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ASSESSMENT OF COMPUTER USE IN PHARMACY PRACTICE IN DELTA STATE, NIGERIA

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ABSTRACT

Background: Availability and proficiency in computer use by pharmacists could potentially improve pharmacy service delivery and patient outcomes.
Objectives of study: To assess skills, attitude and explore barriers to use of computers in pharmacy practice community pharmacists in Delta state. Data was expressed as frequency and percentages. Chi Square test was done to explore relationships. A p-value of less than 0.05 was regarded as significant.
Result: Computers were available in 68 (34.0%) pharmacies/pharmacy departments. Only 7 pharmacists (3.5%) rated their computer skills as excellent. Self -reported proficiency level was highest for word processing program (2.99±0.83) followed by Microsoft access (2.56±0.87) and SPSS (2.27±0.94) on a scale of 1-5. There was a significant relationship between additional qualifications of pharmacists and the use of computer in pharmacy practice, X^2=2.189, df=1, P=0.002. Attitude towards computer use was mainly positive, (92.8%). Lack of trained personnel (30.5%) and power supply (28%) were the major barriers identified.
Conclusion: Self -rated proficiency level was a little above average, while lack of power supply and trained personnel were the major barriers to computer use in pharmacy practice

Key Words: Computer skills, Proficiency, Pharmacy practice, Delta state, Nigeria

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Introduction

Computers find a wide application in health care and pharmacy practice [1][2][3].In many developed countries, computers are utilized in drug design, retail pharmacy practice, clinical research centers, crude drug identification, drug storage and business management, hospital pharmacy practice, and in pharmacy colleges for computer assisted learning[4].However, the situation in most developing countries have been less than ideal[5][6][7].

A study conducted in Ibadan, Nigeria showed that only 42.6% of first year clinical and nursing students could use a computer [8]. A similar study conducted among medical students in Lagos, Nigeria showed that even though more than half of those surveyed were aware of Medline on CD-ROM, only 24% had utilized it [6].

In sharp contrast to these findings, a Malaysian study [9]found that 94.3% of the studied population had used a computer either in the university or at home. Of that group, 55% had adequate word processing skills, 78% had used email and 67% had surfed the Internet. A health workforce proficient in use of information technology has the potential to improve patient care and service delivery trough application of well-designed technological innovations [10][11].The objectives of this study were to assess the availability and use of computers in various pharmacies in Delta State and to assess pharmacists' attitude towards computer use in practice.

METHODS

Setting

The study was conducted in Delta State, a multi-tribal and ethnically diverse state comprising Urhobo, Isoko, Igbo, Ijaws and Itsekiri speaking people. The state is an oil producing state located in the Niger Delta region of Nigeria, South-south geopolitical zone with an estimated population of 6, 772,597[12].Delta state share borders with Edo state to the North, BayelsaState to the south, Ondo state to the West and Anambra state to the East. The state comprises three senatorial districts namely Delta North, Delta central and Delta south.

Design

The study is a cross sectional survey involving both hospital and community pharmacists working in delta state.

Study population

The study population consisted of all registered community pharmacists and all pharmacists practicing in the hospital setting. Pharmacists in administrative and academic settings were not included as the study was focused on pharmacy health service delivery

Sample Size /Sampling Techniques

The total estimated pharmacists in delta state was 220, this consists of 160 community pharmacists and 60 hospital pharmacists. All pharmacists in the state were surveyed.

Data collection

A pretested questionnaire was administered to 220 hospital and community pharmacists after signing a written informed consent form. The questionnaire consisted of four sections. Section A covered the social demographic data of the respondent, section B addressed computer skills of the respondents, section C explored attitude of pharmacists towards the use of computers in pharmacy practice while sectionD addressed barriers to the use of computers in pharmacy practice

Data Analysis

Data collected were entered into Microsoft Excel, rechecked for accuracy and loaded into the Statistical Package for Social Sciences [13].Categorical variables were expressed as frequencies and percentages, *Chi*-square test was used to explore the relationship between the demographic variables and computer use in the pharmacy. A *p*-value of less than 0.05 was considered significant.

RESULTS

A total of 200 questionnaires were retrieved out of 220 questionnaires distributed to hospital and community pharmacists giving a response rate of 90.9%

Sociodemographic characteristics of respondents

The predominant age group was 41-50years constituting 78(39%) and82(41%) of the respondents had worked in their present place of employment for a period ranging from 5 to-10years (Table 1).

Resource Availability

Sixty-eight(34.0%) had computer(s) in their pharmacy while 127(63.5%) did not have internet facilities. Even though 111(55.5%) claimed to have computer literate staff, 63(31.5%) had computer linked Point of sale (P.O.S). The most common use of computer in pharmacies was for sales and stock management 16(8%) ((table 2).

Table 1: Socio-demographic characteristics of respondents

Item	Frequency	Percentage
Location		
Delta south	62	31.0
Delta north	77	38.8
Delta central	61	30.5
Gender		
Male	132	66.0
Female	68	34.0
Age (yrs.)		
≤ 30	42	21.0
31-40	69	34.5
41-50	78	39.0
>51	11	5.5
Marital Status		
Single	47	23.5
Married	149	74.5
Widow	4	2.0
Number of years in present place of employment		
<5yrs	55	27.5
5-10yrs	82	41.0
>10yrs	63	31.5
Additional Qualification		
Yes	15	7.5
No	185	92.5
Type of post graduate Qualification		
M.sc	5	27.8
FPCPharm	2	11.1
Ph.D.	1	5.6

Table 2: Computer Resources in Pharmacies

Item		Frequency	Percentage (%)
Do you have computer in your pharmacy?	Yes	68	34.0
	No	132	66.0
If yes, how many computers?	1-3	63	92.7
	4-6	5	7.3
Do you have a computer linked POS (Point of Sale) in your Pharmacy?	Yes	63	31.5
	No	137	68.5
Do you have internet facilities in your pharmacy?	Yes	73	36.5
	No	127	63.5
For how long have you been using computer in your pharmacy?	1-5yrs	44	60.3
	6-10yrs	21	28.7
	10-15yrs	7	9.6
	Others	1	1.4
Do you have computer literate staff?	Yes	111	55.5
	No	89	44.5
What do you use the computers for?			
Sales/Stock Management		16	8.0
Drug Dispensing		7	3.5
Patient Data Base		5	2.5
Communication with other Health Care Provider		5	2.5
Drug Information Update		6	3.0
Account Balancing		6	3.0
Personal Purposes		7	3.5
I don't use Computer in my Pharmacy		132	66.0

***Percentages do not add up to 100 because of multiple responses**

One hundred and forty-five (72.5%) claimed to have received training in the use of computer. This training was informal for 107 (53.5%). Those who indicated interest in further trainingin computer use were 190(95%). The proportion of pharmacists with self-reported proficiency in use of E mail was 182 (91.0%) while 152 (76.0%) were proficient in the use of Microsoft word.Self-rated skills in computer use was excellent for 36.5%, good for 34.5%, fair for 36.5% and poor for 11% of respondents (Table 3}.

Table 3: Respondents' Proficiency

Skill Area	Proficiency (**n=200**) N (%) Not Proficient at all 1	Not Proficient 2	Proficient 3	Very Proficient 4	Extremely Proficient 5	**% Positive**	**Mean(SD)**
Microsoft	5(2.5)	43(21.5)	112(56.0)	29(14.5)	11(5.5)	76.0	2.99(0.83)
Email	0 (0.0)	18(9.0)	80(40.0)	77(38.5)	25(12.5)	91.0	3.5(0.83)
Corel Draw	13(6.5)	114(57.0)	53(26.5)	17(8.5)	3(1.5)	36.5	2.42(0.80)
Access	11(5.5)	98(49.0)	66(33.0)	18(9.0)	7(3.5)	45.5	2.56(0.87)
Excel	13(6.5)	95(47.5)	73(36.5)	12(6.0)	7(3.5)	46.0	2.53(0.84)
SPSS	35(17.5)	101(50.5)	47(23.5)	9(4.5)	8(4.0)	32.0	2.27(0.94)
EPI Info	57(28.5)	81(40.5)	54(27.0)	8(4.0)	0(0.0)	31.0	2.07(0.85)
Average						**51.1**	**2.63(0.85)**

Attitude towards computer use in pharmacy practice was positive for 185(92.5%) of the pharmacists (Table 4).

Table 4: Attitude of pharmacist towards computer use in pharmacy practice

Item	Strongly agreed N (%)	Agreed N (%)	Disagree N (%)	Strongly disagree N (%)	**% Positive**	**n=200 Mean(SD)**
Computer makes work easier, faster, and more efficient	27 (13.5)	152 (76.0)	6 (3.0)	15 (7.5)	89.5	2.05(0.68)
The use of computers is important in pharmacy practice	121 (60.5)	74 (37.0)	5 (2.5)	0 (0.0)	97.5	1.82(0.73)
All pharmacists should be computer literates	108 (54.0)	75 (37.5)	9 (4.5)	8 (4.0)	91.5	1.59(0.76)
Average					**(92.8)**	**1.82(0.72)**

Scale 1-4, Midpoint =2

Barriers to Use of Computers and Possible Solutions

Lack of training was the highest barrier to computer use (30.5%) followed by lack of regular power supply (28%), location of pharmacy (16%), high cost of maintenance (12.5%) Space limitation (9%) and lack of capital (4%)

The availability and use of computers was more among pharmacists aged 40 years and below,35/111(31.5%) although 5/11(45.5%) of those in the above 51 years' age group affirmed that they use computers in their practices. Pharmacists who had in employment for more than 10 years were more frequent users of computer 25/63 (39.7 %)this was followed by those who were less than 5 years in practice 19/55(34.5%).

There was apositive and statistically significant relationship between additional qualification and the use of computer in pharmacy practice X^2=2.189, df=1, P=0.002. Other Items did not show any significant relationship (Table 5).

Table 5; Association between demographic variables and use of computer in the Pharmacy

Item	Availability/Use of computer in pharmacy Yes N(%)	X^2	df	P Value
Location				
Delta south n=62	25(40.3)			
Delta north n=77	24(31.2)	10.628	6	0.101
Delta central n=61	19(31.1)			
Gender				
Male	42(31.8)	1.732	6	0.364
Female	26(38.2)			
Age				
22-30years n=42	16 (38.1)			
31-40years n=69	19 (27.5)	23.286	3	0.362
41-50years n=78	28 (35.9)			
>51years n=11	5 (45.5)			
Marital Status				
Single n=47	17 (36.2)			
Married n=149	49 (32.9)	12.437	2	0.727
Divorced n=4	2 (50.0)			
Number of years in present place of employment				
<5years n=55	19 (34.5)			
5-10years n=82	24 (29.3)	1.732	2	0.421
>10years n=63	25 (39.7)			
Additional qualifications				
Yes n=15	13(86.7)	2.189	1	0.002
No n=185	55(29.7)			

Discussion

The proportion of pharmacists that used computer was highest among those that had been in practice for more than 10 years. This may suggest the moreestablished and experienced the pharmacist, the higher the financial capability to afford the use and maintenance of computer in their pharmacy.

Use of computer was significantly associated with additional qualification. This may indicate that further training may be an enhancing factor in computer use among pharmacists.

Only 44% of pharmacists actively used computers in their practices. A similarly low level of computer usage was observed in studies carried out in Ibadan, Nigeria[8] and in Ethiopia[14]. This is in contrast to a cross sectional study carried out in two counties of England where majority of the pharmacists used computer at work andat home[15] and in Brazil where89.4% of pharmacists had access to internet linked computers at work and 93.4% felt competent in doing internet search using PubMed and other bibliographic databases[16]. Lack of regular power supply in many developing countries may be a contributory factor to low use of computers in pharmacy practice observed in this study[17][18].

Computers wereseldom used for clinical activities in the pharmacy. The use of computers majorly for sales and stock management is a serious limitation that must be addresses if pharmacists are to make the required impact in patient care

Majority of the respondents showed a positive attitude towards the use of computer and further training to increase their competencies. A similar attitude was observed among pharmacists in Canada[19].Wheremost pharmacists desired computer skill upgrade especially in the area of in medical database and Internet searching in order to improve practice effectiveness

On the average,51.1% of pharmacists claimed to be proficient in one or more computer programs. Self -reported skills of respondents were high for word processing and use of email. Other studies also indicated that pharmacists were more skilled in the use of word processing and email [20],[9]. It is very important that pharmacists broaden their scope of computers skills as lack of basic computer and software knowledge on the part of health professionals is a main factor in failure of e-health system[21].

Majority of the respondents indicated that lack of training and lack of power supply were the major barriers to the use of computer in pharmacy practice. This result was expected as lack of power supply is the major problem in Nigeria.

This study has several limitations. Proficiency in computer use was self – reported which could be subject to bias. Also pharmacists in administrative positions and in academic training institutions were not included in the survey. This might limit generalization of the findings.

CONCLUSION

This study showed that availability and the use of computer in pharmacies was very low. Proficiency level of pharmacists in computer use was a little above average. Attitude towards computer use was largely positive. Lack of power supply and trained personnel were the major barriers to the use of computer in pharmacy.

REFRENCES

1. Myers MR. Telemedicine: an emerging health care technology. Health Care Manag. 2003 ;22(3):219-223.Feliciani, F. (2003). Medical care from space: Telemedicine 2003; 114:54-59.

2. Bandameedi R Provenance of Computers in Pharmacy. *Clin. Pharmacol. Biopharm* 2016; 5:153. doi:10.4172/2167-065X.1000153}.
3. Holler J- - The Role of Information Technology in Advancing Pharmacy Practice Models to Improve Patient Safety 2013**.** Retrieved fromhttps://www.pharmacytimes.com/publications/health-system edition/2013/january2013, Accessed 5/7/17
4. Odusanya, O.O., Bamgbala, O.A. (2002) Computing and information technology skills of final year medical and dental students at the College of Medicine University of Lagos. Niger Postgrad. Med. J. 2002;9(4):189-193.
5. Ogunyade, T.O., Oyibo, W.A. Use of CD-ROM MEDLINE by medical students of the College of Medicine, University of Lagos, Nigeria. J Med Internet Res. 2003; 31(1);5-12
6. Al-jedai Ahmed, Qaisi S, Al-meman Ahmed. Pharmacy Practice and the Health Care System in Saudi Arabia. *The Canadian Journal of Hospital Pharmacy*. 2016;69(3):231-237.
7. Ajuwon, G. A. Computer and internet use by first year clinical and nursing students in a Nigerian teaching hospital. BMC Med Inform 2003;.18:3-10
8. Nurjahan, M.I, Lim., T.A., Yeong, S.W, Foong, A.L., Ware, J. Utilization of information technology in medical education: *a questionnaire survey of students in a Malaysian institution.* Med J 2002; 57:58-66.
9. Celler, B. G., Lovell, N. H, Basilakis, J. Using information technology to improve the management of chronic disease. Med J. 2003;179(5):242-246
10. Wickramasinghe, N., Schaffer, J.L. (2010). Realizing value driven e-health solutions. US: IBM Center for the Business of Government 2010. Available at www.epworth.org.au (Accessed 26/04/2016)
11. Federal Republic of Nigeria - Population Census, National Bureau of Statistics. Federal Republic of Nigeria, Official gazette (2007). 24 (94).
12. **SPSS software** (SPSS®) version 21.0 (SPSS, Inc., 2010).
13. Kalid A, Tadesse A, Binyam T. Knowledge and utilization of computers among health professionals in a developing country: J med internet Res 2015; 2(45):1-32
14. Peter T., Paul M. A computer literacy skills profile of pharmacists residing in two counties of England: Health info journal.2008; 25:228-294.
15. Ne´ri E, Meira AS, VasconcelosHB,Woods DJ, FontelesMMKnowledge, skills and attitudes of hospital pharmacists in theuse of information technology and electronic toolsto support clinical practice: A Brazilian survey. PLoS ONE 2017; 12(12): e0189918. https://doi.org/10.1371/journal.pone.0189918
16. Akanbi MO, Ocheke AN, Agaba PA, et al. Use of Electronic Health Records in sub-Saharan Africa: Progress and challenges. J Med Trop. 2012;14(1):1–6.
17. Odekunle FF, Odekunle RO, Shankar S. Why sub-Saharan Africa lags in electronic health record adoption and possible strategies to increase its adoption in this region. Int. J. Health Sci (Qassim). 2017;11(4):59–64.
18. Robert, M., Peter J. Pharmacist computer skills and needs

assessment survey. J med inter. Res.2004; 6:11-15.
19. Mansor, I. Computer skills among medical students: a survey at the king Adul Aziz University, Jeddah. J Ayub Med Coll. 2002; 14(3):13-15.
20. Ruxwana N, Herselmen M, Couradie, ICT applications as e-health solutions in rural healthcare in the eastern cape province of south Africa; Health. Information. Management J. 2010, 39(1): 17-26