAS via in-depth interviews and FGDs.

The excerpts below provided the missing links:

“The response time is too slow. You send the text with the numbers but for days you will be lucky if you ever get a reply” ---**interview in Ughelli**

“Network does not help us to use the service very well. You send message but you do not get reply on time as expected”**FGD**

“Most of us have no knowledge of the service and certainly we cannot use what we do not know about” ---**a rural community FGD**

“The scratch panel cannot be found in every drug; hence, its usage is limited to the drugs with the panel. Also, some of us are too careless to use the service. Even when we have information, we considered it a waste of time to go through the process. Additionally, you know we buy retailed products in capsules and tablets which are dispensed to us from the pharmacies – especially the medicine stores, in these situation, we are helpless since the service only cover a small fraction of known drugs”. -----**an interview in Warri.**

“How do you expect that people should know and use the service of this telephone that NAFDAC wants us to use, see I have three telephones and three lines here from three providers but I cannot use the thing even if I want to buy drugs as we are talking right now—why? This is because there is no electricity and all these phones have no life in them therefore knowing is not enough. The idea is good but infrastructural limitations are a big headache to the actualisation of the dream of the whole effort of NAFDAC. Therefore the use of the service will always be very low especially in rural communities”
.....*extract from an interview in Warri.*

“Our government don try to help us to make sure say na good medicin naim we de swallow through this process but nepa no dey to charge phone for village for here. Even though say light dey, some people no get phone and no sabi even to use the phone” -----**an FGD in the rural area** (Our government has tried to help us in making sure we get standard drugs through the use of MAS but there is no electricity to charge our phones in the village here. Even if there is power, some people have no phones and did not even know how to use phone)

“From my own point of view, the whole process of awareness creation by NAFDAC is too elitist in nature. I have seen the advert from them in NTA once but I must ask. How many people see the Network News every day? What is the fate of the rural dwellers where a higher proportion of our people reside?”**an excerpt from an interview in the rural area.**

From the excerpts above, it is obvious, that the low usage of MAS has multiple reasons ranging from poor quality of network of phone operators leading to untimely response to text which more or less defeats the purpose of the MAS. Since timeliness is essential in authenticating any drug a buyer wants to buy, any delay may frustrate the purchaser to go ahead and buy without confirming whether it is genuine or not. This will defeat the aim of MAS and the intentions of NAFDAC to get the society rid of counterfeits and sub-standard drugs. Another revelation from the excerpts is that, MAS has not been truly national and widespread as it ought to be. The promotion of the service is mainly in the urban areas where mass media are readily available, which is not a regular source of information to rural dwellers, hence, most rural dwellers are cut off from the knowledge of MAS and by extension usage of the service even when some of them may have desire to use the service. Close to the issue of poor spread of the message of MAS by NAFDAC is poor power supply.

Power supply to rural communities and indeed the whole of Nigeria is a massive challenge. Therefore, persons who are able to afford phones used them intermittently between when there is power and keep off the phones after such power is drained due to lack of charging – leading to further reduction in the few rural dwellers who would have used the service. Another reason for lack of usage of MAS stemmed from the nature of some of the drugs. The scratch off panel is not in all drugs especially retailed drugs in medicine stores. Even if one is knowledgeable about the usage, authenticating such drugs becomes an extremely difficult task.

Also, we have attitudinal issue with most consumers who are usually too much in a haste and consider the use of the MAS a mere waste of time and therefore consider the usage as not necessary. Moreover, ignorance on the part of the people is a challenge; some persons especially in the rural communities are not able to operate the service because they are illiterate and lack understanding of its usage. Similarly, poverty is so endemic in the rural communities that even purchasing phones is not an easy venture.

Conclusion

The aim of this study was to examine audience awareness, and NAFDAC's use, of Mobile Authentication Service, in order to determine the effectiveness of the use of MAS. From the analysed data, this study therefore found that audience awareness of MAS is still low, especially in the rural communities. This has in turn led to low utilisation of the service both in urban and rural locations, even though there was a higher incidence of the utilisation of MAS in urban centres than the rural communities. The study also discovered that people considered MAS as an ineffective strategy in identifying fake drugs in Nigeria due to certain reasons such as poor network services from telecommunication organisations, elitist nature of NAFDAC campaigns/awareness which has limited the reach of the service to mostly urban localities with very little effects in rural communities, difficulties in authenticating retailed drugs since the service is only for few drugs, poor infrastructures such as electricity, poverty among the people and general ignorance of the population.

Recommendations

Based on the research findings, the following recommendations were made:

- The government (NAFDAC) should put programmes in place to create more awareness using multifaceted media such as the mass media, religious bodies, and communities' outlets such as town hall meetings through the use of traditional institutions. This will enable them to pass the message of the benefits of MAS to them appropriately and correct any myths about the services.
- Additionally, network service providers are key stakeholders whose efforts or inputs will either make or mar the success of this exercise. NAFDAC should reach them for dialogue on how the service could be improved upon to get timely responses.
- In the area of retailed drugs as well as other drugs excluded from the service, NAFDAC should make it a policy to make sure that the companies develop strategies to key into MAS. One way of doing this is, reducing the number of retailed drugs which are counted and providing mini packets with MAS number.
- Consumers should ensure they use MAS in indentifying fake and substandard drugs before the purchase or consumption of any drug.
- Lastly, government should address the problem of poor infrastructures, especially poor electricity supply.

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