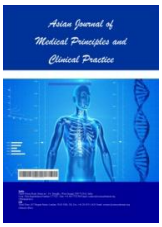

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Smart Phone Ownership and Usage amongst House Officers at the Federal Medical Centre Owerri, Nigeria

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Background: Smart phones are becoming increasingly available and are now steadily becoming an essential tool for accessing clinical information, especially for younger health professionals and trainees. In Nigeria, House officers are first level medical practitioners who have just left medical school, and are beginning their professional life under supervision in designated health facilities prior to full registration by the Medical and Dental Council of Nigeria.
Aim: This study sought to document the ownership and use to which smart phones were put by this group of young health professionals.
Methodology: This was a descriptive cross sectional study carried out between September and October 2018. The study instrument was a structured questionnaire which was administered to the study participants during the weekly departmental clinical meetings which is compulsory for all house officers. Descriptive analysis was done for continuous variables .Charts were used to analyze some discrete and continuous variables. Spearmann correlation coefficient was used to test the strength and direction of association among groups. Statistical significance was set at p-value <0.05.

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Result: Sixty eight doctors participated in the study. Their ages ranged from 23 to 36 years with a mean of 28.2years. All had smart phones and 59(86.8%) had Smart phone applications installed in their phones. WhatsApp was the most frequently used social media app but closely followed by Facebook and email apps. Twitter was the least utilized app. The commonest use to which smart phones were put was to check up drug doses and the least common use was to watch live matches and movies.
There was a significant positive correlation between average data use/month and number of WhatsApp group, number of Facebook group and time spent on phone. Number of WhatsApp group had a higher significant influence on monthly data use (rho 0.359, p value 0.001) than number of Facebook groups (rho 0.331, p value 0.016).
Conclusion: This study shows a very high ownership of smart phones which in addition to being used to access the social media is also used to access medical information required for learning and care of patients. It would be ideal though as a follow-up to document medical apps that have been found most useful by this group of young health professionals.

Keywords: Smart phone; house officers; mobile apps; owerri; Nigeria.

1. INTRODUCTION

The Global System for Mobile communications GSM) was introduced in Nigeria in 2001 and. since then phones have evolved from the basic to smart phones. A smart phone is a mobile phone that performs many of the functions of a computer, typically having a touch screen interface, internet access and an operating system capable of running downloaded apps [1].

Mobile phone penetration in Nigeria is on the upward swing, as the number of subscribers grew astronomically in 2017 resulting in 84 per cent penetration from 53 per cent in 2016 for both features and smart phones [2]. This growth has been fuelled by the availability of cheaper smart phones, which paved way for more Nigerians to own a device.

The increasing ownership and use of Smart phones around the world has influenced the way medicine is taught and practiced [3-4]. Studies show that more than 92% of healthcare professionals, including medical students, residents, and supervising physicians, utilize smart phones or tablets in patient care-related activities [5].

The simplest example of how smart phones are used is surfing the internet to retrieve medical information. Other uses include reading textbooks, browsing surgical techniques and referencing drugs [6-8]. They are also becoming an essential tool for accessing clinical information, especially for younger health professionals and trainees given the huge amount of medical resources available for download through app stores on Android and Apple devices [4-6].

In Nigeria , House officers are first level medical practitioners who have just left medical school and are beginning their professional life. They are required to spend one year in an approved secondary or tertiary level health facility under supervision before they are granted the certificate of full registration to practice medicine in Nigeria.

In spite of the documented influence of smart phones on learning and medical ,there is a dearth of information on the ownership, usage and influence of smart phones on young health professionals in Owerri, Nigeria. This study set to address this.

2. METHODOLOGY

This was a descriptive cross sectional study carried out between September and October 2018. The study population was first level doctors on 12 months compulsory internship in the four major departments of Paediatrics, Internal Medicine, Surgery and Obstetrics &Gynecology at the Federal Medical Centre , Owerri.

The institution is a tertiary health facility located in Imo State South Eastern Nigeria that offers health care services and also serves as a centre for research and training of doctors for internship and residency programme in multiple specialties.

A structured questionnaire was administered to the study participants during the weekly compulsory departmental clinical meetings.

The aim of the study was explained to each participant and consent obtained before the questionnaire was administered.

A total of 68 doctors completed and returned the questionnaire.

2.1 Data Analysis

The data was collated and entered into Statistical Package for Social Science (SPSS version 20). Descriptive analysis was done for continuous variables. Charts were used to analyze some discrete and continuous variables. Spearmann correlation coefficient was used to test the strength and direction of association among groups. Statistical significance was set at p-value <0.05.

3. RESULTS

Sixty eight doctors participated in the study. Their ages ranged from 23 to 36 years with a mean of 28.2years. Forty (58%) were males. All had smart phones and 59 (86.8%) had Smart phone applications installed in their phones. On the average they spent 6 hours per day on the phone and used about 3 megabytes of data per month.

Table 1. Descriptive Analysis of Participants

Variables	Min	Max	Mean	Std. Dev
Age in years	23	36	28.2	2.59
Time Spent on Phone (hrs/Day)	1	20.0	5.58	3.79
Monthly Cost of Data in Naira	500	10000	2413.2	1784.8
Average megabyte/month	0.5	20.0	3.43	2.89

Table 2. General Characteristic of study participants

Variables	Frequency	Percent
Gender		
Male	40	58.8
Female	28	41.2
Smart Phone Ownership		
Yes	68	100
No	0	
Installed social media Apps		
Yes	59	86.8
No	9	13.2
Age Group		
20 – 24	3	4.4
25 – 29	46	67.6
30 – 34	16	23.5
35 – 39	3	4.4

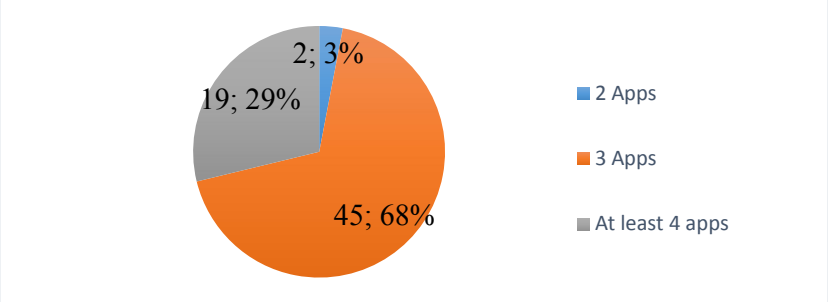

Fig. 1. Number of Social media Apps installed by Participants

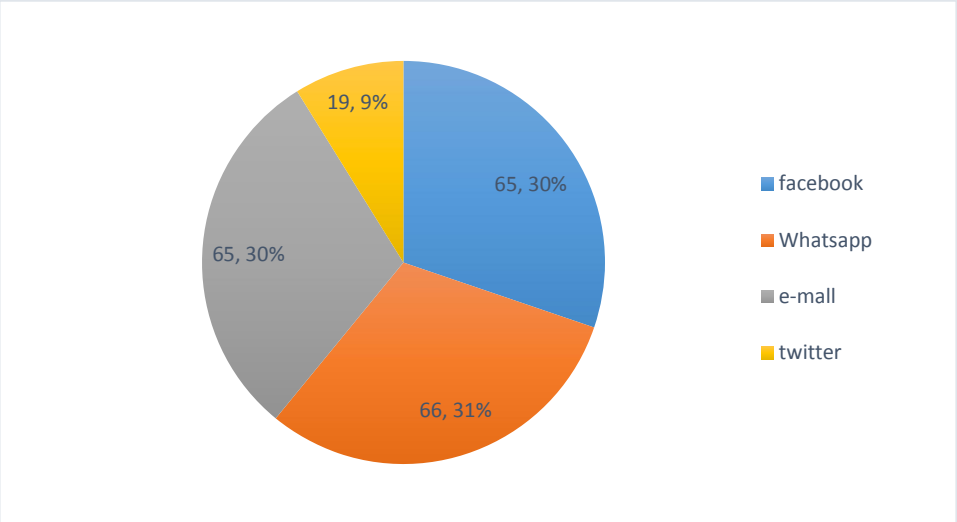

Fig. 2. Shows use of social media apps

Table 3. Uses to which Smart Phones were put by Participants

Uses of Smart Phones	Frequency	Percent
To read medicals Books	11	10.2
Check drug dosage	23	21.3
Read up disease condition	12	11.1
Check up things during Ward rounds.	10	9.3
Facebook medical groups	10	9.3
WhatsApp medical groups	11	10.2
Receive medical information on phone	11	10.2
To follow medical organizations/institutions	9	8.3
Watch live matches	2	1.9
Watch movies	4	3.7
Watch live religious broadc mmmmm ast	5	4.6
Total	**108**	**100.0**

Table 4. Relationship between different viariables

Variables		Age	No Phones	time spent	no of FB gps	no of Whats Appgp	monthly cost of data	average byte/month	Years Post Grad	No Apps
Age in years	Rho	1.0	0.01	-0.13	-0.21	-0.18	-0.22	-.246*	.262*	-0.11
No Phones	Rho		1.00	0.00	0.16	0.04	0.13	0.11	-.277*	0.11
Time spent	Rho			1.00	.285*	.325**	0.24	.279*	0.06	0.05
No of FB gps	Rho				1.00	.616**	.331*	.276*	-0.09	-0.17
No of WhatsApp gps	Rho					1.00	.359**	.396**	-0.13	0.13
Monthly cost of data	Rho						1.00	.882**	0.05	0.19
average	Rho							1.00	0.07	0.24

Variables		Age	No Phones	time spent	no of FB gps	no of Whats Appgp	monthly cost of data	average byte/month	Years Post Grad	No Apps
byte/month										
Year Post Grad	Rho								1.00	-0.01
No of Apps	Rho									1.00

** Significant at p-value 0.05, **Significant at p-value 0.001, rho Spearman correlation coefficient*

19 (29%) had four or more social media apps installed while 45 (68%) had 3 social media and 2 (3%) had just one application as shown in Fig. 1 below.

WhatsApp was the most frequently used social media app but closely followed by Facebook and email apps. Twitter was the least utilized app.

The commonest use smart phones were put was to check up drug doses. They were also used for Facebook and WhatsApp discussion groups. The least common use was to watch live matches and movies.

There was a significant negative correlation between age of participants and average byte/per month.(rho -0.246, p value 0.043).

There was a significant positive correlation between average byte/month, number of WhatsApp group, number of Facebook group and time spent on phone. Number of WhatsApp group had a higher significant influence on monthly data (rho 0.359, p value 0.001) than number of Facebook groups (rho 0.331, p value 0.016).

4. DISCUSSION

The study shows a 100% ownership of smart phones amongst house officers working in the Federal Medical Centre Owerri, with about 47% owning more than one smart phone. This high Smart phone ownership is similar to reports from other studies in Nigeria, Ireland and United Kingdom [8-11]. Patel *et a*l and Yahaha in their respective studies reported that Junior doctors were more likely to use medical apps over their senior colleagues as well as access the internet on their Smart phone for medical information [11,12]. It is therefore not surprising that all the first level doctors who participated in the study had smart phones.

The finding in this study that several house officers had multiple apps installed in their smart agrees with the report by Payne *et al* in a survey of medical students and junior doctor in the UK [9].

Facebook and Whatsapp were the most commonly installed social media apps and most of the participants belonged to multiple Facebook and Whatsapp groups . This is not unexpected given the age range of respondents. Younger adults are known to accept, better adapt and maximize the use of new technology. Additionally, as to be expected belonging to multiple Whatsapp group resulted in increased usage of data on a monthly basis.

The most common uses to which smart phones were put by these house officers were to check drug dosages and read up disease conditions. A similar study amongst interns in Ireland found that the most commonly used app to check drug doses was the British National Formulary. While both studies reported similarities in use of smart phones to check drug doses, ours did not seek for information on the particular medical app used. This use of smart phones to check drug doses was also documented by Yahaya in Kaduna, Nigeria. This is in spite of the fact that his study involved a more diverse group of doctors [11]. This finding would appear to validate the conclusion in their study by Patel *et a*l that online resources now contribute significantly to clinical activities in the hospital [2].

Smart phones were also used for Facebook and WhatsApp medical groups. Activities in these groups included discussions and exchange of medical information. The use of these app groups for medical discussions is a welcome development and would enhance learning.

Not unexpectedly, there was a significant positive correlation between average byte/month, number

of WhatsApp group, number of Facebook group and time spent on phone. Number of WhatsApp group had a higher significant influence on monthly data usage (rho 0.359, p value 0.001) than number of Facebook groups (rho 0.331, p value 0.016). This is so because in belonging to several groups it is plausible to say the doctor will be spending more time on the smart phone.

5. CONCLUSION

This study shows a very high ownership of smart phones which in addition to being used to access the social media is also used to access medical information required for learning and care of patients. It would be ideal though as a follow-up to document medical apps that have been found most useful by this group of young health professionals.

CONSENT

As per international standard or university standard, patients' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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