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Perception of Patients on Usage of Smartphones by Health Care Professionals during Clinic Hours

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ABSTRACT

Background of the study: Smartphones medically related applications are quickly becoming one of the main tools for accessing clinical information among health care professionals.

Aim of Study: This study assessed the perception of patients on usage of smartphones by health care professionals during clinic hours.

Methodology: The study recruited 185 patients. Data on demographic characteristics and perception of patients on the use of smartphones for medical information were obtained using a self-administered questionnaire. Data were summarized using a descriptive statistics and inferential statistics of Chi square. Alpha level was set at 0.005

Results: 76 Males, 109 Females participated in this study. 67.6% (125) own a smartphones. 34.6% (64) have seen health care professionals using smartphones during clinic hours, 28.1% (18) had their health care providers explain to them reasons for using smartphone. 34.1% (63) agreed it was unprofessional for health care provider to use smartphone during clinic, 33.5% (62) disagreed, 32.4% (60) were undecided. No association observed between respondents' age ($\chi 2$= 12.00, p= 0.606), educational qualification ($\chi 2$= 8.501, p= 0.075) and responses to the statement that use of smartphones by health care professional was unprofessional.

Conclusion: Although one third of the respondents agreed that usage of smartphones by healthcare professionals in the clinic while attending to patients was unprofessional however, usage of smartphone for health related information by health care professionals during clinic hours should be with caution to avoid losing the confidence repose in them by their patients.

KEYWORDS: Smartphones, Application, Health Care Information, Patients

INTRODUCTION

Smartphones are the most popular and portable hand-held mobile communication devices in recent times that has replace the former feature phones. The global success recorded in smartphones industries was triggered by the implementation of built-in applications (apps), self-contained software pieces created for specific aims.[1]

The usage of smartphones among the general population has since grown exponentially, fueling an explosive proliferation of mobile health interventions application (apps).[2] These smartphones applications are increasingly deployed in clinical settings to augment patient education, communication, monitoring, and chronic disease management.[3] There are currently thousands of commercial smartphone medical apps designed to support health management in facilitating point-of-care decisions such as drug dosing by presenting relevant information in an aggregated and easily graspable format.[4,5] These apps assist in providing evidence-based, patient-centered care while decreasing error rates and face increasing popularity among healthcare professionals worldwide.[5-8]

Studies have showed that greater proportions of health care professionals report using some form of portable hand-held, network-enabled electronic device such as smartphones in the workplace, contributing to the rapid growth in medical apps, which appears to be the third fastest–growing app category on the market.[10] The usage of smartphones' medical apps in health care settings is therefore not a passing trend but rather a practice that is now highly integrated into the work culture, which is likely to expand and grow in the future.[11]

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Smartphones' medical apps are generally considered to be of value to patients and health care providers in the form of speed of information transmission, clinical decision making, and accessibility.[10,12] Although several studies have explored patient attitudes toward health technology and their impact on the patient-provider relationship. The results from these studies indicated that most patients did not express a negative attitude toward their health care providers' use of such technology.[13-15]

In Nigeria, more than sixty percent of adults' population own a smartphone and are at various time search for information on health, therefore, they are likely to know of the potentials of the use of smartphone in medical education. They are, however, unlikely to be aware of the availability of applications specific to educating and assisting medical professionals in case evaluation and diagnosis. Therefore, patients may perceive the use of a smartphone by the doctor as distraction thereby decreasing the level of trust in the relationship and harming the development of a good rapport.

Many patients are of older age and it is known that the prevalence of smartphone ownership is considerably lower among this age group. These patients are, therefore, those most at risk of misperceiving the use of smartphones by doctors and experiencing damage to the doctor–patient relationship.[16]

Previous researchers in other part of the world have investigated the use of smartphones among medical students and doctor populations to enhance educational and improve patients care. Patient attitudes toward health technology and their impact on the patient-provider relationship has also been investigated, however, the perception of patients on the use of smartphones by health care professionals for health care information particularly during clinic hours seems not to have been investigated in this environment. This study was therefore designed to investigate patients' perception of the use of smartphones by health care professionals during clinic hours in a Nigeria tertiary health facility.

METHODOLOGY

The cross-sectional study recruited 185 patients from various outpatient clinics of two purposely selected Federal Hospitals in Ondo and Ekiti State in South-western Nigeria. The study protocol was approved by the Health Research Ethics Committee of Federal Medical Centre, Owo (FMC/OW/380/LXX1/174). Patients inform consent was sought and obtained before the recruitment of participants. The survey instrument for the study was a self-administered questionnaire that sought information on demographic characteristics of patients and perception on the use of smartphones by health care professional during clinic hours. Data analysis was done using Statistical Package for Social Science (SPSS) version 20.0 software. Data were summarized using a descriptive statistics of percentage and frequency distribution. Inferential statistics of Chi square was used to test for association between variables. Alpha level was set at 0.005.

RESULTS

A total of 185 patients participated in this study. 76 (41.1%) were males while 109 (58.9%) were females. 125 (67.6%) of the participants were married, 42(22.7%) single, 15 (8.1%) widow while 3 (1.6%) were widower. Ages 26–35 are the participants ages with the highest frequency (26.5%), followed by 36-45 age group (16.8%), ages 16-25 (15.1%), 46 - 55 and 66-75 (13.5%), while ages 86-95 (1.1%) was the least. Majority of the participants (61.6%) had tertiary education, 22.7% had secondary education while only 15.7% had primary education. Participants from the medical outpatient clinic were in the majority (27.0%), followed by physiotherapy outpatient (22.7%), ophthalmology outpatient (16.8%), Surgical outpatient (14.1%) orthopaedic outpatient (13.5%) while obstetrics/gynaecology was the least (5.9%). The demographic characteristics is presented in figure 1.

Table 2 showed the perception of respondents on the use of smartphones for medical related information by health care workers. The result showed that, 67.6% (125) of the respondents own a smartphones while 32.4% (60) did not. 67 (32.6%) of the respondents had search for health related information using smartphones while 121 (65.4%) had never done so. Only 34.6% (64) have seen health care professionals using smartphones while attending to them in the clinic however, 28.1% (18) submitted that, their health care providers explained to them reasons for using smartphone while attending to patients in the clinic.

The result revealed that majority of the respondents (78.9%) agreed that smartphones can be helpful in patients' care, 66.2% accepted that various smartphones apps are available and useful in patients' care. The results showed that, 34.1% (63) of the respondents agreed that it was unprofessional for health care provider to use smartphone during clinic while 33.5% (62) disagreed however, 32.4% (60) were undecided. Furthermore, 21.1% (39) agreed that "usage of smartphones during clinic is an indication that the user does not know what to do", 27.6% (51) were undecided while 51.4% (95) disagreed. Findings from this study showed that 23.2% (43) of the respondents felt they could not entrust their health care to a provider who uses smartphone while attending to patients due to lack of confidence while 56.2% (104) disagreed, 20.5% (38) were however undecided.

Table 3 showed the level of association between respondents' age, educational qualification and responses to "usage of smartphones by health care professional was unprofessional. The result showed that, there was no association between respondents' age ($\chi2$= 12.00, p= 0.606), educational qualification ($\chi2$= 8.501, p= 0.075) and responses to the statement that use

of smartphones by health care professional was unprofessional. The bar charts showing the distribution of responses to usage of smartphone during clinic according to the age group and educational qualification is presented in Figure 1 and 2 respectively.

DISCUSSIONS

This study was conducted to investigate the perceptions of patients on the use of smartphones for medical information among health care providers. The study found that majority of the patients own a smartphones, this could be attributed to the fact that smartphones are the most common mobile phones available in the market nowadays, the possibility of performing many functions such as keeping records of clinic attendance, availability of various downloadable medical apps for health information. This result is however in line with findings from previous studies where majority of patients were found to have smartphones.[16,17]

The result of the present study revealed that majority of the patients has used their smartphones to search for health related information at one point in time. This findings is an indication that, the patients are aware of possibilities of getting health information about their health status furthermore, majority (61.6%) of the patients are educated at the tertiary level which probably had exposed them to the use of smartphones for information through the internet. This findings however is similar to the findings of Alvin Chan et al.,[18] they found that most patients had consistently used smartphone health apps to manage disease, reach a desired fitness goal, or improve health behaviors and considered health apps to be essential, medically necessary tools for tracking health conditions.

One third of the patients that participated in this study opined to have seen their health care providers searching for information on smartphones while attending to them in the clinic. This concur with findings of Alameddine et al.,[19] where close to three quarters of the respondents opined that physicians use their mobile devices in health care settings to access medical information and send or receive medical documents. Findings from this study also showed that, greater proportion of the patients agreed that smartphones could be helpful in patients' care as they are aware of the availability of various smartphone medical related apps. This showed that patients in the present study had clear views on the use of mobile devices, with the majority (78.9%) stating that smartphones can greatly help in patients' care. This result supported the findings of previous researchers that, the use of technology in health care is considered to enhance communication and quality of health care.[15,20,21] Hossain et al,[15] reported that majority of patients were aware that smartphones could be used for general health/fitness tracking, obtaining health information, and appointment management similarly, Alameddine et al.,[19] concluded that majority of patients (92.6%) recognize the important role of mobile devices in health care delivery and patient care.

The result of this study revealed that two third believed that usage of smartphone did not constitute unprofessionalism. This result corroborated the findings of Alameddine et al.,[19] that about two thirds of respondents reported that the use of mobile devices does not demonstrate a lack of professionalism or a breach of confidential patient information. The present study also showed that, the remaining one third of the patients are of the opinion that it was unprofessional of any health care professionals to be using smartphones for whatever reasons while attending to patients in the clinic. This findings suggest that the health care providers were visible to patients while using their smartphones. The reason for this opinion by the patients may be attributed to lack of information from the care givers at that instance similarly, patients that have waited for long hours before being attended to are likely to be upset by a provider who was using smartphone to get information rather than attending to the patient. The use of mobile devices by healthcare providers during such clinical encounters would be perceived by many patients to reflect a lack of professionalism.

Furthermore, one fifth of the patients in the present study , are of the opinion that use of smartphone by health care professionals in front of patients in the clinic is an indication that such professionals is ignorant of what to do and as such care of patients should not be entrusted into their hands. This showed that patients' confidence can be lost in patients-providers relationship. A similar observation was made by Brandt et al,[22] that improper use of smartphones by healthcare providers during duty could raise professional concerns such as poor professional image due to using the phone in the presence of a patient and therefore precautions such as "not using the apps in the presence of the patients" should be adhered to while in the clinic.

The result also revealed that, there was no association between the age of patients, educational qualification and their perception on usage of smartphones for health care information among health care professionals. This showed that, age and educational status of patients in this study did not influenced their perception on the use of smartphones for medical information by health care professionals during clinic hours.

CONCLUSIONS

Patients in this study demonstrated high level of awareness on the usage of smartphones for personal medical information and its usage by health care professional for health care information in the management of patients for better result. Although,

majority of the patients in this study did not perceive the use of smartphone for medical information during clinical hour by health care professionals unprofessional however, the usage of smartphones by health care professionals in front of patients during clinic hours should be done with caution and patients' education on the usefulness of such practise in order to gain the confidence and preserve good rapport of the few patients in the population that perceived such practise unprofessional.

Table 1: Demographic characteristics of respondents

VARIABLES (N-185)	n	%
Age group (Years)		
16-25	28	15.1
26-35	49	26.5
36-45	31	16.8
46-55	25	13.5
56-65	19	10.3
66-75	25	13.5
76-85	6	3.2
86-95	2	1.1
Sex		
Male	76	41.1
Female	109	58.9
Marital status		
Single	42	22.7
Married	125	67.6
Divorced	0	0.0
Widow	15	8.1
widower	3	1.6
Educational Qualification		
No Formal Education	0	0.0
Primary	29	15.7
Secondary	42	22.7
Tertiary	114	61.6
Location		
Federal Teaching Hospital, Ido- Ekiti	64	34.6
Federal Medical Centre, Owo	121	65.4
Clinic		
Medical Outpatient	50	27.0
Surgical Outpatient	26	14.1
Orthopeadic Outpatient	25	13.5
Physiotherapy Outpatient	42	22.7
Opthalmology Outpatient	31	16.8
Obstetric /Gyneacology Outpatient	11	5.9

Table 2: Perception of respondents on the use of smartphones for medical related information

Variables	Yes		No	
	n	(%)	n	(%)
I do own a smartphone	125	(67.6)	60	(32.4)
Have search for health related information on smartphones	67	(32.6)	118	(63.8)
Have seen health care provider browsing for information while attending to me in the clinic	64	(34.6)	121	(65.4)
My health care provider explain to me why he was browsing for information (N=64)	18	(28.1)	46	(71.9)

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Smartphones can be helpful in Patient's care	146 (78.9)	29 (15.7)	10 (5.4)
There are various smartphone - Apps that can be used in patient care	104 (56.2)	63 (34.1)	18 (9.7)
Use of smartphone by health care providers while attending to patients in the clinic is unprofessional	63 (34.1)	60 (32.4)	62 (33.5)
Use of smartphone by health care providers while attending to patients in the clinic is an indication that he/she does not know what to do.	39 (21.1)	51 (27.6)	95 (51.4)
I will not entrust my care to a health care providers with such practises	43 (23.2)	38 (20.5)	104 (56.2)
I do not have confidence in such health care providers	43 (23.2)	33 (17.8)	109 (58.9)
If he/she explain to me the reason for using his/her smartphone, I will still not have confidence in him/her.	63 (34.1)	36 (19.5)	86 (46.5)

Table 3: Association between respondents' age, educational qualification and responses to use of smartphones

Variables	**Usage of smartphone during clinic is unprofessional**			**χ2**	**p value**
Age Group	Agree	Undecided	Disagree		
16-25 years	7 (25.0)	9 (32.1)	12 (42.9)		
26-35	14 (28.6)	15 (30.6)	20 (40.8)		
36-45	12 (38,7)	10 (32.3)	9 (29.0)		
46-55	11 (44.0)	7 (28.0)	7 (28.0)	12.00	0.606
56-65	10 (52.6)	4 (21.1)	5 (26.3)		
66-75	7 (28-0)	12 (48.0)	8 (24.0)		
76-85	1 (10.7)	3 (50.0)	2 (33.3)		
86-95	1 (50.0)	0 (0.0)	1 (50.0)		
Educational qualification					
Primary	7 (24.1)	15 (51.7)	7 (24.1)		
Secondary	11 (28.2)	13 (31.0)	18(42.9)	8.501	0.075
Tertiary	45 (39.5)	32 (28.1)	37 (32.5)		

Figure 1. A bar chart showing the distribution of responses by age group to "Use of smartphone by health care providers while attending to patients in the clinic is unprofessional"

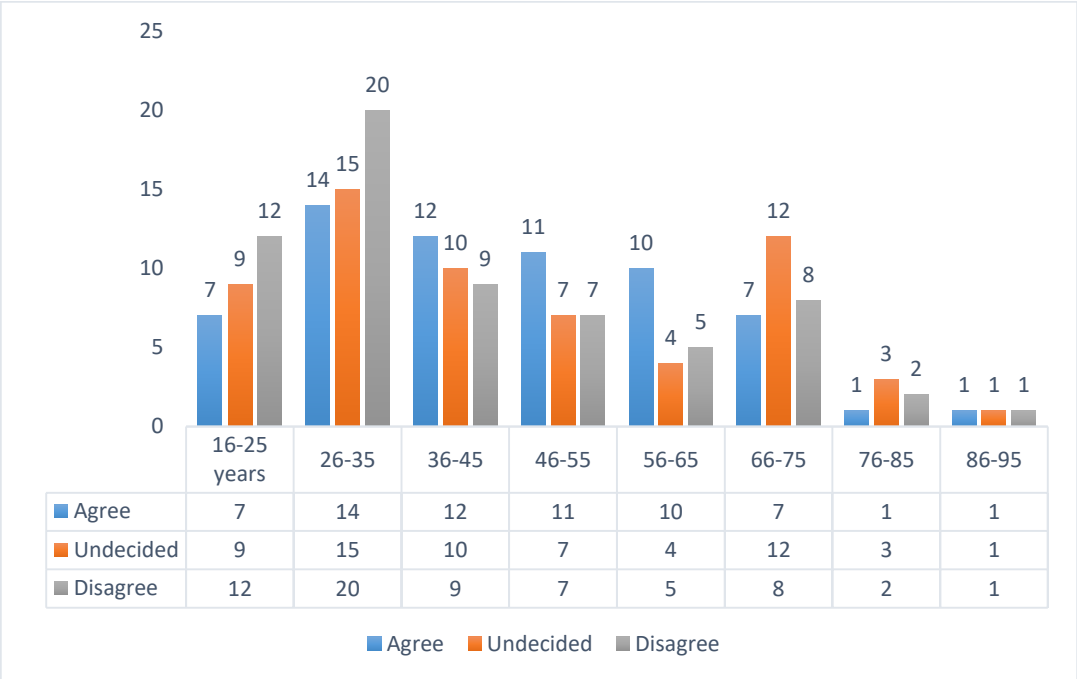
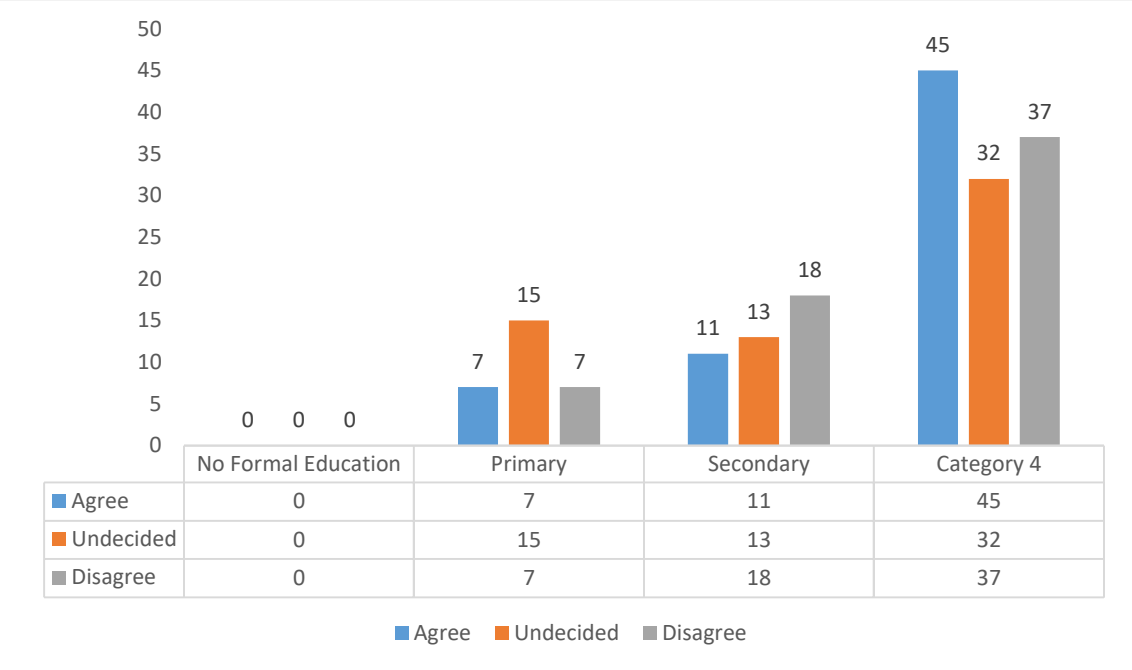


Figure 2. A bar chart showing the distribution of responses by educational qualification to "Use of smartphone by health care providers while attending to patients in the clinic is unprofessional"



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