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## **Preference and Adoption of Online Communication of Medical Prescriptions in Akwa Ibom State, Nigeria**

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### **Abstract**

The researchers investigated online communication of medical prescriptions and residents' preference/ adoption for enhancing health care service delivery in Akwa Ibom State. Anchored on the diffusion of innovation theory, this study relied on survey research method, with questionnaire as instrument. The sampling technique adopted for this study was multi-stage cluster sampling in which 384 respondents from a total population of 2,516,750 systematically selected from 9 Local Government Areas/villages cutting across the 3 senatorial districts in Akwa Ibom State. Data were analysed using simple percentages and presented in frequency distribution tables. Findings indicated that percentage of Akwa Ibom State residents who know about online medical prescriptions was high and majority of them showed a positive disposition towards online medical prescriptions through online communication. However, the frequency of adoption/patronage of the innovation was regular. Based on these findings, it was recommended that staff of health facilities (hospitals) in Akwa Ibom State redefine modalities of reaching out to patients, provide to them the needed health information and improve on their services to patients to avoid loss of patronage.

**Keywords:** Technological Development, Communication, Online communication, Medical prescriptions, Adoption.

### **Introduction**

Since the advent of COVID-19 pandemic, online transactions and services on social media have come to stay. Online services have no doubt extended to health care delivery. There have been increase of online channels /platforms that provide health information prescribing medications and therapeutic and health messages for the treatment of various sicknesses and other health related issues. This has become a serious public health concern as they have expanded and become more controversial. The online health services and medication platforms are sites that provide information that prescribes solutions to health challenges, sell medication directly to customers and offer medical prescriptions via the internet (Orizio, Merla, Schulz & Gelatti, 2011). The spread of mobile devices has helped to fuel this boom. Increasingly, social media audiences are using the internet to not only find out information about health status, but also, to carry out self-diagnosis and health -related information, products and services. It has been stated at various fora that not all information on the internet have reliability as some are

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fake, neither are the profiles of the sources trusted due to changes in people's behaviours and the quest to make profit. Yet the operators of health prescribing sites and healthcare information channels are not relenting in sending the medical prescription and messages that prescribes solutions to health issues, neither do people relent in subscription, purchasing drugs directly without waiting for the advice of medical practitioners or hesitate to apply suggested solutions to health issues. This trend has been causing a global panic and health shocks as a number of risks occur to patient safety when applying online health messages on health issues, subscribing to online medical prescription, and purchasing medication online without the hospital prescriptions (Gawron & Turok, 2015).

Everyone has the right and liberty to subscribe to, adopt or purchase online information/ products/services of one's choice provided the intended customer has preference and the capacity, as the market is an open one, but health care-related ones are considered very important above other issues in any community or country. People must get the awareness and the expected benefits to enhance their adoption and patronage. This research is aimed at gathering information and discover the extent to which consumers in Nigeria, particularly Akwa Ibom State are using the internet to access medical prescription/ health information for solutions to health issues and to assess the factors that motivate their patronage of these health information/products and services purchase from the internet.

#### **Statement of the Problem**

Online medical prescription/therapy and health information most results in self-medication/ therapy which is an important public health problem, with varied prevalence across the world. The high prevalence of self-medication and therapy is one of the important factors contributing to the development of antimicrobial resistance. Self-medication without medical guidance can lead to inappropriate, incorrect or undue therapy, missed diagnosis, delays in appropriate treatment, pathogen resistance and increased morbidity. The growing trend of self-medication can be attributed to various factors like the urge for self-care, sympathy toward sick family members, inaccessible health services and non-availability of drugs, time and financial constraints, ignorance, disbeliefs, extensive advertisement and availability of drugs in places other than drug shops such as online sites, which can be legal or illegal.

Illegal online providers of medical prescriptions and information on solutions to health issues, assumed rising consumers' demand for convenience, lower cost, all day accessibility, the availability of different types of online platform to sell information, various types of prescribed medicines including fake ones, these and more may bring a lot of risks to people such as; risks of misusing the medicines as the healthcare providers are not physically involved in the purchase or the risks of providing fake medicine, fake medical and health information which are also widely available on the internet, and some of which may contain drugs abuse or new psychoactive substances (NPS), which poses serious health risks to the consumers and to the whole country. Several public awareness campaigns have warned people about the danger of adopting online medical

prescriptions/ health information and purchasing online prescribed medicines from the internet considering the level of safety of such purchased medicines. However, many people subscribe to the online medical and health information and also purchase medicines online without any input from a professional healthcare provider. The reasons behind this behaviour are not well understood and need further investigation. In the light of the above, this systematic study aims to explore the prevalence of people subscribing, purchasing and adopting prescribed medicines/health information from the internet and to provide an overarching understanding of the reasons that could drive people to make this adoption and purchase.

### **Objectives of the Study**

The objectives of this study were to:

1. Find out which online media channel residents of Akwa Ibom State became aware of online medical prescriptions.
2. Examine the residents' perception of online communication of medical prescription.
3. Ascertain the residents' frequency of adopting/patronising online medical prescriptions as a result of online communication.
4. Find out reason (s) for the residents' preference for adopting/patronising online medical prescriptions.

### **Theoretical Framework and Literature Review**

This work is anchored on the diffusion of innovation theory. The theory was first studied by a French Sociologist, Gabriel Tarade in the 1903 (Asemah & Nkwam-Uwaoma, 2017). Tarade plotted the original S-shape diffusion curve and this was followed by Ryan & Gross (1943) who introduced the adopter categories that were later used and developed into a theory by Rogers Everett (Odiegwu-Enwerem *et al* 2019). The origin of this theory in communication explains how an idea, product and service gather momentum and diffuse through a specific population and result in people adopting the new idea/services otherwise called innovation. Rogers defines innovation as “an idea” or practice that is perceived as new by individual (Rogers, 1995). This means Rogers' diffusion of innovations theory evaluates how, why and at what rate new ideas and technology are communicated and adopted. The theory further explains that one's tendency to adopt an innovation or new idea is influenced by five factors which are: relative advantage, complexity, compatibility, trial-ability and observability.

Relative advantage in this case means the degree to which the adopter perceives the innovation to be better than the existing method in terms of effectiveness and efficiency. Complexity refers to the degree of difficulty associated with the new idea (innovation) in terms of ability to understand or apply it. Compatibility is the degree to which an innovation is seen to be consistent with existing values, past experiences as well as needs of potential adopters. The trial-ability refers to the rate at which the new technology can be experimented before adoption; Observability refers to the ease and relative advantage which the technology can be seen, imagined or described to the potential adopter (Odiegwu-Onweren, 2019).

Rogers' diffusion of innovation theory is relevant to this work because it is seen as being appropriate for investigating the extent of preference and adoption of online communication of medical prescriptions (which is a new idea or innovation) is being diffused and adopted among Akwa Ibom State residents.

Online communication which has to do with internet technology is an aspect of communication that dwells on how people share information, connect, transact to send, retrieve or receive information of any kind carried via online communication technology (Bhasin, 2023). This means that all communication carried through the internet can be referred to as online communication. Online communication technology is one of the greatest game changers. According to Trang (2023), the concept of online communication means exchanging information and ideas through electronic communication technologies such as the internet and social media. This communication is carried out via the internet using digital media. By online communication, all information, ideas and meanings are in today's world including Nigeria. Before the advent of the internet/online system of communication, there exist other modes of communication such as verbal, non-verbal, and other media of communication, but the emergence of online communication has been seen as the greatest game changer in this direction and is fast gaining ground in many areas including the health sector. More information is being sent out online, ever than before. This informs the reason Bhasin (2023) writes that people have started doing everything online and these include online banking, ticketing, booking, purchasing, teaching, meetings and seminars, one-on-one and group discussion. These are all carried out and made possible through online communication. More companies and institutions are turning to digital tools to conduct their operations and services and reach new level of success (Trang, 2023). It is also worthy of note that every other possible activity can be done online once the source is able to communicate effectively using the internet.

Bhasin (223) notes that growth of online communication is fast and rapidly replacing other communication methods and many can perform activities online even with very little knowledge of basic technology. The importance of internet in every online communication cannot be overemphasised. It is the world's largest interconnected environment; hence the reason Ibia (2013) describes it as communication tool of the world that aids users to transcend borders and have access to anywhere. The evolution of online communication has brought about the reduction of paper-based communication, it is convenient, easy, accessible, and has no time limit and cause no harm to nature. It is also fast and can be communicated anywhere anytime in the world.

There are various forms of online communication, although online communication started with e-mail, there are proliferation of forms which can be used for online communication. They are; email which is arguably the first form of communication developed in an online method, SMS-Short Messaging service, Whatsapp, Instant messengers, Forums, Whiteboards, VoIP-voice over Internet Protocol. Many online communications are customised for their audience, and recommended for companies, organisations and institutions, including health, creating a turning point in health care delivery.

Technology has come to stay; it is everywhere and its use in the health sector is growing (Fitler *et al* 2018). The increased use of technology has also changed the way people consume health information and services. As technology continues to flourish, health care professionals leverage innovative communication online and strategise to become effective in the field for health benefit of the masses (Sawesi *et al* 2016). One of such health technology is the online medical prescription. An online medical prescription, also known as e-prescription or electronic prescription, is a digital version of a traditional verbal or paper health prescription provided by a healthcare provider to a patient. It is an online information on patients' diseases and prescribed information, prescribed medicines

and prescribed solution to health issues. This in other words means that online medical prescription is not all about drugs prescription online, but also involves online information or messages that prescribe solutions and treatments to health issues. It allows healthcare professionals to create and transmit prescriptions electronically, eliminating the need for handwritten/verbal health prescriptions and enabling a more efficient and secure process of medication and general health management (Hanna *et al* 2020). Online medical prescription plays important roles in the digital age. It provides immediate information to patients on solutions and management of health-related issues, enables remote consultation, monitoring and diagnosis; thus making healthcare much accessible. By leveraging on digital or online communication healthcare, providers are able to treat, inform and consult with patients wherever they are. Despite the enormous benefits of online medical prescription, it does not exist without some challenges which according to Nikolian *et al* (2018) includes differences in pharmacies and subscribers' system which sometimes result in wrong patient selection, mismatch in drug name/quantity and mismatch in patient/physician names. They further mention the impediments in adopting online medical prescription to include high shipping cost, insecurity and fraud concerning shipping time and unavailability of medications.

Ashames, Bhandare, Alabdin, Alhalabi & Jassem (2024) studied the public perception towards E-commerce of medicines and comparative pharmaceutical quality assessment study of two different products of furosemide tablets from community and illicit online pharmacies. The survey revealed that less than 10% of the participants have purchased their medicines from online sources and they were mostly non-prescription product (78%). Most common motive for online purchasing was lower cost compared to that in local market. The findings showed that few participants had considered purchasing pharmaceutical product from online sources as feasible way to save money and time.

### **Methodology**

The researchers adopted survey research design with questionnaire as the instrument. The survey research design aimed at collecting samples from the population through which inferences and generalisation can be made (Nwagbara, 2001). Survey as a research method focuses on a representative sample derived from the entire population of study. It works on the premise that a given population is too large for any researcher to realistically observe all the elements in the population.

The population of this study was derived from the number of people who were eighteen years and above living in the three senatorial districts of Akwa Ibom State. They were adults who could understand online or internet information and have the need to access it. The state has an adult population of 2,516,750 (NPC, 2017) hence the population for this study was 2,516,750. It was an uphill task for every member of the population to be part of the survey, consequently, a sample size of Philip Meyer's 384 being the magic number at 95% confidence level was drawn from the population (Odudari, 2000). For equal representation, the researchers adopted purposive, proportionate sampling technique to select respondents for the study. For equal representation and generalisation, the 384 sample was purposively divided into the three senatorial districts that are in Akwa Ibom state which are Akwa Ibom North-East (Uyo), Akwa Ibom North-West (Ikot Ekpene) and Akwa Ibom South (Eket) senatorial districts. Because of the variation in the population proportion of the three senatorial districts, proportionate sampling technique was adopted to determine the number of questionnaire

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that goes to each of the senatorial districts. Proportionate sampling involves strata with sizes that are based on the proportions in the population.

**Table 1: Proportionate Sample Size allocated to the Three Senatorial Districts**

Senatorial District	Total Population	Proportionate Selected per senatorial District	Sample Size
Eket	6801	$\frac{384}{18244} \times 6801$	143
Ikot Ekpene	3406	$\frac{384}{18244} \times 3406$	72
Uyo	8037	$\frac{384}{18244} \times 8037$	169
<b>Total</b>	<b>18244</b>		<b>169</b>

The procedure above was used to get the actual number of respondents selected per senatorial districts. Consequently, Akwa Ibom North-East senatorial district with the population of 8037 had 169 respondents; Akwa Ibom North-West had 72, while Akwa Ibom South senatorial district had 143 respondents. Again, purposive sampling was deployed to select Uyo, Ikot Ekpene and Eket from the three senatorial districts respectively for the distribution of questionnaire.

**Data Presentation and Analysis**

**Table 2: Online Media Channels where Residents became aware of Online Medical Prescription**

Online Media Channel	Response	%
Facebook	150	47
Twitter	30	9
Youtube	43	14
Whatsapp	75	23
Blogs	22	7
<b>Total</b>	<b>371</b>	<b>100</b>

The table shows that a higher percentage of Akwa Ibom residents use online medical prescriptions, with Facebook being the most popular platform for this purpose, indicating a strong preference for Facebook health services among the population.

**Table 3: Akwa Ibom Residents' Perception of Online Information/ Medical Prescription**

Perception	Response	%
Positive	248	77
Negative	54	16
Neutral	19	7
<b>Total</b>	<b>321</b>	<b>100</b>

Drawing from the analysis in table 3, it is evident that Akwa Ibom exhibits a strong affinity for online medical consultations and prescriptions, with a significantly higher percentage of residents embracing this digital health solution. This trend underscores a growing trust in the retrieval of online medical information and prescription, reflecting Akwa Ibom’s progressive stance in adopting digital healthcare solutions.

**Table 4: Frequency of Adopting/Patronising Online Medical Prescriptions/Information**

<b>Frequency</b>	<b>Response</b>	<b>%</b>
<b>Very Regular</b>	<b>13</b>	<b>44</b>
<b>Regular</b>	<b>129</b>	<b>40</b>
<b>Not Regular</b>	<b>110</b>	<b>34</b>
<b>Not at all</b>	<b>59</b>	<b>19</b>
<b>Total</b>	<b>321</b>	<b>100</b>

The data show a significant shift towards digital healthcare adoptions, with more people in Akwa Ibom regularly using online medical prescriptions and information. This trend implies a growing confidence in technology-enabled healthcare solutions.

**Table 5: Reasons for adopting/patronising of Online Information/ Medical Prescript**

<b>Reason</b>	<b>Response</b>	<b>%</b>
Low cost	88	44
Realiability	63	24
Quick service	111	42
<b>Total</b>	<b>321</b>	<b>100</b>

The data illustrate that Akwa Ibom’s high adoption of online medical prescription is driven by cost-effectiveness. A significant number of residents opt for digital healthcare solutions because it is more affordable. This implies that online medical prescriptions have reduced healthcare expenditures, making it more accessible and affordable for the population. As a result, Akwa Ibom is likely to see a significant reduction in healthcare costs, allocating resources more efficiently and improving overall health outcomes.

**Discussion of Findings**

The findings showed that majority of Akwa Ibom residents are aware of one form of online medical/health prescription or the other; even though their sources differ from individual to individual. The data revealed that though some residents got the information of online medical prescriptions and other health care from grapevine/ rumour, Youtube, Blogs, Twitter and sources which were insignificant, Facebook recorded the highest number of respondents and it is the most significant channel. This implies that it is more popular compared to other channels. This may not be unconnected to the fact that Facebook is easier to operate; it is easier to follow people on Facebook. This in tandem with Ezeh & Ono (2016); David (2010); Asadu & Ezeh (2014) who assert that no medium of communication seem to engage and create awareness the way Facebook does. The greater percentage of awareness by Akwa Ibom residents of online medical prescription is in tandem with Yamamoto, Kushin & Dilisay (2014) who observe that

there is a rise in the use of social media to get various kinds of information. This may not be unconnected with the fact that social media by implication, have created novel opportunities for user-centred experience and benefits.

Table 3 showed that a large number of the respondents expressed positive perceptions about the subject matter. This shows that online medical prescriptions was gaining more grounds in Akwa Ibom State. This informs the reason Abdulrauf, Hamid & Ishak (2016) posit that due to positive perception about online/ social media information and easy access, there is a growing number of people who engage in various activities online. This has led to a shift from medical prescription/ health treatment offline to online medical prescriptions. This indicates a fertile ground for online medical prescriptions and online health care. The implication is that not long, the movement or desire of persons to consult medical personnel face-to-face will be reduced.

The findings further showed that the respondents prefer regular online medical prescription and information on solutions to health related issues. The implication is that a large segment of persons in Akwa Ibom State prefer online medical prescription/information on solution to health issues and regularly visit online platforms for such information as well as make use of it. This is not unconnected with the large number of persons who are connected to the World Wide Web for information, ranging from social activities and health care delivery. This is the outcome of technology in communication where a lot of barriers are eliminated and allowing the message receiver and the source to get connected at speed. This is in tandem with the position of Fitler, Vida, Kaplar & Botz (2018) who confirm that people use the internet more and more likely to subscribe to online medication and health information that proffer solutions and answers to health issues, and also buy medications online.

It was also discovered that online medical prescription and online solutions to health issues has speedy service delivery than other forms. It shows the withdrawal of most people from patronising the open public hospitals in the near future. The data showed that high cost, distance and delay, put a greater number of people from hospitals. This findings agree with the work of Abubakar (2019) who note that hospitals are overcrowded and overwhelmed by a large number of patients, affecting the mandate of training current and future health professionals while causing patients to scramble to pay the huge medical bills, even as they have to stay for days, sit and sleep on un-cleared gutters, uncollected refuse and uncovered septic tanks to be able to consult a physician. This is not far from the idea of Ibia (2013) who opines that the evolution of online communication has made life and services quick, convenient, easy and accessible. The implication is that people will prefer online medical services to going to the conventional hospitals for treatment.

### **Conclusion and Recommendations**

The researchers conclude that online communication which began on the platform of social service concerning entertainment and relaxation has gradually covered grounds even in the health care sector. Such information derivation does not require the archaic face-to-face system of consulting a medical personnel. The process is simple, direct and



convenient. Arising from the findings, it is here recommended that information regarding online medication and other health-related be allowed to have further enlightenment among individuals to decongest the open hospitals and eliminate time waste. Also, health facilities (hospitals) redefine modalities of reaching out to patients and improve on their services to avoid loss of patronage as online service gathers momentum. More so, online medical prescription information and other information on solutions to health-related issues should be given greater attention on various online channels of communication for more awareness considering its level of adoption and benefits to people.

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