PATIENTS' READINESS IN MOBILE TECHNOLOGY PRACTICE: A CASE STUDY OF HIV/AIDS PATIENTS AT UNIVERSITY OF MAIDUGURI TEACHING HOSPITAL (UMTH), NIGERIA

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ABSTRACT

The impacts of mobile technology in almost every facets of life cannot be over-emphasized especially in health information system delivery. Many studies have shown that mobile phone usage have affected the way people access and use information. This research paper aims at exploring the patients' readiness in implementing mobile phone technology for information management of HIV/AIDs. The use of mobile phone in management of HIV/AIDs in Nigeria and in particular in University of Maiduguri Teaching Hospital (UMTH) has not explored the patients' readiness for mobile phone in management of HIV/AIDs. This gap in the research, combined with the fears that using mobile phone could be costly and exploitive have made many patients not to make maximum access to mobile health information system. The study uses a survey method involving simple random sampling of 25 respondents from selected HIV/AIDs patients from the University of Maiduguri Teaching Hospital (UMTH). The study shows that majority of the patients agreed that mobile phone could enhance the management of HIV/AIDS through timely and adequate information. Despite the challenges of electrical power supply, size of the devices and confidentiality, it was recommended that mobile phone information system should be implemented in all public clinics across the state and the Nation at large for counselling, timely and current access to information in management of HIV/AIDs.

Keyword: Mobile technology, HIV/AIDS, Patients' readiness, Mobile Phone, Health information system

INTRODUCTION

The advancement in computing technology and especially mobile technologies are growing in developing world. The rapid growth, availability and falling costs of devices have brought about mobile technologies closer to the common user especially in the developing world.

HIV/AIDS pandemic has evoked a wide range of reactions from individual, communities and nations, from sympathy and caring to silence, denial, fear, anger and violence. It has challenged several aspects of contemporary social life and conventional approaches to healthcare. The social and medical responses to disease have probably not challenged so intensely for a long

term. One social response to HIV/AIDS and their stigma that has received much attention is the counselling of people affected by the disease which goes beyond curing (Mbursa & Pur, 2012).

A programme for HIV epidemic care and treatment utilised wireless cellular networks and easily accessible using personal digital assistant(PDA) to collect biomedical and demographic data from some of the most remote primary healthcare facilities in Nigeria. According to the International Telecommunications Union, the number of mobile-broadband subscriptions has reached 2.3 billion worldwide in 2014, with 55% of subscriptions based in developing countries. Africa leads in mobile-broadband growth (ITU, 2014). Healthcare workers then used a wireless link between the personal digital assistant (PDA) and a mobile phone to transfer the data to a central medical database. This sort of information is critical for the implementation of healthcare prevention and treatment programmes for the future (Abayomi et al. 2006). The Global Observatory for e-Health defines mobile health (m-Health) as medical and public health practice supported by mobile devices, such as mobile phones, patient monitoring devices, personal digital assistants, and other wireless devices (WHO, 2014).

Mobile phones are becoming increasingly important in everyday life and now in healthcare. There has been a steady growth of information and communication technologies in health communication and technology is used progressively in telemedicine, wireless monitoring of health outcomes in disease and in the delivery of health interventions. Mobile phones are becoming an important method of encouraging better nurse-patient communication and will undoubtedly increase in application over coming years (Blake Holly, 2009).

Short message service (SMS) for Life was successful as observe in 21 week pilot project undertaken in 129 health facilities in rural Tanzania during 2009-2010. The project utilised mobile phones, Short message service (SMS) messaging and electronic mapping technology. The aim was to facilitate the provision of adequate stock of 4 anti-malarial medicines. The proportion of health facilities with no stock of one or more anti-malarial medicines reduced from 78% in week 1 to 26% at week 21 (Barrington et al., 2010).

In Botswana, mobile phone creates unique system for delivering HIV/AIDS prevention and treatment information to the people which need it most. Wireless phones have grown rapidly into the main frame of telecommunication in Botswana. It is believed that text-message capabilities on mobile phones deliver medical information can greatly increase HIV/AIDs awareness and prevention, especially in the underprivileged region where computer literacy is still very low. Mobile phones also represent the most promising solution for allowing more people to access the benefits of the digital age (Nyongesa Henry, 2007).

A text to change pilot programme was set up on HIV/AIDS awareness in rural areas of Uganda. 15,000 mobile subscribers were sent a

quiz related to HIV/AIDS to increase awareness. After 3 months, there was 40% increase in patients presenting for AIDS testing (Cummings Nicky, 2011).

Cell-Life, a non-profit organisation based in Cape Town, South Africa, began as a community home-based care system, known as 'Aftercare', specifically for the direct management of HIV patients and has since evolved to cover broader aspects of HIV management. The project started as a joint venture between the University of Cape Town and the Cape Peninsula Institute of Technology. Success of this project was illustrated by the appropriate use of technology designed to address the end-users needs. Its simplicity, participatory approach and real-time feedback via text message all contributed to the positive outcomes. Familiarity with mobile phones was an important factor for rapid adoption. While the workload for community-based health workers (CBHWs) was increased, their competency was viewed as enhanced by their patients who cited an improvement in the quality of care received (Benjamin, 2009).

There have been intensive efforts by Nigeria Government effort towards digital health information system especially in Government Health centres. The penetration and growth rates of mobile technology in Nigeria landscape has shown that mobile technology will be used in every endeavour and health care delivery is not an exception.

Mobile-health applications now utilised in Africa include transmission of test results to patients via short message services(SMS) messaging, community nurse contact with clinical expert advice, transfer of public health messages over mobile phones, stock control and utilisation of medicines, rapid collection and sharing of data via mobile phone, and support for patients and carers via mobile phone. Mobile health is not without its limitations in Africa. The combination of illiteracy and indigenous languages makes text messaging a challenge. Network reliability is an issue. Phones require regular charging to maintain battery power. The concept of sharing phones amongst villagers leads to privacy and confidentiality issues. In spite of these limitations there are now an increasing number of projects demonstrating success of mobile health applications in Africa (Cummings Nicky, 2011, Bigna et al, 2014).

The United Nations Joint Program on HIV/AIDS (UNAIDS) encourages the use of m-Health in addressing human immunodeficiency virus (HIV) related illnesses and treatments in resource-limited settings (UNAIDS, 2013, ITU, 2014). This research work intends to determine patient's readiness in mobile health technology where mobile phone can be used to relate basic information about counselling, drugs, new development and other vital information regarding the management of HIV/AIDS in University of Maiduguri Teaching Hospital (UMTH), Nigeria.

MATERIALS AND METHODS

The research design used in this study is the descriptive survey

method; it involves the use of a representative random sample from the population. The population used is the entire patients attending clinic of HIV/AIDS clinic of UMTH between January-February, 2014. A sample size of 25 patients was selected using the convenience sampling procedure. The method used to collect data for this study is structured questionnaire. A total of 25 copies of the questionnaire were administered and out of which 20 copies were retrieved representing a response rate of 80%. The responses from the respondents were collated and analysed using the simple frequency and percentage. Interviews were also held with the counsellors, and other valuable information obtained from secondary data such as published journals, books and blogs in order to enhance the validity of the research.

RESULTS AND DISCUSION

Table1 shows the demographic characteristics of the respondents. 15% of the respondents were between 18-20 years of age and 0.0% of the respondents were within 21-30 of age. The demographic of the respondents shows that 35% were within the age 31-40 and 40% were within 41-50 of age and only 10% were 51 years and above. The data also revealed that 50% were males, while 50% females and out of those 45% were married, 20% were single, 10% were divorced, 10% were widow and 15% were separated. The result further revealed that (30%) of the respondent were degree holders, 15% have none formal education, 0.0% were primary school leavers, 25% were secondary school and NCE/Diploma holders and only 1% were postgraduate holder. In case of respondent income, 35% of the respondents earned between N18, 000 and N30, 000, 25% respondents earned between N31,000 and N50,000, 30% earned between N51,000 and N80,000 and 10% above N81, 000 per month respectively.

Table 2 shows the distributive characteristics of use of Mobile phone by respondents. 40% of the respondents have one mobile line, 30% of the respondents have two or three mobile lines respectively, and 0.0% has four mobile lines. The result shows that 0.0% of the respondents have been using mobile phone for one month and six months respectively and 50% of the respondents have been using mobile phone for one year and 50% cannot remember the period of usage. For the regularity of recharging mobile phone, 25% each of the respondents recharge weekly, twice a week, monthly and as need arises respectively. For the mobile phone usage, 35% of the respondents use mobile phone for making calls only, 20% for receiving calls only, 30% for calling and receiving calls, 10% for music and video, 5% for text messages only and 0.0% for internet.

Table 1: Demography variable of the respondents HIV/AIDS Patients

Characteristics respondents	**Number**	**(%)**
Age		
18-20	3(15)	
21-30	0(00)	
31-40	7(35)	
41-50	8(40)	
≥51	2(10)	
Gender		
Male	10(50)	
Female	10(50)	
Marital Status		
Single	4(20)	
Married	9(45)	
Divorced	2(10)	
Widow	2(10)	
Separated	3(15)	
Educational Level		
None formal education	3(15)	
Primary school	0(00)	
Secondary	5(25)	
NCE/Diploma	5(25)	
Degree	6(30)	
Postgraduate	1(5)	
Monthly income (₦)		
18,000-30,000	7(35)	
31,000-50,000	5(25)	
51,000-80,000	6(30)	
≥81,000	2(10)	

Table 2: Mobile phone usage by the HIV/AIDS Patients

Characteristics	Number (%) respondents
No. of mobile lines owned	
One	8(40)
Two	6(30
Three	6(30)
Four	0(00)
Period owned mobile phone	
One month ago	0(00)
Six months	0(00)
One year	10(50)
Can't remember	10(50)
Regularity of Recharge	
Weekly	5(25)
Twice a week	5(25)
Monthly	5(25)
As need arises	5(25)
Use of Mobile Phone	
Calling only	7(35)
Receiving calls only	4(20)
Both calling & Receiving calls	6(30)
Music & Video	2(10)
Text message only	1(5)
Internet browsing	0(00)

Table 3 shows the distributive characteristics of mobile phone in management of HIV/AIDs, 65% of the respondents agreed that keeping contact with counsellors on phone will encourage relationships which is good in difficult times, while 10% and 25% of the respondents disagreed that it will not encourage relationships and undecided respectively, 20% do not like it, 45% said there is no problem and 35% said they trust their counsellors. The result further revealed 90% agreed that sending text messages to remind to take drugs/counselling period will enhance the management of HIV/AIDs and 5% each disagreed and undecided respectively. With regards to advantages/disadvantages of using mobile phone in receiving counselling, 30% said its exposes they were kept secrets, 45% said it saves times, 15% said it is costly and only 10% said it's impersonal, 30% of the respondents said they cannot discuss family issues on mobile phone, 25% for management of Sero status, 35% I don't have any secrets and only 10% for undecided.

Table 3: Mobile Phone in HIV/AIDS Management

Characteristics	Number (%) respondents
Keeping contact on Mobile phone with Patient/Counsellor will encourage relationship	
YES	13(65)
NO	2(10)
Undecided	5(25)
Opinion about counselling on Mobile phone for health problem	
I don't like	4(20)
There is no problem with it	9(45)
I trust my counsellor/patient	7(35)
Sending text message to remind patient to take drugs or counselling	
YES	18(90)
NO	1(5)
Undecided	1(5)
Advantages/Disadvantages of Mobile phone in receiving counselling	
It exposes our secrets	6(30)
It saves times	9(45)
It is costly	3(15)
It makes it impersonal	2(10)
Secret that can't be discuss on Mobile phone by my patient	
Family issues	6(30)
Management of Sero status	5(25)
I don't have any secrets	7(35)
Undecided	2(10)

The result show that majority of the respondents agreed that mobile phone can enhance the management of HIV/AIDs. This finding coincided with the findings of Barrington *et al*. (2010) and Benjamin (2009) that mobile phone message texting improve adherence to drugs which will enhances the quality of care they receive.

CONCLUSION

The use of mobile phone technology is on increase in almost

all facets of life and especially in health information services. The study shows that majority of the respondents were within 31-40 of age and are married, having degree as the highest qualification. Most of the respondents used mobile phone for making calls and the majority agreed that keeping contacts with patients/counsellors on mobile phone will encourage mutual relationship which is helpful during difficult times.

The study further revealed text messages reminds patient to take drugs and counselling will enhance the management of the HIV/AIDs and it saves times for giving/receiving counselling. The study identified mobile phone as a prime factor in management of HIV/AIDS. Despite the challenges of power supply and confidentiality, it was recommended that mobile phone should be implemented in all public clinics across the state and the nation

This research forms a bedrock on which other studies such as readiness of UMTH in implementing mobile heath information system, availability of other mobile devices, facilities for mobile health information system, cultural and ethical impacts, factors that could influence adoption, and mobile health application prototype can be developed to understand the overall impact of mobile health technology in health information system delivery.

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