

ORIGINAL ARTICLE

DIGITAL READINESS FOR ECONSULTATION ABOUT COVID-19 PANDEMIC BY HEALTH PROFESSIONALS: NORTHWEST, ETHIOPIA

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ABSTRACT

Background: Integrating electronic consultation solutions into the healthcare system is not only about modernizing the health system, but it is also about saving many lives by simplifying the access of communication, and making evidence-based decisions. Even though electronic consultations are essential interventions for combating pandemics like covid-19, their application and practice remains low in developing countries including Ethiopia.

Objective: The aim of this study was to determine health professionals' readiness, and associated factors about electronic consultation in University of Gondar specialized hospital.

Method: An institutional based cross-sectional study was conducted on 300 health professionals from April 25 to May 30/2020 in University of Gondar specialized hospital, in Ethiopia. Structured questionnaire was used to collect the data, and the data were analyzed using SPSS version 20 software. In addition, descriptive statistics, bivariable, and multivariable logistic regression analyses were done. Similarly, an adjusted odds ratio (AOR) with 95% CI was used to determine the associations between the determinants and the outcome variables.

Result: More than half (176; 60.5%) of health professionals were ready to use the electronic consultation to combat covid-19 in the health system. Computer training (AOR = 1.816; 95% CI = 1.078 – 3.061), using internet (AOR = 1.861; 95% CI = 1.009 – 3.432), and being technologically ready (AOR = 1.962; 95% CI = 1.196 – 3.218) were significantly associated with e-consultation readiness.

Conclusion and Recommendation: In general, the overall readiness of health professionals for e-consultation was found to be good. Different packages of capacity building are essential to increase the level of computer skill and internet use among health professionals.

Keywords: electronic consultation, readiness, health professionals, Ethiopia

INTRODUCTION

The quick spread of covid-19, and the fact that healthcare facilities are sources of infections, has engrossed notice to innovative models of care that

can avoid face-to-face contact between health professionals and clients. There has been certain concern to give e-consultation which are already being rolled out in many countries as part of national digital health strategies(1,2). Like other health concerns which have been addressed with electronic based

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consultation systems especially in the developed nations, assessing the effectiveness, and healthcare providers' readiness about e-consultation to combat covid-19 epidemic is too crucial.

Findings suggested that health service consultations which are supported by digital health platforms have shown good outcomes on the relationship between health professionals and client's communication. Furthermore, peer information sharing among health professionals reduced cost for transportation, and it improved patients' satisfaction on the services given (3-7). Chronic care which is supported by digital health technology helps to manage the progress of the chronic by using sensors, and it enable to store and forward ways of communicating vital signs with health professionals. Applying this to this (Covid-19) pandemic might reduce its spread, create awareness about the pandemic, and it reduces isolation of clients (8,9).

On the other hand, findings have also shown that introducing e-consultations is a complex change that disrupts long established processes and routines(10). Health professionals raise their reservation regarding the e-consultation's technical, efficacy, responsiveness, and issues related with the clinical service quality which can be the major gaps for expanding the services (11,12).

Different research findings showed that teleconsultation service for tackling swine origin influenza outbreak had been applied, and it was effective(13,14). Video consultation consumes more time and resources, but the results are similar to those of phone consultation. This makes phone consultation the most cost effective method of e-consultation(15,16). The aim of the study was to assess health professionals' digital readiness for e-consultation in response to the COVID-19 pandemic in University of Gondar refer-

ral hospital, Ethiopia, 2020. Therefore, research evidences which are found from this study will be used as baseline for government, non-government organizations and researches for exploring the relevance of implementing e-consultation modalities in the health care specifically for the pandemic.

METHOD

Study area and period: The study was conducted at University of Gondar Hospital which is a teaching and referral hospital located 738 km away from Addis Ababa in northwest Ethiopia. The city is a well-known tourist site since it has many Royal castles and very ancient churches. The hospital has more than 400 beds, and it gives a referral service for more than 5 million people in northwest Ethiopia. The study duration was from April 25 to May 30/2020.

Study design and subjects: Institutional-based cross-sectional study was conducted from April 25 to May 30, 2020 to assess digital health readiness for e-Consultation among health professionals at university of 'Gondar specialized hospital. All health professionals who are working at University of Gondar hospital during the study period were included in the study.

Sample size and sampling technique: The required sample size was calculated via Epi info software using single population proportion formula by considering the following assumptions: prevalence of readiness for e-Consultation ($p = 50\%$, as there is no study), 95% confidence interval level, and 5% margin of error. Therefore, the total calculated sample size was 300 health professionals who were working at University of Gondar specialized hospital during the study period. Simple random sampling technique was used for selecting the subjects of this research.

Operational definition

E-consultation: In this study e-consultation was defined as all the means of electronic based consultation systems like simple phone call, short message reminder, video call and mobile applications that could help to exchange information regarding covid-19(17).

E-consultation readiness: It is a comprehensive measure of preparedness of healthcare providers about e-consultation. The care provider's readiness was assessed by using 9 Likert scale questions ranging from 'Strongly disagree' to 'Strongly agree'. In the same way, mean score was used as a cut point, and those who scored above the mean score were considered as ready for e-consultation service (18).

Technological readiness: it is health professional's preparedness on technology related capabilities that requires information communication technology skills. Six questions with a five-point Likert scales were used to measure the technological readiness, and those who scored above the mean were considered as ready for technologies (19).

Data collection tools and procedure: Data was collected by using close ended questions. Data regarding the socio-demographic, individual readiness, and technological readiness were collected using a structured questionnaire which was adapted from different literatures (3,4,20,21). In addition, three data collectors and 2 supervisors were selected, and training was given to them for half day about the purpose of the study, data collection tools, collection techniques and ethical issues during selection and collection of the data. All answers to closed and open ended questions were written down manually by the interviewer. The supervisors assessed the consistency and completeness of data on daily basis.

Data processing and analysis: All descriptive analysis had been computed using the statistical package

for the social science (SPSS) software(22). Preliminary data analysis was conducted to describe the study sample via the mean and frequency. In addition, binary and multivariate logistic regression was conducted to examine the effects of selected variables on readiness to e-consultation.

Data quality control issues: The collected data was checked out for the completeness, accuracy and clarity by the principal investigator and supervisors. This quality checking was done daily on data collection time, and amendments were made before the next data collection measure. Similarly, data clean up and cross-checking was done before analysis. Besides, training was given to supervisors for one day on how to manage data, and on how to distribute the questionnaire.

Ethical considerations: Ethical approval was taken from the Institute of Ethical Review Board of University of Gondar. Informed consent was also taken from all study participants. Information regarding the purpose of the study, voluntary nature of participation, and risk imposed due to involvement were presented in the information section of the questionnaire.

RESULT

Socio-demographic characteristics of the respondents: A total of 300 health professionals were participated in the study with a response rate of 97%. More than two third (213; 73.2%) of the participants were male, and more than half (170; 58.4%) of the study participants were between the ages of 25 and 29. Furthermore, more than three fourth (243; 83.5%) of the participants had a degree, but only 37 (12.7%) of them had an MSc and above. Regarding the professions of the participants, more than one third (115; 39.7%) of the study participants were nurses, 105 (36.1%) were medical doctors, and only 6 (2.1%) were public health officers. (Table 1)

Table-1: Socio-demographic characteristics of health professionals in University of Gondar, specialized hospital 2020.

Variable	Frequency	Percentage
Sex		
Male	213	73.2
Female	78	26.8
Age in years		
20-24	45	15.5
25-29	170	58.4
30-34	46	15.8
35+	30	10.3
Educational status		
Diploma	11	3.8
Degree	243	83.5
Masters and above	37	12.7
Profession		
Medical doctor	105	36.1
Public Health Officer	6	2.1
Nurse	115	39.5
Laboratory	12	4.1
Midwifery	28	9.6
Others	25	8.6

Organizational characteristics of study participants: Half of 143 (49.1%) of the study participants have computer in their office, and 162 (55.7%) of the study participants have internet access in their work place. Similarly, more than three fourth of the study participants used internet for any purpose in

University of Gondar specialize hospital. However, more than half of study participants (177 (60.8) didn't take any computer related training, but just their formal education. (Table2)

Table 2: Organizational characteristics of health professionals in University of Gondar specialized hospital, 2020.

Variable	Frequency	Percentage
Have computer access in the work place		
Yes	143	49.1
No	148	50.9
Have internet access in the work place		
Yes	162	55.7
No	129	44.3
Internet use for any purpose		
Yes	71.1	207
No	28.9	84
Take Computer training		
Yes	39.2	114
No	60.8	177

Technical readiness: In this study, half of study participants (51.2%) were ready in terms of technological aspects to use e-consultation modality. (Figure 1)

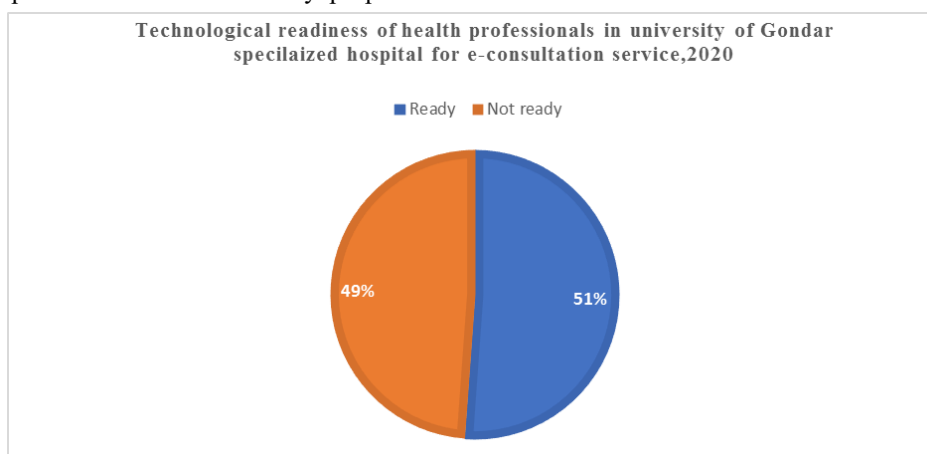


Figure 1: Technological readiness of health professionals in University of Gondar specialized hospital for e-consultation service, 2020

E-consultation readiness: In this study, more than half of the study participants 176 (60.5%) were ready

for e-consultation service in university of Gondar specialized hospital in 2020. (Figure 2)

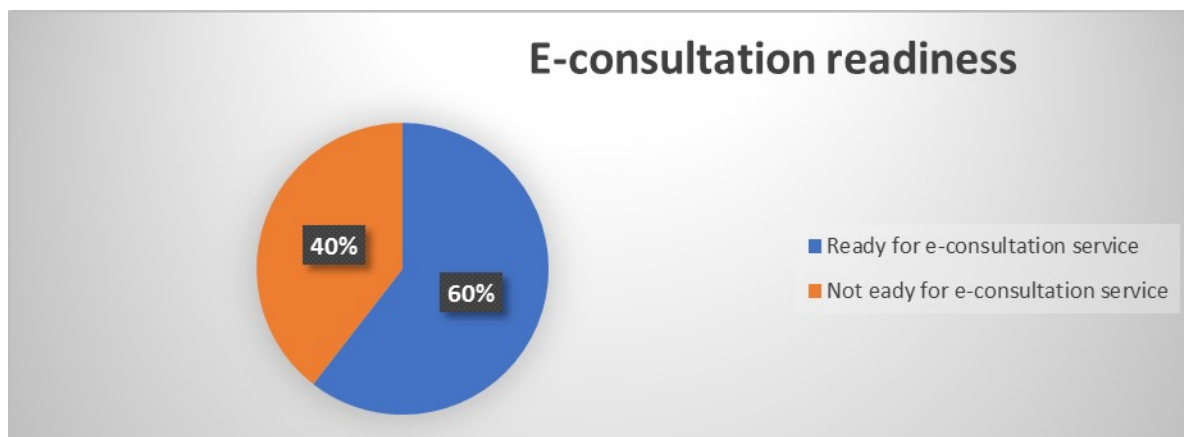


Figure 2: Health Professionals’ e-consultation service readiness in University of Gondar specialized hospital in, 2020

On bivariate analysis on taking computer training, internet access, internet use and technological readiness were positively associated with e-consultation service which is used to combat COVID-19 pandemic.

Multivariable analysis showed that e-consultation was significantly associated with having computer training (AOR = 1.816; 95% CI = 1.078 – 3.061), using internet (AOR = 1.861; 95% CI = 1.009 – 3.432), and being technologically ready (AOR = 1.962; 95% CI = 1.196 – 3.218). (Table 3).

Table 3: Multivariable analysis for different variables on the e-consultation readiness of health professionals in university of Gondar specialized hospital, 2020.

Variables	Readiness of e-consultation		
	Adjusted OR	P	95% CI
Computer training			
No	1		
Yes	1.816	0.025	1.078 – 3.061
Internet access			
Not available	1		
Available	1.402	0.248	.791 - 2.486
Internet use for any purpose			
No	1		
Yes	1.861	0.047	1.009 – 3.432
Technological readiness			
Not ready	1		
Ready	1.962	0.008	1.196 – 3.218

CI: Confidence interval, OR: Odds ratio

DISCUSSION

This study provides evidence of digital health professionals' readiness to give e-consultation to combat the COVID-19 pandemic. Several studies have shown that digital health solutions for combating pandemics are common practices, but the prevalence varies across the world (4,21,23). This study indicated that the overall readiness of health professionals to use the service of e-consultation was high which is similar with other research evidences conducted to implement digital solutions in the health care industries to combat COVID-19 transmission (16,24,25). This is a good indicator that health professionals who were ready for the digital health service are capable of exchanging timely health information to improve the outcome of health service.

In the present study, using internet for different purposes increased the possibility of health professionals to be ready for e-consultation service to combat the pandemic. This finding is in line with a finding from impact of internet for health study (6). This means that using internet provides health professionals with access of updated information on pandemic, and this helps them to provide quality treatment based on timely guidelines and information for their patients by using different electronic means. This might be due to fact that the improvement of internet service or penetration in Ethiopia is changing from time to time which facilitates the opportunity for using internet (26).

This study on digital health readiness for e-consultation among health professionals in University of Gondar specialized hospital found a significant positive influence of technological readiness to use the e-consultation service for tackling the spread of the pandemic even after controlling the possible confounding socio-demographic variables. This result is similar with the research findings done in different communities (7,14,27,28).

Health professionals who had computer training were 1.8 times more likely to be ready for e-consultation service use for tackling the pandemic than their counter parts. This might be due to fact that health professionals who had training on digital skills may access updated guidelines, and use case related information on the different search engines and databases. This study was designed to assess digital health readiness for e-consultation among health professionals in University of Gondar Specialized hospital, Ethiopia. However, there were also some limitations to this work. The results were based on self-report as a result of which there will be the possibility of over and under reporting. Furthermore, the cross-sectional study design used did not allow for a cause-effect relationship to be concluded from the results of the study.

CONCLUSION

More than half of the study participants were ready for e-consultation service. Incorporating technology to the routine service could help for tackling the spread of the pandemic. Therefore, technological readiness, internet access and training on computer have vital role in improving the readiness of health professionals on e-consultation service to tackle the spread of the pandemic. The government and university should prepare computer training to health professionals, should create awareness on the use of e-consultation for tackling the pandemic to reduce the spread of the disease in the community.

Declaration of interests: We declare no competing interests.

Funding: This study was funded by University of Gondar, and the fund was used for data collection.

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