Healthcare Practitioners' Experience and Perceptions on ICT-Related Training Programs: An Online Survey

Kanmodi, Kehinde K., B.D.S.[1,2,3,*], Evbuomwan, Oghosa M.B.B.S.[4], Nwafor, Njideka J., M.B.B.S.[2], Omoruyi, Emma A., M.D., M.P.H.[5]

[1]https://orcid.org/0000-0001-9906-3826

[1]*National Teachers' Institute, Birnin Kebbi Study Centre, Birnin Kebbi, Nigeria*

[2]*Cephas Health Research Initiative Inc, Ibadan, Nigeria*

[3]*Department of Community Health, Aminu Musa Habib College of Health Sciences and Technology, Yauri, Nigeria*

[4]*School of Biomedical Informatics, University of Texas Health Science Center at Houston, Houston, Texas, USA*

[5]*McGovern Medical School, University of Texas Health Science Center at Houston, Houston, Texas, USA*

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ABSTRACT

Context: The application of Information and Communication Technology (ICT) in healthcare had historically lagged behind when compared to other industries. Despite the benefits of adopting ICT in healthcare, many healthcare practitioners (particularly in developing countries) are yet to incorporate ICT into their practice or engage in ICT training as part of their continuing professional education (CPE). Aims: This study aims to examine healthcare practitioners on their level of exposure to ICT-related course/degree; perceived relevance of digital technologies in healthcare; opinions on the introduction of ICT in CPE programs; and recommendations on the frequency of participation in ICT-oriented training programs by health workers. Settings and Design: This study was a descriptive cross-sectional online survey of healthcare practitioners on social media. Methods and Material: This study surveyed a total of 216 healthcare practitioners using an e-questionnaire. Data collected was analyzed using SPSS version 22 software. The frequency distribution of all variables was determined. Chi square test was used to compare relationships among all variables with a p-value of <0.05 set to determine the level of statistical significance. Results: Majority (90.7%) of the respondents were from developing countries. Only 36.1% of the respondents had ever taken/obtained a course/degree related to ICT; 92.1% were of the opinion that ICT-oriented courses should have CPE points; and 42.1% recommended that healthcare workers should participate in ICT-oriented courses annually. However, there exist statistically significant differences between respondents' history of engagement in an academic program related to ICT and their opinions about the digital future of healthcare; and enthusiasms toward using and/or promoting digital healthcare strategies (p-values<0.05). Conclusion: There is a need to introduce ICT-related courses into CPE programs of healthcare practitioners, more especially in the developing countries.

Introduction

Since the 1980s when Information and Communications Technology (ICT) became a popular subject in academic discourses, its scope had grown in complexity and utility across industries [1]. Digital technologies (a subset of ICT), for instance, has brought about telemedicine in healthcare, online banking in finance, distance learning in education, and virtual retailing in business [2]. Therefore, it is not a wonder that the World Health Organization recognizes ICT competency as one of the five core competencies required of the 21st century healthcare workforce [3]. However, this competency has not reflected in the day-to-day practice of healthcare as adoption of technological advances by healthcare workers leaves much to be desired [4].

Furthermore, a recent study surveying over 600 key decision makers on digital transformations revealed that healthcare organizations lag behind other non-healthcare industries in adopting technologies that help with client engagement [4]. Also, a 2013 meta-analysis assessing the extent of successful use of telemedicine in Africa identified poor rates of adoption of ICT in some Sub-Saharan countries; computer literacy was identified as a major factor impeding its implementation [5]. Similarly, a recent study traced the dismal knowledge and use of technology in practice among healthcare practitioners due to their lack of structured training in ICT and access to computers [6].

Traditionally, continuing professional education (CPE) programs among healthcare workers, more especially in the developing countries, lack ICT course modules and this has negative effects on the rate of ICT adoption in healthcare [7]. Some of these effects include: high rate of medical errors; increased cost of healthcare service delivery; reduced level of efficiency, reduced quality of health care, and more [7]. However, it is difficult to ascertain the posture taken by healthcare practitioners towards the incorporation of ICT-related programs into CPE programs; this difficulty is due to the paucity of literatures in this area [5].

Aims

This study aims to examine healthcare practitioners on their: (1) level of exposure to ICT-related course/degree; (2) perceived relevance of digital technologies in healthcare; (3) opinions on the introduction of ICT in CPE programs; (4) and recommendations on the frequency of participation in ICT-oriented training programs by health workers.

Subjects and Methods

This was a cross-sectional survey of healthcare practitioners (physicians, surgeons, dentists, and nurses) using an anonymous semi-structured e-questionnaire. From October to December 2019, the e-questionnaire was circulated to healthcare practitioners on various online social chat rooms (including WhatsApp and Telegram) with primary focus on medical doctors, dentists, and nurses residing in Nigeria, Ghana, India, and Sierra Leone. The questionnaire obtained information from each participant about their: socio-demographic profile; exposure to ICT-related course/degree; perceived relevance of digital technologies in healthcare; opinion on the introduction of ICT in CPE programs; and recommendations on the frequency of participation in ICT-oriented training programs by health workers. Also, all participation was voluntary, anonymous, and harmless.

Collected data was analyzed using SPSS version 22 software. The frequency distribution of all variables was determined. Chi square test was used to compare relationships among all variables with a p-value of <0.05 set to determine the level of statistical significance.

Results

A total of 216 healthcare practitioners – 196 from four developing countries (Nigeria, Ghana, India, and Sierra Leone) and 20 from three developed countries (United States of America, Canada, and United Kingdom) – participated in the online survey. More than half (63.0%) of them were aged 21 – 30 years, 48.6% were males, 74.1% were doctors, 90.7% were residing in developing countries, 51.9% were working in a public setting, and 66.2% had 1 – 5 years of experience in their professional practice (Table 1).

Characteristics (n=216)	Frequency	%
Age (in years)		
21 – 30	136	63.0
31 – 40	61	28.2
41 – 50	13	6.0
> 50	6	2.8
Sex		
Male	105	48.6
Female	111	51.4
Profession		
Doctors	160	74.1
Non-doctors	56	25.9
Country of residence		
Developing	196	90.7
Developed	20	9.3
Place of work		
Public	112	51.9
Private	91	42.1
Years of professional practice		
< 1	12	5.6
1 – 5	143	66.2
6 – 10	32	14.8
11 – 15	17	7.9
> 15	12	5.6

"n" – Total number of respondents

Table 1. Socio-demographic characteristics of respondents

Only 36.1% of the respondents had ever taken/obtained a course/degree related to ICT, of which 51.3% of them rated the program as basic (Table 2). There exist statistically significant differences between respondents' history of engagement in an academic program related to ICT and their: sexes; and professions (p-values<0.05) (Table 3).

Variables	Frequency	%
Have you ever taken a course or obtained a degree that is ICT-related?[a] (n=216)		
Yes	78	36.1
No	138	63.9
If yes[b], how would you rate the program? (n=78)		
Basic	40	51.3
Intermediate	33	42.3
Advanced	5	6.4
Digital technologies have little or no relevance in healthcare (n=216)		
Strongly disagree	131	60.6
Disagree	68	31.5
Agree	5	2.3
Indifferent	0	0.0
Strongly agree	10	4.6
No response	2	0.9
The future of healthcare is digital (n=216)		
Strongly disagree	3	1.4
Disagree	4	1.9
Indifferent	21	9.7
Agree	100	46.3
Strongly agree	88	40.7
I am enthusiastic about using and/or promoting digital healthcare strategies (n=216)		
Strongly disagree	0	0.0
Disagree	0	0.0
Indifferent	15	6.9
Agree	101	46.8
Strongly agree	100	46.3
Should ICT-oriented courses have CPE points? (n=216)		
Yes	199	92.1
No	17	7.9
How often should healthcare practitioners participate in ICT-oriented courses? (n=216)		
Monthly	15	6.9
Quarterly	76	35.2
Yearly	91	42.1
Bi-annually	17	7.9
No response	17	7.9

"b" – Refers to those that ticked yes in the question tagged "a"; ICT – Information and Communications Technology; CPE – Continuing Professional Education

Table 2. Experience and opinions of respondents on ICT

The majority (92.1%, [131+68]/216) of the respondents were against the notion that digital technologies have little or no relevance in healthcare; 87.0% ([100+88]/216) supported the notion that the future of healthcare is digital; 93.1% ([100+101]/216) demonstrated enthusiasm towards using and/or promoting digital healthcare strategies; 92.1% were of the opinion that ICT-oriented courses should have CPE points; and 42.1% recommended that healthcare workers should participate in ICT-oriented courses on yearly basis (Table 2). However, there exist statistically significant differences between respondents' history of engagement in an academic program related to ICT and their: opinions about the digital future of healthcare; and enthusiasms toward using and/or

promoting digital healthcare strategies (p-values<0.05) (Table 4).

Variables	N	Ever taken a course or obtained a degree that is ICT-related?		p-Value
		Yes (%)*	No (%)*	
Age (in years)				
21 – 30	136	46 (33.8)	90 (66.2)	0.804
31 – 40	61	25 (41.0)	36 (59.0)	
41 – 50	13	5 (38.5)	8 (61.5)	
>50	6	2 (33.3)	4 (66.6)	
Sex				
Male	105	46 (43.8)	59 (56.2)	0.022
Female	111	32 (28.8)	79 (71.2)	
Profession				
Doctors	160	50 (31.3)	110 (68.7)	0.012
Non-doctors	56	28 (50.0)	28 (50.0)	
Country of residence				
Developing	196	69 (35.2)	127 (64.8)	0.385
Developed	20	9 (45.0)	11 (55.0)	
Place of work				
Public	112	38 (33.9)	74 (66.1)	0.729
Private	91	33 (36.2)	58 (63.8)	
Years of professional practice				
< 1	12	6 (50.0)	6 (50.0)	0.671
1 – 5	143	48 (33.6)	95 (66.4)	
6 – 10	32	12 (37.5)	20 (62.5)	
11 – 15	17	8 (47.1)	9 (52.9)	
> 15	12	4 (33.3)	8 (66.7)	

ICT – Information and Communications Technology; "N" – Total number of respondents per category/row; *Percentages were calculated based on "N"

Table 3. Comparisons between respondents' participatory history in an academic ICT-related program and their socio-demographic characteristics

Variables	N	Ever taken a course or obtained a degree that is ICT-related?		p-Value
		Yes (%)	No (%)	
Digital technologies have little or no relevance in healthcare				
Strongly disagree	131	53 (40.5)	78 (59.5)	0.373
Disagree	68	20 (29.4)	48 (70.5)	
Agree	5	1 (20.0)	4 (80.0)	
Strongly agree	10	3 (30.0)	7 (70.0)	
The future of healthcare is digital				
Strongly disagree	3	3 (100.0)	0 (0.0)	0.014
Disagree	4	1 (25.0)	3 (75.0)	
Indifferent	21	7 ()	14 ()	
Agree	100	27 (27.0)	73 (73.0)	
Strongly agree	88	40 (45.5)	48 (54.5)	
I am enthusiastic about using and/or promoting digital healthcare strategies				
Indifferent	15	3 (20.0)	12 (80.0)	0.007
Agree	101	28 (27.7)	73 (72.3)	
Strongly agree	100	47 (47.0)	53 (53.0)	
Should ICT-oriented courses have CPE points?				
Yes	199	75 (37.7)	124 (62.3)	0.099
No	17	3 (17.6)	14 (82.4)	
How often should healthcare practitioners participate in ICT-oriented courses?				
Monthly	15	7 (46.7)	8 (53.3)	0.627
Quarterly	76	26 (34.2)	50 (65.8)	
Yearly	91	37 (40.6)	54 (59.3)	
Bi-annually	17	5 (29.4)	12 (70.6)	

CPE – Continuing Professional Education; ICT – Information and Communications Technology; "N" – Total number of respondents per category/row; *Percentages were calculated based on "N"

Table 4. Comparisons between respondents' participatory history in an academic ICT-related program and their opinions on ICT use and training

Discussion

Our study generated noteworthy points. First, the majority of the respondents had never participated in an ICT-related academic program. Similar observations had also been recorded among health practitioners in Tehran (Iran), Ile-Ife (Nigeria), and Addis Ababa (Ethiopia) [6,8,9]. Also, sex and profession were the only two socio-demographic factors found to be significantly associated with the respondents' history participation in ICT-related academic programs. Furthermore, the surveyed males and non-doctors were more exposed to ICT-related trainings than their corresponding counterparts. However, this finding is not new as existing scientific literatures had repeatedly shown that males and non-doctors are more exposed to ICT than females and doctors [6,10].

The important roles of ICT in healthcare service delivery, as earlier mentioned, cannot be overemphasized. Through the adoption of the efficient use of ICT in healthcare, the rate of programmatic medical errors can be brought to the barest minimum [7]. Also, its efficient use can improve the quality of healthcare, efficiency of healthcare practitioners, maximal utilization of healthcare costs, and so on [7]. Many of our study respondents were enthusiastic about the promotion of digital healthcare strategies in healthcare service delivery. Furthermore, a higher proportion of those respondents with history of training on ICT were more enthusiastic to promote these technologies, when compared with those with no ICT training experience. Although the factors responsible for the lesser motivations observed among those without ICT-training experience were not explored in this present study; however, it can be suggested that it could be because of their perceived limited proficiencies in the application of ICT.

Despite the low exposure rate of the respondents to ICT-related academic programs, most of them recommended that healthcare practitioners should participate in ICT-related training programs annually, with CPE points awarded after the completion of such programs. This is a very laudable recommendation; it can be implied that most of the surveyed healthcare practitioners considered ICT training to be important to their practice, since many of them also perceived digital health technologies to be of high relevance to healthcare service delivery.

However, this study has its limitations. This study surveyed a limited sample of healthcare practitioners; as a result, it will be difficult to make unguided generalizations based on the study data. Secondly, this study was an online survey of healthcare practitioners on social networks where the authors had access to; hence this study is limited to those the authors were able to reach for the study.

Conclusions

This study shows that many of the surveyed healthcare practitioners lacked training on ICT. However, most of them considered digital health technologies to be of relevance to healthcare and were also enthusiastic about promoting digital healthcare strategies. Also, most of them recommended that ICT-related training programs (carrying CPE points) should be provided for healthcare practitioners and that such training programs should be attended by healthcare practitioners annually. Finally, there is a need to introduce ICT-related courses into CPE programs of healthcare practitioners, more especially in the developing countries.

Disclaimer

The article has not been previously presented or published, and is not part of a thesis project.

Conflict of Interest

There are no financial, personal, or professional conflicts of interest to declare.

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