



# NAFDAC Sensitization Programme and Level of Consumers Knowledge Application in Identifying Counterfeit and Substandard Medicines

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## Abstract

The importance of medicines to man is very obvious which may cause dangerous health threats when used incorrectly or mishandled. This study, therefore, investigated the various NAFDAC sensitization programme on counterfeit and substandard medicines and level of consumers' knowledge application in identifying counterfeit and substandard medicines. Counterfeit medicine is a nerve-racking problem of great concern to the government and the governed in Nigeria. The target population are consumers of orthodox medicines in south west, Nigeria. NAFDAC Sensitization Programme Questionnaire (NSPQ) and Client Exit Interview Guide (CEIG) were used. The reliability of NSPQ was 0.87 and CEIG was through expert judgment. The result shows that 57% of the respondents gets their information about NAFDAC from NAFDAC sponsored programme. The finding also revealed that 81% of the respondents were adequately knowledgeable about the existence of counterfeit and substandard medicines but very few of them are applying the knowledge.

**Keywords:** Sensitization Programme, Consumer Knowledge, Health Care, Safe Guarding, Authentication.

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## INTRODUCTION

Since prehistoric times, humans have used natural products, such as plants, animals, microorganisms, and marine organisms, in medicines to alleviate and treat diseases. Medicines are essential for life as they regulate body processes, protect and treat diseases, infections and body aches. Medicines are especially useful for diagnosis, prevention, treatment, or mitigation of diseases and disorders. Medicine is defined as a substance that could bring about a change in the biological function through its chemical actions (Okoye, 2001). Balogun (2006) and Fawa (2003) medicine is any substance, which is used for treatment and prevention of disease in man and animals. Medicines could be considered as chemical modifiers of the living tissues that could bring about physiological and behavioural changes (Nnachi, 2007). Generally, medicines have become indispensable means of healthcare delivery. In fact, for most people, getting good healthcare is synonymous with availability and accessibility to good quality, safe and efficacious medicines (Gennaro, 2000).

The development of medicines (pharmaceuticals) has undergone serious evolution. Over time, medicines have taken on many forms, from traditional medicines (large concoctions) infused from a cocktail of leaves, fruits, barks etc. to tablets, capsules, syrups, injections and drips etc. made through either chemical synthesis or extracted from plants and/or animals (Akinola, 2007). Modern science and technology has turned medicines into extremely valuable products and continues to aim at delivering them in forms that are increasingly smaller, more precise in action, more effective and safer. This poses a great challenge to the pharmaceutical industry, as there is always the need to improve previous inventions and develop even better medicines (Akinola, 2007). Medicines may cause dangerous health threats when used incorrectly or mishandled (Ade-abolade, 2007). The importance of medicines to man and animal is very obvious. They need food in order to grow and sustain life while life goes on, and because of the inherent disposition to illness, the organs of the body may not always function properly; consequently the need to take medicines (Ogbeche, 2006). Despite the importance of medicines to the body, it can also pose a serious threat if the medicine is counterfeit or substandard.

The World Health Organization (WHO) (2011) defined counterfeit medicines as “medicines that have been deliberately or fraudulently mislabeled with respect to identity and/or source”. The products could include incorrect ingredients, may mistake the amount of the active ingredients, or are manufactured under circumstances that lack quality control. Example of counterfeit medicines in Nigeria include preparations without active ingredients, toxic preparations, expired medicines that are re-labelled, medicines issued without complete manufacturing information and medicines that are unregistered with the National Agency for Food and Drug Administration and Control (NAFDAC), the national agency responsible for regulation of medicines in Nigeria (WHO, 2011).

Meanwhile, few studies have reported a high incidence of the availability of counterfeit medicines, however, majority of these reports do not have quantitative evidence to support these claims. One of the estimate suggests that 10% of prescription medicines sold worldwide are counterfeits or contaminated, and in parts of Africa and Asia, the figures exceed 50% (Akinyandenu, 2013). The problem of counterfeit medicines is wide spread affecting both developing and developed nations. The actual prevalence of counterfeit medicines is difficult to ascertain partly due to failure of the majority of member nations in the WHO to report instances of medicine counterfeiting occurring in their countries (Newton, Green, Fernandez, Day & White, 2006b). But also just like other crimes, medicine counterfeiting is an underground business that often comes to limelight only when deaths occur. The extent of the severity of the problem varies widely between countries, ranging from <1% in more developed nations to 50% in some poor countries (Glass, 2014).

According to estimate by Amadi and Amadi (2014) about 10% of medicines circulating worldwide and 25% in less developed countries are counterfeit. Africa and some parts of Asia are the most affected regions followed by Latin America.

In Nigeria, the problem of counterfeit medicines has significantly reduced from 41% in 2002 to 16.7% in 2006 to 10% in 2012 to 6.4% (Amadi & Amadi, 2014; Akunyili, 2007). But it is a general observation that there is influx of counterfeit medicines all over Nigeria despite the estimate through literature. More so, About 50% of the medicines utilized by patients are purchased from the private places (patent medicine stores and street vendors) where control is difficult hence there is expectation that there will be more medicine counterfeiters in the private sector than in the public health sector (Cars & Nordberg, 2005).

Medicine counterfeiting is a global public health problem, because the effects can be felt from both the country of manufacturer to the recipient countries. In Nigeria, counterfeit medicine is a nerve-racking problem of great concern to the government and the governed. Counterfeit medicines proved a major factor in contributing to high death rates. For example, over 150 children in Nigeria died in 1989 as a result of formulation error in paracetamol syrup containing diethylene glycol (Ehikwe, Eze & Odigbo, 2015).

The problem of counterfeit medicines was so severe that neighbouring countries such as Ghana and Sierra Leone officially banned sales of medicine, food and beverage products made in Nigeria (NAFDAC, 2013). The need to tackle this problem is part of the reasons for the establishment of National Agency for Food and Drug Administration and Control in 1994 which would help create a counterfeit-medicine-free environment (NAFDAC, 2013). The intent was to ensure effective registration of good quality medicines that are inexpensive in Nigeria.

Buttressing the importance of NAFDAC, Asiegbu and Ogbuji (2015) asserted that NAFDAC is one of the efforts put in place by government to effectively protect economy, safe-guarding public health, property and environments and managing natural disasters. One of such policies is national medicine safety policy, which focuses on addressing specific medicines needs and priorities of countries. It is worthy of note that national medicine control schemes vary according to nations, but they comprise mainly medicine registration and regulations, policy and institutional frameworks, medicine inspection and monitoring, medicine laboratory services, involvement of all stakeholders and communication of medicine standard to the consumers (Omojokun, 2013).

All medicines manufacturing and distributing firms operating in Nigeria must seek and obtain NAFDAC approval that confirms that their products are safe for human consumption before distributing them to the public. On the other hand, NAFDAC communicates the approval information to the general public by the registration number given to these medicine companies to be included in the information they communicate on their products labels. Also, NAFDAC puts in place phone-in programme which provide the consumer the opportunity to make inquiries and be more enlightened about the quality of medicines (Omojokun, 2013).

NAFDAC has developed several sensitization strategies, NAFDAC adopted enlightenment campaign programme in the form of jingles, fliers, leaflets, posters, billboards, workshops, and seminars to combat counterfeit medicine consumption. However, these strategies failed due to many problems such as limited access of the media to the populace (Wogu, Omaka-Amari, Ugwu, Ugwuoke & Agu, 2019). Hence, technological innovations have been adopted by NAFDAC to help curb the problem of medicines counterfeiting. For instance, NAFDAC in collaboration with Sproxil launched the Mobile Authentication Service (MAS) also called Mobile Product Authentication (Nafdac/Sproxil, 2015; Bansal, Malla, Gudala & Tiwari, 2013). Mobile Authentication Service (MAS) was borne out of a drive to empower consumers to authenticate the quality of their medicines. This requires consumers

to send a unique code located on the scratch card on the package of their medicines to a short code to authenticate their medicines (Health Care Packaging, 2010). More recently other avenues of authentication such as using the Mobile Product Authentication (MPA) application on android and on Sproxil's website were commenced by Sproxil (Uzochukwu & Chinedu-Okeke, 2017).

Moreover there are certain procedures for identifying counterfeit medicines. Consumers, may not have access to most of the test equipment used by regulatory bodies to verify the identity of a medicine product. The following procedures will serve as guide to purchasing genuine medicine products. Visual inspection as stated by WHO (WHO, 1999) still remains the first step in identifying potential counterfeit medicine irrespective of the analytical methods used. This is because such observation serves as a lead to identifying counterfeit products even in the absence of the knowledge of the physical characteristics of a genuine medicine product.

A consumer is expected to examine carefully both the package and its content before purchase or use. Suspicious packaging or inconsistent odour, taste, shape, inconsistencies in colouring, spelling, fonts, and location of the words and symbols on the package of the medicine even the way a tablet crumbles can provide clues to its authenticity (Dudu & Danjuma, 2016; Beer, 2015; Dowell, Maghirang, Fernandez, Newton & Green 2008). In addition, other procedures that must be duly followed in identifying counterfeit medicines including mobile authentication service using short message service (SMS), source, price and unexpected side effect (WHO, 2015; Chinwendu, 2015; Sproxil, 2012).

Moreover, Quality assurance is a very crucial aspect in every field of industry; it can be in the field of engineering, pharmaceutical products, food and beverage products and etc. (Lawrence, 2008). Every product must meet certain criteria of quality which will be safe and efficacious for the consumers (Lawrence, 2008). According to Banker, Siepmann, and Rhodes (2002), a product that is not safe to be used will not be given authentication or approval to be marketed to the public. Pharmaceutical industry produces medications that are consumed on a daily basis by humans and animals (Banker, Siepmann & Rhodes 2002). As medications are crucial and essential for lives, the quality of the product should be of very high standard to ensure that the products do not cause harm to the consumer (Banker, Siepmann & Rhodes 2002).

Consumer knowledge is an essential part of any business. It creates a relationship between the consumer and the company. Because company can provide the product to the consumers according to the demand. The Consumer is the buyer of the goods or services, as well as a member of the production chain. These characteristics stress the importance of consumers in both economics and marketing services (Bello, Suleiman and DanjumaI 2012). In other words, without the consumer, there will be no basis for production and hence no market. That is why the consumer is seen as the pivotal point of not only marketing, but of all business activities and whose interest must be protected. It is not enough for the consumer to be aware of the product they consume but there is need to look into satisfaction level of such product which in turn determines the frequency of consumption. According to Hansemark and Albinson (2004) satisfaction is an overall consumer attitude towards a service provider, or an emotional reaction to the difference between what consumers expect and what they receive, regarding the fulfilment of some needs, goals or desire. Kotler (2000) defined satisfaction as a person's feelings of pleasure or disappointment resulting from comparing a product perceived performance (or outcome) in relation to his or her expectations. Given that the consumer is the end users of manufacturers and NAFDAC activities.

NADAC has been vehemently carrying out sensitization programme to sensitize the consumers on the identification of counterfeit and substandard medicines and the need to avoid its consumption. Little or no empirical research evaluated the potency of this

sensitization programme in equipping the consumers with the adequate knowledge on counterfeit and substandard medicines and application of that knowledge when purchasing medicine particularly in the South West, Nigeria. This paper is an attempt to fill this gap.

## Research Questions

In pursuit of the goals of this paper, the following questions guide the inquiry:

- What is the consumers' opinion on the extent to which NAFDAC carry out sensitization programme?
- How does the consumers became aware of NAFDAC?
- To what extent do consumers of medicines are knowledgeable about expired, counterfeit and substandard medicines?
- What is the level of consumers application of knowledge gained from NAFDAC Sensitization in identifying counterfeit and substandard medicine?

## METHODOLOGY

This study adopted the mixed-methods approach using explanatory concurrent mixed method design. Thus, it integrated *ex-post facto* research design of survey type (Quan+qual) to gain in-depth understanding of the phenomenon. The target population for this study comprised of all the Consumers of orthodox medicines in Ibadan in Oyo State, Abeokuta in Ogun State and Isolo in Lagos State. Simple random sampling technique was employed to select seven hundred and fifty (750) consumers' from pharmacies, medicine vendors and households from the sample states. Also purposive sampling technique was employed to select fifteen (15) consumers for Client Exit Interview (CEI). The instruments used for the study were NAFDAC Sensitization Programme Questionnaire (NSPQ) and Client Exit interview GUIDE (CEIG). The NSPQ has two sections. The first section sought information on demographic data of the respondents while the second section required the respondents to supply information on NAFDAC Sensitization Programme. It adopted the Likert response of Always as 4, Often as 3, sometimes as 2, Rarely as 1 and Never as 0. The NSPQ instrument was administered on thirty (30) samples that are not part of the study but homogeneous with the study sample to establish the psychometric properties. Using the Cronbach's Alpha technique, the NSPQ yielded reliability index of 0.87. The psychometric properties of CEIG was established by the expert judgment and it was first administered on five consumers who did not participate in the study and necessary modification and correction were made. The researcher employed the assistance of some research assistants who joined the researcher in administering the instruments. Data collected was analyzed using descriptive statistics (percentage, mean and standard deviation) and Manual inductive approach.

**Research Question 1:** What is the consumers' opinion on the extent to which NAFDAC carry out sensitization programme?

Table 1: Descriptive statistics of NAFDAC sensitization Programmes

S/N	Variables	Always	Often	Sometime	Rarely	Never	X	SD
1.	NAFDAC organizes enlightenment campaign on counterfeit and substandard medicines	270 36.0%	325 43.3%	131 17.5%	0 0.0%	24 32.0%	3.09	.903
2.	NAFDAC organizes consumers clubs in High schools	242 32.3%	314 41.9%	178 23.7%	0 0.0%	16 2.1%	3.02	.867
3.	NAFDAC Publishes the lists of identified counterfeit products in NAFDAC bulletin	322 42.9%	255 34.0%	138 18.4%	0 0.0%	35 4.7%	3.11	1.012
4.	NAFDAC publishes identified counterfeit medicines products in newspaper	281 37.5%	275 36.7%	164 21.9%	0 0.0%	30 4.0%	3.04	.976
5.	NAFDAC Publishes alert notices on medicines that already have problems in the circulation	210 28.0%	269 35.9%	176 23.5%	48 6.4%	47 6.3%	2.73	1.124
6.	NAFDAC organizes seminars and workshops for small medium and high scale enterprises	186 24.8%	304 40.5%	210 28.0%	0 0.0%	50 6.7%	2.77	1.037
7.	NAFDAC make prints and electronic media such as jingles and erection of Billboard	244 32.5%	336 44.8%	134 17.9%	0 0.0%	36 4.8%	3.00	.968
8.	NAFDAC Produces fliers, leaflets and posters both in English and other languages	333 44.4%	274 36.5%	113 15.1%	0 0.0%	30 4.0%	3.17	.962
9.	NAFDAC organizes mobilization campaign for rural dwellers	0 0.0%	41 5.5%	222 29.6%	248 33.1%	239 31.9%	2.87	1.050
10.	NAFDAC organizes enlightenment campaign on TV stations	284 37.9%	219 29.2%	164 21.9%	19 2.5%	64 8.5%	2.85	1.203
11.	NAFDAC organizes town hall meetings	168 22.4%	289 38.5%	184 24.5%	64 8.5%	45 6.0%	2.63	1.102
12.	NAFDAC encourage whistle blowing on the existing counterfeit and substandard medicine	157 20.9%	203 27.1%	183 24.4%	149 19.9%	58 7.7%	2.34	1.227
13.	NAFDAC organizes community development service (CDs) Youth copper training	181 24.1%	176 23.5%	256 34.1%	36 4.8%	101 13.5%	2.40	1.276
14.	NAFDAC creates awareness on social media (Twitter, Facebook and webpage)	148 19.7%	229 30.5%	177 23.6%	101 13.5%	95 12.7%	2.31	1.281
15.	NAFDAC organizes road, Market and pack shows	49 6.5%	127 16.9	250 33.3%	209 27.9%	115 15.3%	1.35	1.276

To answer this research question, a bench mark of 2.0 was set. The decision was based on the fact that the average of the five responses (4, 3, 2, 1 and 0) was 2. Therefore, from the table 1, the consumer responded that NAFDAC produces fliers, leaflets and posters both in English and other languages (X=3.17) were carry out always, followed by NAFDAC publishes the lists of identified counterfeit products in NAFDAC bulletin (X=3.11), NAFDAC organizes enlightenment campaign on counterfeit and substandard medicines (3.09), publishes identified counterfeit medicines products in newspaper (X=3.04), organizing consumers clubs in High schools (X=3.02), NAFDAC makes prints and electronic media such as jingles and erection of billboards (3.00). Inferring from the responses of the consumers, it was observed

that many of the responses were of the consumers, it was observed that many of the responses were of the opinion that NAFDAC produces fliers, leaflets and posters both in English and other languages, publishes the lists of identified counterfeit products in NAFDAC bulletin, organizes enlightenment campaign on counterfeit and substandard medicines, publishes identified counterfeit medicine products in newspaper and organizes consumers clubs in High schools, NAFDAC create awareness for the consumers often and get rid of the counterfeit and substandard medicines thereby safeguarding the lives and health of the consumers.

**Discussion:** It was observed that NAFDAC is committed to safeguarding the health of the consumers through various sensitization programme. This result can be attributed to the agency commitment by putting in serious efforts to ensure that the consumer are abreast about the prevalence of counterfeit and substandard medicines and how to identify them.

This result agree with Wogu, Omaka-Amari, Ugwu, Ugwuoke, and Agu, 2019 pointed out that NAFDAC developed several sensitization strategies in the form of jingles, fliers, leaflets, posters, billboards, workshops, and seminars to combat counterfeit medicine consumption. However, it contradicts the conclusion of Wogu, Omaka-Amari, Ugwu, Ugwuoke, and Agu, 2019 that these strategies failed due to many problems such as limited access of the media to the populace. Hence, technological innovations have been adopted by NAFDAC to help curb the problem of medicines counterfeiting (Nafdac/Sproxil, 2015; Bansal, Malla, Gudala and Tiwari, 2013).

**Research Question 2:** How does the consumer became aware of NAFDAC and its activities?

Table 2: Descriptive statistics on consumer Knowledge about NAFDAC

Variables		Frequency	Percentage
Have you ever heard about NAFDAC before?	Yes	750	100%
	No	0	0.0%
Have you ever heard about counterfeit or substandard medicine before?	Yes	750	100%
	No	0	0.0%
Have you ever met NAFDAC staff in a public place organizing a sensitization programme	Yes	414	55.2%
	No	336	44.8%

Table 2 Reveals consumer knowledge about NAFDAC. The result shows that all the 100% consumers have heard about NAFDAC and also have knowledge about counterfeit and substandard medicine before. Whereas 55% of the consumers have met NAFDAC staff in a public place organizing a sensitization programme 45% of the consumers has never met NAFDAC.

The study also shows that majority of the consumers are aware of the existence of the Agency (NAFDAC) and the prevalence of counterfeit medicines. It was revealed that NAFDAC succeeded in their strategy of creating awareness to the consumer of their its establishment and counterfeit medicine existence through public sensitization programme, Radio and Television, Newspapers, Magazines and other media. The above result disagreed with the submission of Ayozie (2013), Ekanem (2011) and Al-Ghamdi, Sohil and Al-Khalidi (2007), that it is doubtful if various government regulations and regulatory agencies put in place in Nigeria to protect the consumers is achieving the mandate for which they were set up, likewise Odumodu (2012) also opined that, though the government has regulations in place, there is no institution to enforce them.

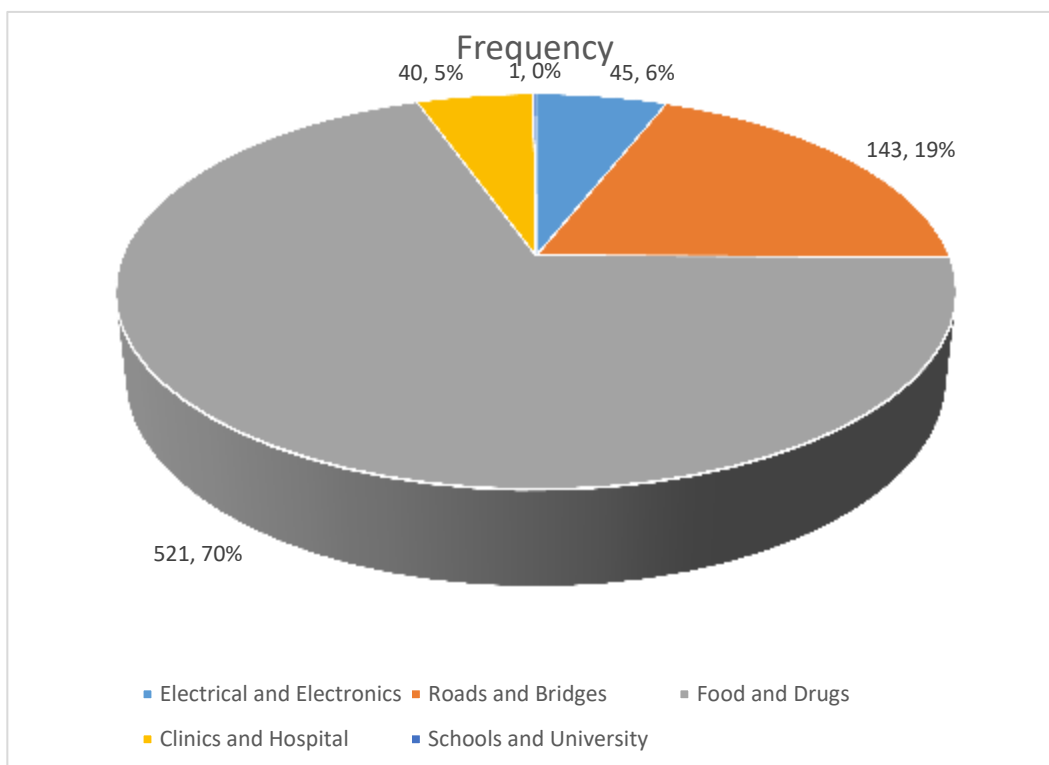
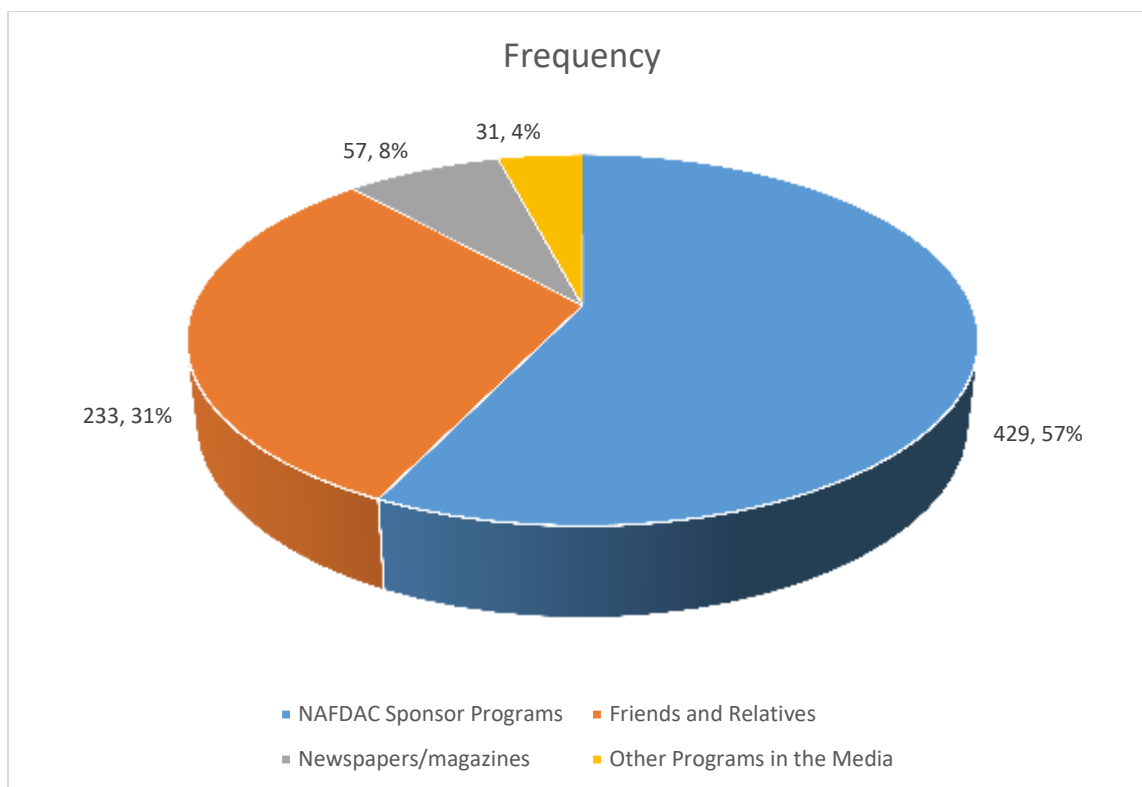


Figure 1: Descriptive statistics on consumers' knowledge about NAFDAC

Figure 1 reveals the consumer knowledge about the operation of NAFDAC. 70% of the respondents indicated that NAFDAC deals with food and drugs, 19% of the respondents indicated roads and bridges, 5% indicated clinics and hospitals, 6% of the respondents indicated that NAFDAC deals with schools and universities while 0% indicated that NAFDAC deals with electrical and electronics.

From the above results it could be noted that majority of the respondents are well informed about the mandate and operation of NAFDAC. This implies that there is an effective sensitization on the operation and mandate of NAFDAC.





**Figure 2:** Consumers' source of Information about counterfeit/substandard medicine

Table 2 reveals the source of consumer information about NAFDAC. The result shows that 57% of the respondents gets their information about NAFDAC and its from NAFDAC sponsors programme, 31% of the respondents gets their information from friends and relatives, also 8% of the respondent gets their information from newspapers and magazines while 4% of the respondents gets their information from other programme in the media.

The result shows that majority (above average) of the respondents got their information about counterfeit medicines through NAFDAC sponsor programme. This implies that NAFDAC sponsor programme is effective and well listen to by the consumers.

**Research Question 3:** To what extent do the consumers of medicines are aware of expired, counterfeit and substandard medicines?

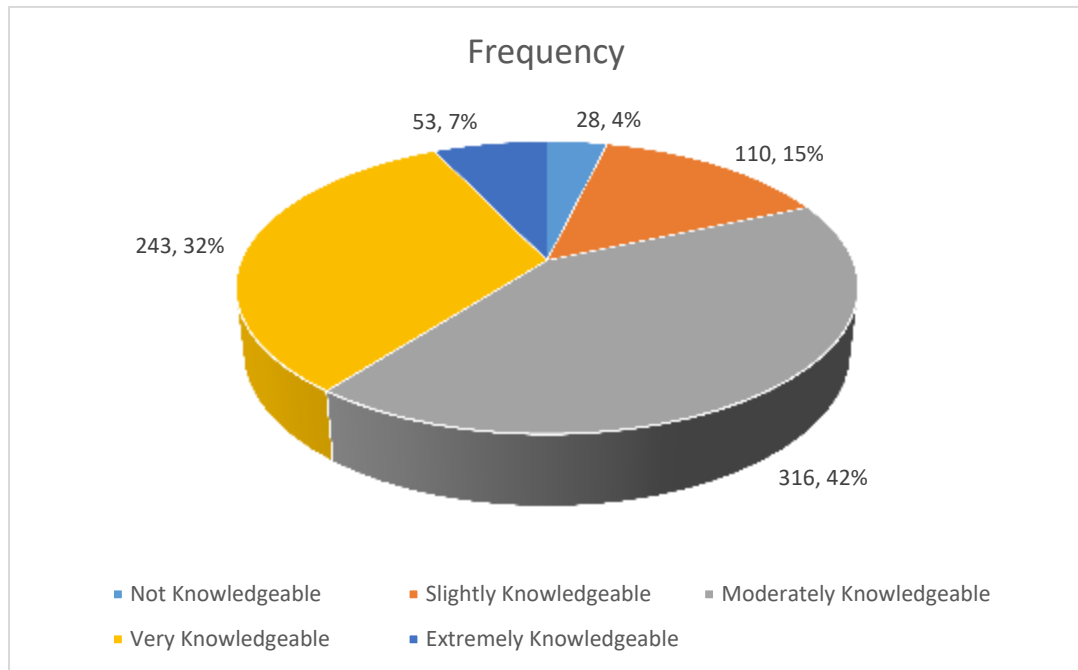


Figure 3: Consumer knowledge about counterfeit and substandard medicine

Figure 3 the finding revealed that 81% of the respondents are adequately knowledgeable, while 15% are slightly knowledgeable and 4% of the consumers are not knowledgeable about the existence of expired, counterfeit and substandard medicines. This shows that the insignificant number of the respondents were not knowledgeable about the existence of expired, counterfeit and substandard medicines. This implies that the agency’s sensitization programme is efficient.

The result on consumer awareness negates the opinion of Bello, Suleiman and Danjuma (2012) and Eze, Eluwa and Nwobodo (2010) that the Nigerian consumers have knowledge imbalance which made them to suffer over the years in the hands of producers and suppliers of good and services. Also, Nkamnebe, Idoko and Kalu (2009) stated that the average Nigerian consumer has not been exposed to the type of product sophisticated and proliferated. Mogagaba (2008) and Monye (2006) also stated that there is ignorance and absence of consumer awareness and education of the market transactions.

**Research Question 4:** What is the level of consumers’ application of knowledge gained from NAFDAC sensitization in identifying counterfeit and substandard medicines?

### **Level of Consumers’ Application of Knowledge Gained from NAFDAC Sensitization in Identifying Counterfeit and Substandard Medicine**

Interview was conducted for forty-five consumers in order to ascertain the application of the knowledge gained from different sensitization carried out by NAFDAC with regards to identification of counterfeit and substandard medicines. The consumers were asked about how they check whether the medicines purchased are genuine; responses they receive from mobile authentication service (MAS); challenges faced using the mobile authentication

service and how they handle medicine they discovered to be expired, counterfeit/ sub-standard.

### How consumers check whether the medicines purchased are genuine

The researcher investigated into various means used by consumers to identify genuine medicines when purchased. The responses received revealed that majority of the consumers relied mostly on buying from sources they trusted and not buying non-prescribed medication. Some consumer use the NAFDAC registration number as means of identifying fake from genuine medicine. There were those who claimed that they do check the expiry date or physical appearance of the medicine in order to ascertain the genuineness of the medicine.

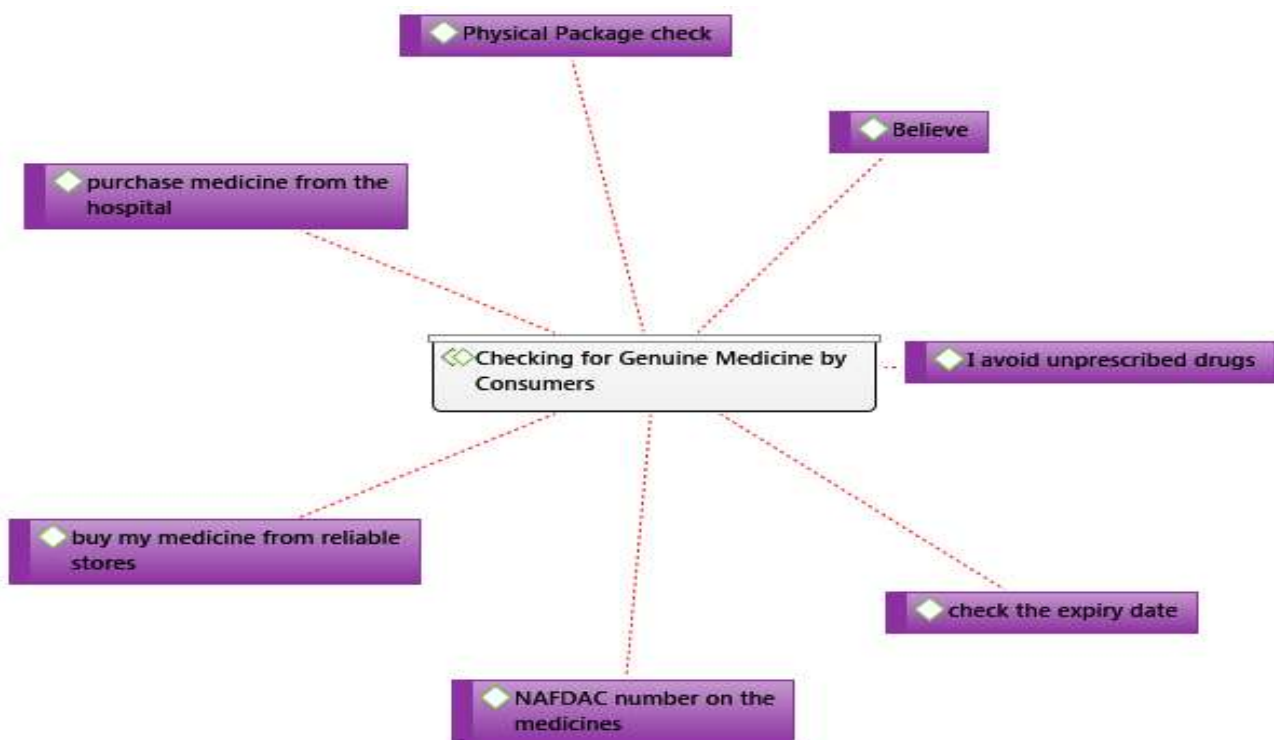


Figure 4: ATLAS.ti Output on how consumers check whether the medicines purchased are genuine with reference to Consumers’ Responses. Source: Researchers’ field report (2019).

### Responses the Consumers’ receive from mobile authentication service (MAS)

The awareness of consumers about Mobile Authentication Service (MAS) was also inquired. It was discovered that most of the consumers are not aware of the service. There were those who were aware but do not see need to use the service. A consumer said, “*I am aware of mobile authentication service but have never used it*”. Another said, “*I do not have any knowledge about mobile authentication service*”

The medicine consumers that make use of the Mobile Authentication Service were able to answer question on the type of response they do receive from the service provider. A Consumer said:

*“whenever i used mobile authentication service it brings genuine product. Then there are other information like; product name, NAFDAC registration number of the product,*

*medicine expiry date, medicine batch number, helpline for further information service” (Consumer, 2019).*

Some of the consumers that use the service also said they receive such response like “Ok’ ‘Genuine’, ‘Fake, do not use’, ‘Ok for use’ ‘Original’ or ‘Confirm’.

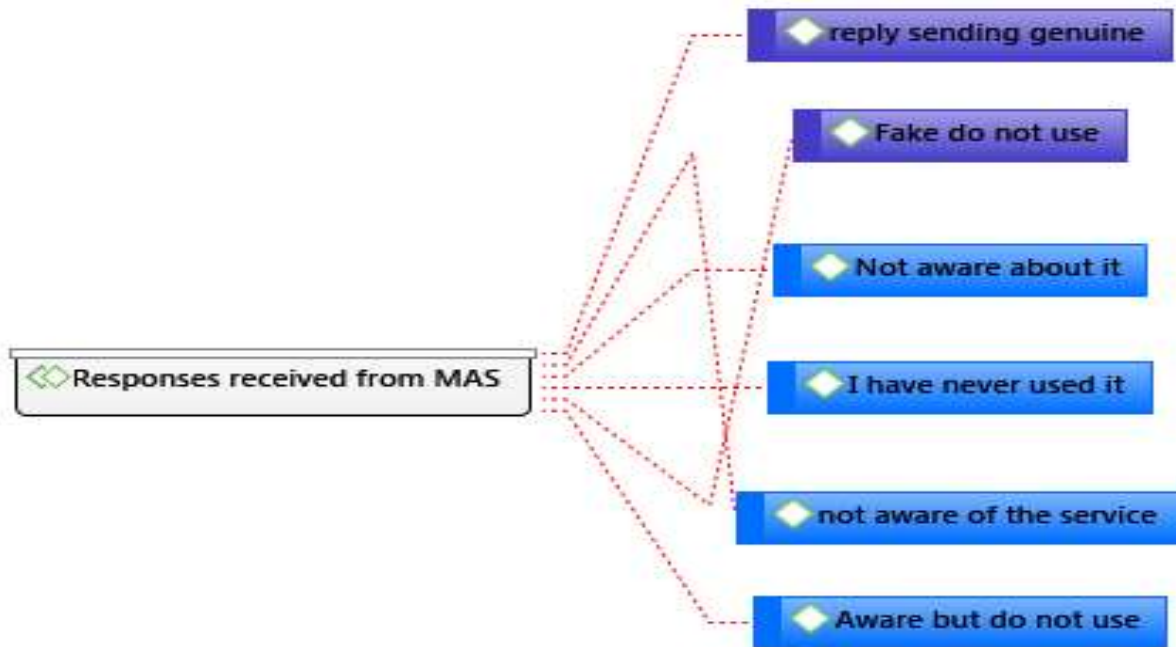


Figure 5: ATLAS.ti Output on Responses consumers’ receive from mobile authentication service (MAS) with reference to consumers’ Responses. Source: Researchers’ field report (2019).

### **Challenges faced by consumers using the mobile authentication service**

Concerning the challenges consumers encountered with the use of Mobile Authentication Service (MAS), most of the consumers said the major challenge faced is delay in receiving response. A consumer complained that “*the response was delayed between 30- 45minutes at times*” while another consumer also said “*the response most of the time take within 30 minutes. However I have to wait until I receive a message*”. Some consumers mentioned that the delay in response may be due to network problem. Some of the consumers also said that there are some medicines that have no panel for Mobile Authentication Service (MAS) and that the MAS is mostly available on antibiotics and antimalarial medications. There were some consumers who have used the service but have not encountered any challenge; likewise those who have not used the service were unable to mention any challenge.

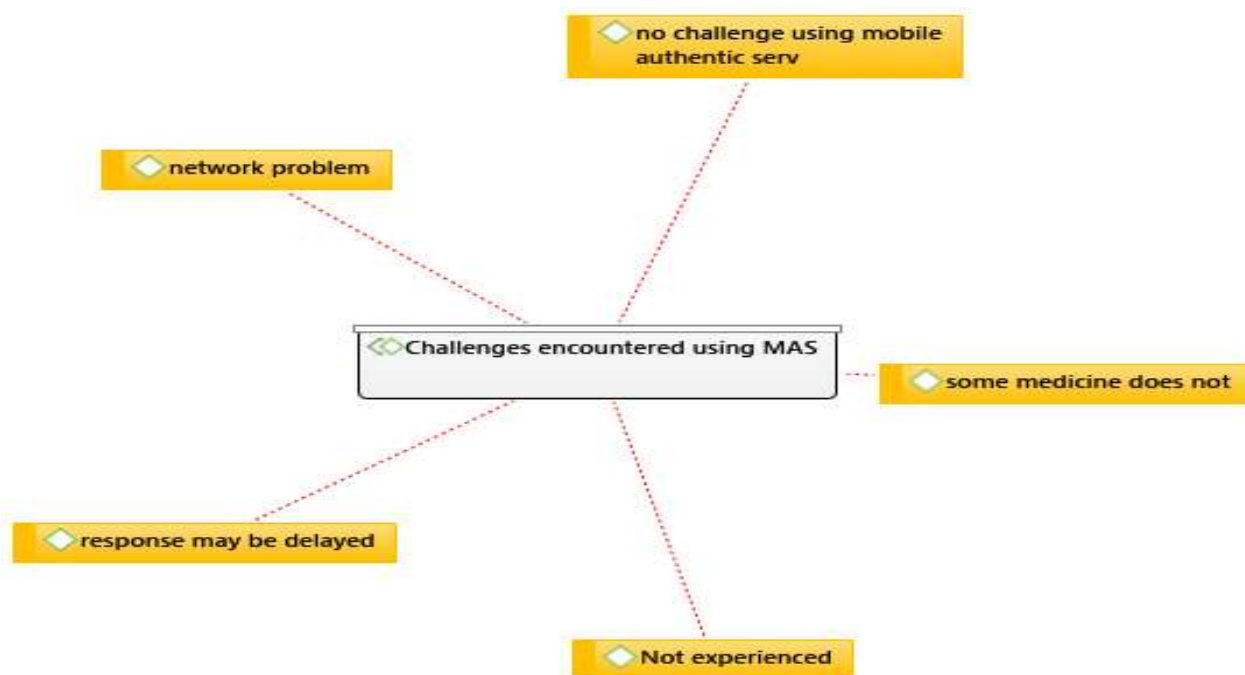


Figure 6: ATLAS.ti Output on challenges faced by consumers using the mobile authentication service with reference to Consumers' Responses. Source: Researchers' field report (2019).

### **How consumers handle medicine they discovered to be expired, counterfeit/ sub-standard**

The consumers also mentioned different way by which they can handle fake, expired, counterfeit or substandard medicine (Figure 28). Some of them pointed out bluntly that they will return such medicine to where it was purchased; some said they will throw it away. There were those who said they will destroy such medicine by themselves. A respondent said, he can sue anyone who sells such medicine. While few of them said that they will report to Pharmacovigilance Centre, any available NAFDAC office or through their websites.

### **CONCLUSION**

The study investigated NAFDAC sensitization programme on expired, counterfeit and substandard orthodox medicine. It had shown that NAFDAC is efficiently fulfilling her mandate in sensitizing the consumers on the existence of the expired, counterfeit and substandard medicines. These include producing fliers, leaflets and posters both in English and other languages, publishing the lists of identified counterfeit products in NAFDAC bulletin, organizing enlightenment campaign on counterfeit and substandard medicines, publishing identified counterfeit medicines products in newspaper, organizing consumers clubs in High schools, NAFDAC makes prints and electronic media such as jingles and erection of billboards. However, the result shows that majority (above average) of the respondents got their information about counterfeit and substandard medicines through NAFDAC sponsor programme. Also, the finding revealed that majority of the respondents are adequately knowledgeable about the existence of counterfeit and substandard medicines.

It was also observed from the study that, most of the consumers who profess that they purchase their medicines from reliable sources do not bother to authenticate the genuineness of those medicines. It was also discovered that some of the consumers are not aware of mobile authentication service, majority that are aware of the service do not bother to use it

except for few consumers that subscribed to its usage. However, some consumers noted that they encounter delay in responses when they use mobile authentication services. It was also noted by some consumers that some medicines does not have MAS except for antibiotics and antimalarial.

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