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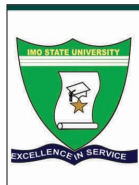
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## PUBLIC AWARENESS OF MOBILE AUTHENTICATION SERVICE IN IDENTIFYING COUNTERFEIT DRUGS IN RIVERS STATE NIGERIA

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### Abstract

In 2010, the National Agency for Food and Drug Administration and Control (NAFDAC), a government agency in Nigeria, launched a technological scheme called Mobile Authentication Service to equip drug users in Nigeria with the knowledge of how to identify genuine drugs they have bought. This study examined public awareness and use of the Mobile Authentication Service in identifying counterfeit drugs in Rivers State Nigeria. The study was anchored on diffusion of innovation theory. It adopted the survey research method. A sample size of 384 was drawn from the population. The study applied multi-stage sampling, simple random sampling and purposive sampling techniques. Questionnaire and interview served as instruments for data collection. Data generated were analyzed using qualitative and quantitative methods. The percentage and Likert scale mean value methods were adopted using the mean score benchmark of 2.5. Findings revealed among others that inspite of the Rivers State residents' awareness of the Mobile Authentication Service, majority of them do not know how the scheme works and majority do not also apply it before taking their drugs. Based on the findings, the researchers recommended that the agency should re-double its efforts in creating public awareness on how the Mobile Authentication. Service works using the Mass Media. The agency should also initiate programme(s) in the media specially designed to inform and educate Rivers State residents on the danger of not applying the MAS scheme before taking their drugs.

**Keywords:** Public Awareness, Mobile Authentication Service, Counterfeit, Media Campaign

### Introduction

Over the years, the problem of counterfeit drugs has been a big issue in Nigeria because it has partly been instrumental to the high death rate in the country (Chinwendu, 2007). This is so because most income earners often time patronize unlicensed drug vendors whose drugs are fake, expired or adulterated. More than 150 children for instance died in 1989 because of a formulation error in a drug (NAFDAC, 2003). This type of problem was one of the reasons why the government of Nigeria established National Agency for Food and Drug Administration and control (NAFDAC), in order to ensure that the country is free from the menace of fake drugs.

The agency was established in 1993. According to the NAFDAC Annual Report (2016), the agency is mandated by law to regulate and control the manufacture, importation, exportation, distribution, advertisement, sales and use of food, drugs, cosmetics, chemicals, detergents, medical devices and packaged water. To carry out these numerous functions, the agency uses the mass media to create public awareness of matters concerning control measure on food, drugs, cosmetics, water and chemicals with the

view to providing both preventive and curative health care. One campaign embarked upon by the agency is war against counterfeiting. In a deliberate effort to fight this war in order to save the lives of consumers who may ignorantly buy counterfeit drugs, the agency launched a scheme called Mobile Authenticated Service (MAS) in 2010. The scheme is one of the agency's anti-counterfeit strategies to detect sub-standard and falsified medical products with the use of mobile phones via Short Messaging Service (SMS). It was deployed across anti-malaria and anti-biotic medicines imported or manufactured in Nigeria. The goal of the scheme is to make the general public be sure of the authenticity of the drugs they have bought. In other words, the scheme is a control measure that checks on fake drugs. The general public in this vein also includes the public in Rivers State. The state is one of the states in the Federal Republic of Nigeria which was created on 27<sup>th</sup> May, 1967 from the old Eastern Region of the country. Rivers State is one of the most vulnerable states to certain diseases. A study carried out by Obianime, Datubo-Brown and Oruamabo(2002) indicate that certain disease conditions tend to occur more commonly in Rivers State due to the nature of the environment and level of development of social services such as education and provision of health services. According to the scholars, gas flares cause atmospheric pollution by releasing particulate carbon and hydrocarbons into the air, which the inhabitants of the state breathe. Obianime et al (2002) reiterate that the health of the people of Rivers State and their healthcare delivery exist in the vicious cycle of poverty, ignorance and disease. Hospitals especially referral hospitals and functional health centres are very few. Report from the Department of Community Health Services Rivers State Primary Health Care Management Board has it that there are only 131 functional health centers in Rivers State. Majority of them are located in Port Harcourt (the capital city) and its environs. Consequently, many inhabitants of the state especially those in rural areas having health challenges patronize patent medicine dealers whose drugs sometimes are fake.

The inadequacy of health facilities, poverty and ignorance pose a serious threat to effective utilization of communication techniques in addressing health issues in the state. Ochonogorand Ikems(2014) find out that inadequate health facility, ignorance, religion/cultural belief and poverty are the major hindrances to the effective utilization of communication campaigns in the state. It can be deduced that these factors may likely affect other communication campaigns in the state. In the light of the above, this study examines public awareness and use of Mobile Authentication Service in identifying counterfeit and substandard drugs in Rivers State Nigeria.

### **Statement of the Problem**

Mobile Authentication Service by NAFDAC in 2010, is a scheme to check the purchase and consumption of fake drugs by the Nigerian populace. A campaign to acquaint Nigerians with the scheme has been embarked upon in various media by NAFDAC through its public relations in the 36 states of the country. Based on the sensitivity of the scheme, indigenes of Rivers State of all demographics irrespective of social status are supposed to be aware of the scheme. It is through this awareness that NAFDAC's goal on the scheme can be achieved. Achievement of this goal has been a problem as studies have shown that people's level of awareness and use of the Mobile Authentication Service in Nigeria is relatively low. This creates a gap necessitating an inquiry into the root cause(s) of the poor level of awareness and use of the scheme hence residents of the state are exposed to the risk of purchasing counterfeiting drugs from patent medicine dealers.

### **Research Questions**

The following questions guided the study:

1. To what extent are Rivers State residents aware of the Mobile Authentication Service Scheme of NAFDAC?
2. To what extent do the residents of Rivers State use the Mobile Authentication Service in identifying counterfeit drugs?

3. What are the sources of Rivers State residents' awareness of Mobile Authentication Service?
4. What forms of media are used by NAFDAC in disseminating information about its programmes?

## **Literature Review**

### **Conceptual Review**

#### *The problem of counterfeit Drugs in Nigeria*

Medicine counterfeiting is a global public health problem. The effects can be enormous and devastating considering the network of relationships between nations with respect to manufacturing, importation, exportation and consumption of drugs. Citing World Health Organisation, NAFDAC Scorecard (2017) asserts that:

a counterfeit medicine is one which is deliberately and fraudulently mislabeled with respect to identity and/or source. Counterfeiting can apply to both branded and generic products and may include products with the correct ingredients, with the wrong ingredients, without active ingredients with insufficient active ingredients or with fake packaging (P.6).

The above implies that counterfeit drugs have misleading identities hence their container or label does not correctly reflect the content. In Nigeria, the problem of fake drugs proliferation have affected the credibility of the healthcare system in the country. The effect of this trend was so severe that some neighboring countries such as Ghana and Sierra Leone officially banned sales of medicine, food and beverage at a particular time in the past (NAFDAC, 2013). Hitherto, this challenge of fake drugs has continued to prevail in the country. Some of the incidences have resulted to death even among the youths and children because most times the consumers do not know the authenticity of the genuineness of the drugs they buy or take (Chinwendu, 2007). Adekoya and Ekeh (2021) point out that Nigeria has in the passing decades experienced a quantum increase in the influx, manufacture and circulation of fake and counterfeit drugs in the country.

As part of its efforts to effectively execute its mandate, NAFDAC has adopted different strategies including sustained public enlightenment campaigns, improved national and international collaboration, capacity building, law review, and use of cutting edge technologies (NAFDAC Annual Report, 2012). Similarly, Chuks-Ugochukwu, Ndunnagu, Wogu, Osuji & Ihem (2009) add that the agency resorted to the fight against counterfeit medicine through adoption of cutting edge technologies such as the Trusecan, Black Eye and Radio Frequency Identification (RFID), but considering some of the challenges (Such as costs, ease of usability issues, etc), faced in the use of the above stated technologies to fight counterfeits, the agency therefore developed and launched Mobile Authentication Service. This will enable consumers check whether a drug is genuine or fake with their mobile phones. In this vein, the consumer scratches a panel on the product, which reveals a unique, one-time use pin. After the revelation, the pin is sent toll-free to a short code using any of the GSM Operators who offer MAS technology to holders of certificate of registration with NAFDAC. The Public Relations and Protocol Unit of the agency ensures that the mass media are used to disseminate information and education programmes of the agency and to engage in public enlightenment campaigns for awareness creation of Mobile Authentication Service.

### **Communicating NAFDAC's Mobile Authentication Innovation**

The introduction of an innovation by the government, government agency or any development partner requires the articulation of a communication network which serves as the vehicle to convey such

innovation to the target population. Such communication exchange is not only directed at informing the audience but also enabling the audience to take necessary actions in order to realize the intended benefits of the innovations. It can also be said that such communication effort is value-laden and defines the role of development communication in diffusing social innovations. Development communication is defined as the application of communication strategies and media to drive a development process. Development communication is value-laden because it is not simply undertaken to establish meaning but also to enable the application and participation of a target population in an innovation. UNESCO (1980) states;

If communication is considered in its broadest sense, not only as the exchange of news and messages but as an individual and collective activity embracing all transmission and sharing of ideas, facts and data, its main functions in any social system may be identified as the following: information socialisation – motivation – debate and discussion – education – cultural promotion – entertainment – integration (p. 14) .

However, the recognition of the role communication plays in development and change processes does not suggest that the application of a communication medium or the mass media can directly result in citizens' adoption and participation in an innovation. Communication only plays a counterpart role in the development process since people tend to adopt messages that are consistent with their predisposition. Accordingly, Schramm and Lerner (1976) define development communication as the actualisation of the kind of social and economic system which appeals to citizens' predisposition. The implication of this scenario is that a change facilitator should develop and functionally exploit communication media and networks that conform to the kind of change a society desires. It also means that the innovation should agree with people's sensibilities to enable seamless adoption and application. Grunig (1971) thus argues that communication is only a complementary factor to development and change processes which may have little effect on the development process except some structural measures are put in place first to align the communication strategies adopted and the innovation being introduced with the needs of the target population. It goes to say that communication, though indispensable, plays a contributory role in the development process.

A remarkable feature of development communication philosophy is that it is concerned with people's welfare as defined by them. Thus it can be said that the effective communication of NAFDAC's Mobile Authentication Innovation is foundation to the success of the innovation in terms of citizen's application.

### **Theoretical Framework**

This study was anchored on diffusion of innovation theory. Asemah, Nwammuo and Nkwam-Uwaoma (2017) state that the theory 'originated in communication to explain how overtime, an idea or product gains momentum and diffuses or spreads through a specific population or social system' (p.109). The outcome of this diffusion is that people, as integral part of a social system adopt a new idea, behaviour or product. A particular thing can be done in a regular pattern but the status quo can be changed when there is adoption. This implies that adoption makes people to do things differently from what they previously do. For one to do this, one must perceive the idea, behaviour or product as new or innovative. Diffusion takes place through this process. This theory therefore is the process by which an innovation is communicated through certain channel to members of a given society. The Mobile Authentication Service is an innovation by NAFDAC which needs to be communicated to the general public in Rivers State through the mass media so that people will change their attitude of taking drugs without confirming their genuineness.

## Empirical Review

Adekoya and Ekeh (2021) did a study on ‘Awareness and Adoption of Drug Mobile Authentication Service: A Cautious Approach in Eradication of Fake and Counterfeit Drugs in Nigeria’. The study setting was the South-West geo-political zone of Nigeria made up of six states. Lagos, Ogun and Oyo were purposively selected for the study. Results showed that whereas there was 65% awareness, adoption of the technology was low at 20%. Television viewing, radio jingles, and word or mouth were found to be major sources of information about the technology as against internet, newspaper, and poster advertisements which ranked low in awareness creation. Despite the evidence of relatively high level of awareness, the result indicated poor adoption rate of Mobile Authentication Service (MAS) in South West Nigeria. The study concluded that NAFDAC as a government agency should go beyond just awareness creation to focus more on discovering practicable approaches that can spur the audience to adoption and continuous usage of MAS technology in order to facilitate the re-education or total eradication of fake and counterfeit drugs in Nigeria. The study is related to the current study because both deal with awareness and application of Mobile Authentication Service of NAFDAC. However, the study areas vary. Whereas the study dealt with the public in the South Western part of Nigeria, this study concentrated on the residents of Rivers State in the South South Nigeria.

## Methodology

The study adopted survey research method. Survey is applied to this study because it can be used to investigate problems in real settings. People’s ability to dictate counterfeit drugs through their awareness of Mobile Authentication Service can be examined where and how they happen rather than in laboratory or selected room under artificial conditions. The population comprises all male and female adults aged 20 and above residing in Rivers State. The reason for this choice is that people within this age are likely to be more exposed to the use of mobile phones and mass media. According to the National Population Commission, Rivers State has a population of 5,198,716 in 2006. Out of this population, 2,722,049 accounted for male and female adults aged 20 and above and with an annual growth of 3.5%, the 2022 projected population of those within the age bracket of 20 and above is 4,246,397 Using Krejcie and Morgan’s formula, a sample size of 384 was determined from the population of 4,246, 397 people.

The sampling elements were derived from NAFDAC and the general public. To get the sample elements from NAFDAC, purposive sampling method was used to select six staff from the public relations and management units of the zonal headquarters of the agency in Port Harcourt. The rest of the sampling elements (378) were derived from the general public. To get these elements, the study applied multi-stage sampling technique, using balloting. At the first stage, the state was clustered into three, based on the three senatorial districts. In line with the view of Okwechime (2016) that multi-stage sampling technique avoids the use of all sample units in all selected clusters. Two local government areas were selected from each senatorial district making a total of six local government areas. This was done through the simple random sampling technique by the use of balloting. Using the same system, three wards were selected from each of the selected two local government areas. This gave us a total of 18 wards. Twenty one sample elements were drawn from each of the wards. Purposive sampling technique was used to get these elements from selected 18 wards in Rivers State. The reason for the choice of this technique is to ensure that questionnaire is administered to only respondents who are already aware of the Mobile Authentication Service. This category of respondents are in a better position to provide the researchers the needed data to ascertain the extent for which those who are aware of the scheme apply it in identifying counterfeit drugs.

The instruments for the study were the questionnaire and interview. The questionnaire was used to answer research questions 1, 2 and 3 while the interview was used to address the fourth research question. Data generated were analyzed using quantitative and qualitative methods. The percentage and Likert scale mean value method were adopted. The research questions were answered using the mean score benchmark of 2.5 for a 4 – point-scale.

## Data Presentation and Analysis

### Research Question 1: To what extent are Rivers State residents aware of the Mobile Authentication Service?

**Table 1**

Response	No of Respondents	Percentage
Yes	378	100
No	0	0
<b>Total</b>		<b>100</b>

Data presented in Table 1 indicate that all the respondents are aware of NAFDAC Mobile Authentication Service as the number represents 100% number of respondents. These were the respondents who received the administered questionnaire based on the confirmation of their awareness of scheme

**Table 2:** Respondents' Knowledge level of how Mobile Authentication Service works

Options	Respondents (f)	X	Fx	M	Decision
SA	60	4	240		
A	38	3	114		
D	174	2	348		
SD	106	1	106		
Total	378		808	2.1	Rejected

The above table shows that the mean value of 2.1 was lower than the decision point 2.5 and is therefore rejected. It reveals that knowledge which is one of the variables of awareness is low hence majority of the respondents do not know how the Mobile Authentication Service works.

### Research Question 2: To what extent do the residents of Rivers State use the Mobile Authentication Service in identifying counterfeit drugs?

**Table 3**

Options	Respondents (f)	x	fx	M	Decision
SA	38	4	152		
A	34	3	102		
D	132	2	264		
SD	174	1	174		
Total	378		692	1.8	Rejected

$$\text{Mean } \frac{\sum fx}{\sum f} = \frac{692}{378} = 1.8$$

The above table shows that the mean value of 1.8 was lower than the decision point of 2.5 hence negative. It reveals that many residents of Rivers State who are aware of Mobile Authentication Service do not

apply it before taking their drugs. It is one thing to be aware of a particular phenomenon and another to apply it.

**Research Question 3: What are the sources of Rivers State Residents' awareness of Mobile Authentication Service?**

**Table 4**

Items	SA	A	D	SD	M	Decision
I learnt about MAS through radio	57	38	132	152	2.0	Rejected
I learnt about MAS through TV	76	38	132	132	2.1	Rejected
I learnt about MAS through newspaper	34	38	132	174	1.8	Rejected
I learnt about MAS through magazine	30	19	189	140	1.8	Rejected
Average Mean					1.9	Rejected

Table 4 reveals that an average mean of 1.9 respondents confirmed that their awareness of Mobile Authentication Service of NAFDAC in Rivers State was insignificantly influenced by the mass media. This implies that radio, television, newspaper, magazine and social media were not the major sources of the residents' awareness of the scheme. These however should have been the major sources of awareness of Mobile Authentication Service among residents of Rivers State considering their strategic roles in education and information dissemination in the society.

**Table 5: Awareness of MAS through family and friends**

Options	Respondents (f)	x	fx	M	Decision
SA	204	4	816		
A	57	3	171		
D	76	2	152		
SD	41	1	41		
Total	378		1,180	3.1	Accepted



From the table, an average mean of 3.1 respondents confirmed that their awareness of MAS is influenced by family and friends. This further illustrates that the major sources of people's awareness of MAS in Rivers State are relations and friends.

**Table 6:** Ascertaining how frequent respondents get information about NAFDAC's programmes through the mass media.

Items	SA	A	D	SD	M	Decision
Daily	0	0	227	151	1.6	Rejected
Weekly	76	38	151	113	2.2	Rejected
Monthly	19	57	128	174	1.7	Rejected
Quarterly	34	38	132	174	1.8	Rejected
Twice a year	19	11	208	140	1.7	Rejected
Yearly	38	38	113	189	1.8	Rejected
Irregular	151	113	72	42	2.9	Accepted
Intervals in a year						
Average mean			1.9			Rejected

Grand mean from Table 6 is 1.9. This is an indication that the table is rejected as its mean is below 2.5 which is the decision rule acceptance level. It implies that only few respondents get information about NAFDAC's programmes through the mass media on daily, weekly, monthly, quarterly, twice-a-year or annual basis. They get the information at irregular intervals in a year.

#### **Research Question 4:**

##### **What forms of media are used by NAFDAC in disseminating information about its programmes in Rivers State?**

To get answers for this research question, six NAFDAC staff in the Public Relations and Management Units were interviewed on the forms of media used by NAFDAC in Rivers State. The six interviewees identified radio as the major type of media used by the agency in the state. They also agreed that this is followed by television. According to them, these forms of media are mostly used by the agency because they have audience that cut across different categories of people. The print and social media are rarely used.

#### **Discussion of Findings**

##### **Research Question 1: To what extent are Rivers State residents aware of the Mobile Authentication Service?**

Results from the data gathered and analysed show that inspite of the respondents' awareness of the scheme, majority of them do not know how the Mobile Authentication Service works. This implies that the various steps in utilizing the service is not well known to the respondents. The steps entail scratching a silver panel on a purchased medicine, texting the pin to a dedicated number provided on the medicine pack and confirming the authenticity of the drug through Short Messaging Service (SMS) sent by service providers of NAFDAC to the consumer of the purchased drug. This result reveals that NAFDAC in Rivers State has not done enough media campaigns to create awareness of the service. This revelation is in

agreement with the study conducted by Adekoya and Ekeh (2021) that there is high rate of awareness of MAS in South West, Nigeria.

**Research Question 2: To what extent do the residents of Rivers State use the Mobile Authentication Service in identifying counterfeit drugs?**

Results show that many residents of Rivers State who are aware of Mobile Authentication Service do not apply it before taking their drugs. This implies that the extent of the residents' use of the scheme is low. This result is consistent with the findings of Adekoya and Ekeh (2021) that inspite of high rate of awareness of MAS in South West, there is still low level of adoption of the technology among people of the area.

This also implies that diffusion of innovation did not reflect on the results of the study. Rivers State residents could not behave differently with regards to confirmation of the genuiness of the drugs they purchase before consumption.

**Research Question 3: What are the sources of Rivers State residents' awareness of Mobile Authentication Service?**

Responses elicited with respect to this research question indicate that radio, television, newspaper, magazine and social media are not the major sources of the residents' awareness of the scheme. They got information about the scheme mainly from members of their family, relations or friends. Diffusion of innovation theory requires that a new idea or innovation be communicated to the general public through certain channels especially the mass media. NAFDAC is expected to communicate this technology consistently to the general public.

**Research Question 4: What forms of media are used by NAFDAC in disseminating information about its programmes?**

Radio and television are the most useful media to NAFDAC in Rivers State. Both types of media are used more often because of their easy accessibility, wider coverage, believability and effectiveness in information dissemination. The agency also uses newspaper, magazine and social media but on rare occasions. The inability of the agency to diversify in the use of different media to disseminate information about its programmes especially the MAS affected the realisation of the goal adversely.

**Conclusion**

Based on the findings, it is hereby concluded that many residents of Rivers State have superficial knowledge of Mobile Authentication Service. Again, many residents of the state do not apply the scheme before taking their drugs. Also, the agency is not utilizing the mass media effectively. Consequently, the public could not get the awareness of the scheme mainly from the mass media but mainly from interpersonal communication.

**Recommendations**

The following recommendations were considered useful in this study;

1. The National Agency for Food and Drug Administration and Control (NAFDAC) should re-double its efforts in creating public awareness on how the Mobile Authentication Service works, using the mass media.
2. The agency should initiate a programme in the media specially designed to inform and educate Rivers State residents on the danger of not applying the MAS scheme before taking their drugs.

3. The residents of Rivers State who apply this scheme should help in educating their contacts in families, churches and schools.
4. The use of the mass media by the agency should cut across all media channels especially radio, television, newspaper and the new media.

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