

Intention to practice telemedicine by health workers in a teaching hospital in Northcentral Nigeria, 2022

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ABSTRACT

Introduction: The practice of telemedicine is generally poor in low and middle-income countries, including Nigeria, which has utilization rates below 5%, in contrast to nearly 80% reported in high-income countries. This study assessed the intention of health workers in a teaching hospital in Northcentral Nigeria to practice telemedicine. **Methods:** This was a cross-sectional study conducted in 2022 among 313 health workers in Jos University Teaching Hospital, Northcentral Nigeria, selected using a stratified sampling technique. A self-administered questionnaire was used to collect data; it comprised 13 questions assessing knowledge, eight on the perceived benefits, seven on perceived ease of use, and one on intention to practice telemedicine. Respondents scoring $\geq 80\%$ in each section were considered to have good knowledge, perception of benefits, and ease of use, respectively, while the intention to practice was defined as answering the question in the section in the affirmative. **Results:** A total of 313 participants were included in the study, with a response rate of 100%. One hundred and sixty-seven (53.4%) respondents had adequate knowledge, 139 (44.4%) had a good perception of the benefits, and 131 (41.9%) had a good perception of the ease of use of telemedicine. Only 126 (40.3%) respondents intended to practice telemedicine. Multivariable logistic regression analysis indicated that pharmacists (AOR: 6.30, 95% CI: 1.65-24.14) and nurses (AOR: 2.60, 95% CI: 1.25-5.43) had higher odds of intention to practice telemedicine compared to doctors. Similarly, study participants with adequate knowledge (AOR: 2.52, 95% CI: 1.28-4.99), perceiving telemedicine as easy to use (AOR: 5.02, 95% CI: 2.65-9.51) and having a good perception of the benefits of telemedicine (AOR: 2.63, 95% CI: 1.47-4.72) had significantly higher odds of intention to practice telemedicine. **Conclusion:** The intention to practice telemedicine was low and was influenced by knowledge, perception, and cadre. This suggests that improving knowledge and perception could improve the intention to practice telemedicine.

KEYWORDS: Telemedicine, Perception, Intention, Health workers, Nigeria, Teaching Hospital

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RECEIVED

03/01/2025

ACCEPTED

10/04/2025

PUBLISHED

16/04/2025

LINK

<https://afenet-journal.org/intention-to-practice-telemedicine-by-health-workers-in-a-teaching-hospital-in-northcentral-nigeria-2022/>

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CITATION

Eric Yila *et al* Intention to practice telemedicine by health workers in a teaching hospital in Northcentral Nigeria, 2022. Journal of Interventional Epidemiology and Public Health. 2025;8:22. <https://doi.org/10.37432/jieph-d-25-00005>

Introduction

Healthcare delivery worldwide is undermined by inequitable access, rising costs, increasing demand for services and critical shortages of manpower. As a result, healthcare for all continues to be an elusive goal [1]. Telemedicine has the potential to bring the needed healthcare services to all by expanding access, particularly in underserved areas [2],[3][4]. The COVID-19 pandemic has drawn attention to how telemedicine is capable of assuring and sustaining access to healthcare services for all [2].

Telemedicine is “the use of electronic information and communications technologies to provide and support health care when distance separates the participants” [5]. It comprises remotely provided medical services such as consultations, monitoring of patients, diagnostic tests, and robotic surgeries [6]. However, access to telemedicine through routine usage has been a challenge to health systems worldwide [2].

Despite its proven benefits, telemedicine adoption remains low globally, with many healthcare professionals in both high- and low-income countries reluctant to embrace it [7],[8],[9],[10],[11]. Successful implementation depends on provider acceptance and readiness. Key barriers include concerns about increased clinical and administrative workload, extended documentation time, and reduced efficiency compared to in-person consultations, exacerbating fears of burnout.

More so, in sub-Saharan Africa, telemedicine is perceived as new and is met with reservations among health workers, which has led to unfavourable intentions toward its adoption [12],[13],[14]. This highlights the need for an enabling environment for telemedicine where service providers perceive it positively and are ready to take advantage of its benefits. Human factors, notably behavioural intention, are key to the successful adoption of new technologies [15]. Therefore, an understanding of the factors that influence health workers' willingness to provide telemedicine-based services can provide useful insights for healthcare administrators during the implementation and scaling-up of such services. Our study assessed the intention to practice telemedicine among health workers at a teaching hospital in Northcentral Nigeria and identified its predictors.

Methods

Study setting

This study was carried out at Jos University Teaching Hospital (JUTH), situated in Jos metropolis of Plateau State, Northcentral Nigeria. JUTH is a 500-bed tertiary health institution providing specialist care and training for various health professionals – doctors, nurses, pharmacists, and laboratory scientists. It serves as a referral centre for health facilities in Plateau State and neighbouring states. It is the largest health facility in the state, and an unpublished administrative source reported that it has about 1,400 skilled health workers (doctors, nurses, pharmacists, and laboratory scientists). Telemedicine is not operational in JUTH; the traditional face-to-face health worker-client interaction is the mode of service delivery.

Study design

This was a cross-sectional study conducted between January and February 2022.

Study population

The study population were clinical health workers – doctors, nurses, pharmacists, and laboratory scientists. Those not available at the time of data collection because they were on leave or postings outside the hospital were excluded.

Sample size and sampling technique

The minimum sample size was determined using the sample size determination formula for a cross-sectional study ($n = Z\alpha^2pq/d^2$) [16]. The standard normal deviate, z , was considered at a 95% confidence interval as 1.96, the prevalence, p , for intention to adopt telemedicine among workers from a previous study, 78% [17], q (i.e., $1-p$) is 22%, degree of precision, d , of 5%, and non-response rate of 10%. The minimum sample size was 291. Stratified sampling with proportionate allocation, using these cadres (doctors, nurses, pharmacists, and laboratory scientists) as strata, was done. The allocated size for each cadre was selected using consecutive sampling of eligible staff at different points of service – clinics, wards, laboratories, pharmacies, and diagnostic centres. Ultimately, 313 healthcare workers – 156 doctors, 115 nurses, 16 pharmacists, and 26 laboratory scientists – filled out and returned the questionnaires distributed through the unit heads.

Data collection

Data was collected using a pretested semi-structured self-administered questionnaire adapted from a similar previous study [18]. The questionnaire had five sections comprising sociodemographic information, knowledge of telemedicine, perceived benefits of telemedicine, perceived ease of use of telemedicine, and intention to practice telemedicine. It had 13 questions on knowledge, 8 items on the perception of benefits, 7 items on the perception of ease of use, and 1 item on the intention to practice telemedicine. Responses were elicited using a 5-point Likert response scale consisting of strongly agree, agree, not sure, disagree, and strongly disagree.

Dependent and Independent Variables

The dependent variables include knowledge of telemedicine, perception of benefits, perception of ease of use, and telemedicine practice intention. The independent variables were age, sex, highest educational qualification, cadre, years of work experience, self-rated ability to use a computer, and previous history of receiving teaching and attending training/continuous education sessions on telemedicine.

Data analysis

Data was analyzed using IBM-SPSS software version 23. Descriptive statistics (frequencies, proportions, mean, and standard deviation) and inferential statistics (bivariate and multivariable logistic regression) were computed. The response to each item in the knowledge, perception of benefits, and perception of ease-of-use sections were scored as follows: strongly agree = 5, agree = 4, not sure = 3, disagree = 2, and strongly disagree = 1, giving a maximum attainable score of 65, 40, and 35 points for the knowledge (13-items), perception of benefits (8-items), and perception of ease of use (7-items) questions respectively.

Scores $\geq 80\%$, corresponding to the two highest points of preferable response – strongly agree and agree, in the knowledge (52–65), benefits (32–40), and ease of use (28–35) sections, were categorized as good. Scores below these thresholds were categorized as poor. The intention to practice telemedicine was defined as a ‘yes’ response to the statement: “I intend to use telemedicine to provide services to a patient both physically present and remotely (not physically present) as soon as my

hospital adopts it”. Bivariate and multivariate logistic regression analyses were used to determine the correlates of intention to practice telemedicine. Variables with a p-value < 0.20 in the bivariate analysis were fitted into the multivariate logistic regression model.

Ethical considerations

Ethical clearance with approval number JUTH/DCS/IREC/127/XXXI/2529 was granted by the Institutional Research Ethical Committee of the Jos University Teaching Hospital. In addition, written informed consent was provided by the study participants.

Results

A total of 313 participants responded to the questionnaire, giving a 100% response rate. The mean age of the participants was 38.2 ± 9.1 years. One hundred and sixty (51.1%) were males, 189 (60.4%) and 76 (24.3%) had graduate and postgraduate level education, respectively. Doctors comprised most of the study participants, 156 (49.8%), while 184 (58.8%) participants had a working experience spanning less than 10 years. Nineteen (6.1%) participants reported having low levels of computer use competence, and 230 (73.5%) had no previous training/continuing education on telemedicine (**Table 1**).

Two hundred and forty-six (78.6%) participants strongly agreed/agreed that telemedicine disseminates patient health information from one department to another, 89.5% (280) strongly agreed/agreed that telemedicine is the use of telecommunication to provide medical information and services, 85% (266) strongly agreed/agreed telemedicine provides healthcare services where distance is a barrier, and 65.2% (204) strongly agreed/agreed that telemedicine enables face-to-face interaction between patients and healthcare providers. Similarly, 72.5% (227) of the health workers were affirmative that patients’ management using drugs is possible via telemedicine, 73.5% (230) and 80.5% (252) affirmed that patients’ examinations and investigations, respectively, could be communicated via telemedicine while 77.3% (242) were in agreement that patients’ follow-up was possible through the same medium. Less than half of the participants, 48.6% (152), were affirmative that surgeries were possible through telemedicine.

Overall, 167 (53.4%) participants had a good knowledge of telemedicine (**Table 2**).

For the perception of benefits of telemedicine, the majority of the participants reported that telemedicine would maximize the use of limited manpower (82.1%, 257), provide convenience in the provision of services (84.3%, 264), enhance access to healthcare (77.6%, 243), improve the efficiency in healthcare provision (76.4%, 239), and make information sharing more efficient (82.4%, 258). Also, 54.6% (171) participants strongly agreed/agreed that telemedicine will lessen the financial burden on the government. However, only 40.9% (128) of the health workers believed that the use of computers at work would unnecessarily increase their work burden. Overall, 139 (44.4%) participants had a good perception of the benefits of telemedicine in healthcare (**Table 3**).

In reporting their perception of how easy telemedicine is to use, the majority of the health workers were affirmative that telemedicine is easy and convenient to use (76.4%, 239), they will be at ease when using it (71.6%, 224), learning how to use telemedicine would be easy for them (75.1%, 235), becoming skilful at telemedicine use would be easy (75.4%, 236), and their jobs will be made easier by telemedicine (74.8%, 234). Additionally, 63.3% (198) of the health workers were affirmative that they would have control over their jobs while using telemedicine while only 43.4% (136) believed telemedicine would not alter the way they currently do their jobs. Overall, 131 (41.9%) participants perceived telemedicine as easy to use (**Table 3**). One hundred and twenty-six (40.3%) participants were affirmative they will practice telemedicine when it becomes operational in the hospital (**Table 3**).

Bivariate logistic regression showed educational level, cadre, previously taught telemedicine at school, previous attendance at training/continuing education sessions on telemedicine, knowledge, perception of ease of use, and perception of benefits were statistically significantly associated to the intention to practice telemedicine. Higher odds of intention to practice telemedicine were observed among participants with bachelor's degrees (COR: 2.10, 95% CI: 1.17-3.74), pharmacists (COR: 4.80, 95% CI: 1.58-14.58) and nurses (COR: 2.29, 95% CI: 1.30-3.53), those who had been taught telemedicine at school (COR: 2.10, 95% CI: 1.31-3.37), those who

had received telemedicine training/attended continuing education sessions on telemedicine (COR: 1.67, 95% CI: 1.01-2.76), and those with good knowledge (COR = 4.90, 95% CI: 2.97-8.08), perception of ease of use (COR = 7.76, 95% CI: 4.65-12.92), and perception of benefits (COR = 4.00, 95% CI: 2.48-6.46) (**Table 4**).

Multivariate logistic regression analysis showed only cadre, assessed knowledge, perception of ease of use, and perception of benefits were associated with the intention to practice telemedicine. Pharmacists (AOR: 6.30, 95% CI: 1.65-24.14) and Nurses (AOR: 2.60, 95% CI: 1.25-5.43) had higher odds of intending to practice telemedicine compared to doctors. Similarly, study participants with a good knowledge (AOR: 2.52, 95% CI: 1.28-4.99), perceiving telemedicine as easy to use (AOR: 5.02, 95% CI: 2.65-9.51), and a good perception of the benefits of telemedicine (AOR: 2.63, 95% CI: 1.47-4.72) had significantly higher odds of intending to practice telemedicine (**Table 4**).

Discussion

This study assessed the intention to practice telemedicine among health workers in a teaching hospital in Northcentral Nigeria. While more than half of the health workers had good knowledge of telemedicine, fewer had a good perception of its benefits, perceived it as easy to use, or intended to practice it when it becomes operational in the hospital. The factors significantly associated with the intention to practice telemedicine were professional cadre, knowledge of telemedicine, its perceived ease of use, and perceived benefits.

More than half of the participants had adequate knowledge of telemedicine. The considerable extent of inadequate knowledge of telemedicine (46.6%) observed in this study may be related to the fact that most of the participants had no prior teaching, training, or continuing education on telemedicine. Nonetheless, our finding of adequate knowledge among most of the participants corroborates previous findings in India, where 57% (95% CI: 52.1-61.8%) had adequate knowledge [19]. On the contrary, only 16% of health workers in a study in Uganda had good knowledge of telemedicine [20]. The variation in findings may be explained by the dissimilarity in the cadre of healthcare workers included as study participants, besides nurses and doctors, our study included pharmacists and laboratory scientists, unlike the Ugandan study.

Consistent with a previous study in Ethiopia (53%) [7], most of the participants in our study perceived telemedicine as not easy to use. Similarly, poor perception of the benefits of telemedicine was more prevalent and in keeping with a previous study in Ghana (65%) [21]. The concurrence of poor perception of ease of use and poor perception of benefits gives credence to the evidence that perceived ease of use directly influences perceived benefits [22]. Our findings may be attributed to the substantial extent of poor knowledge, as knowledge exerts a direct positive effect on perception [19]. In contrast to our findings, studies in Nigeria, Libya, and Saudi Arabia reported a good perception of telemedicine to be more prevalent [17],[23],[24]. However, most participants in those studies had prior experience with telemedicine either through usage or training, unlike the participants in our study.

The intention to use technology is contingent upon the potential user's knowledge and perception of ease of use and usefulness [25],[26], so it is not far-fetched that few of the participants in this study intended to practice telemedicine as there was a preponderance of poor knowledge, perception of ease of use and benefits. This finding is consistent with a previous study conducted in Ethiopia (46.5%) [7] but different from a study in Saudi Arabia that reported the majority (83%) of the health workers were willing to practice telemedicine [27]. The variation in findings may be related to the marked difference in the proportion of participants who had previously been trained on telemedicine in our study and the Saudi study, 26% versus 71%. Our finding implies that the participants were unlikely to use telemedicine when it becomes operational in the hospital, as intention positively influences usage [22].

We found cadre, knowledge, and perception of ease of use and benefits to be independently associated with the intention to practice telemedicine, and this was consistent with a systematic review [28] and previous reports among health workers in Ethiopia and Ghana [7],[29]. Our results revealed that doctors were less willing to practice telemedicine compared to nurses, this is in contrast to a study in Germany [8]. The participants in that study differed from ours; they were professionals in obstetrics, and a few were nurses, 16% as against the 37% in our

study. It is plausible to find doctors less interested in practising telemedicine because telemedicine-based services seldom be viewed as less efficient than traditional face-to-face care by being more time-consuming and often requiring after-hours clinical and administrative tasks [9]. The findings of perception of benefits and perception of ease of use as predictors of telemedicine practice intention are in keeping with the technology acceptance model (TAM) [26]. The TAM posits that perceptions of benefits and ease are the two primary determinants of an individual's intention to use a new technology; individuals who perceive that a specific technology will be beneficial to their work and requires less effort to use are more likely to be frequent users. Therefore, a targeted improvement of healthcare workers' perceptions of telemedicine could go a long way in entrenching positive behavioural intentions towards telemedicine adoption. Our finding that knowledge is a significant factor in telemedicine use intention gives credence to the "unified theory of acceptance and use of technology" [30]. The theory predicates the knowledge to support the use of technology as a facilitating condition that influences usage intention either directly or mediated by positively shaping how an individual perceives the technology as easy to use. The identification of knowledge as a predictor suggests that inadequate awareness and understanding of telemedicine could serve as barriers to its adoption by healthcare workers. Addressing these gaps in knowledge by incorporating telemedicine-related educational interventions into the continuous professional development of health workers can improve their willingness to engage in telemedicine services.

Limitations of the study

The cross-sectional design of this study implies that causal inference cannot be inferred. In addition, social desirability bias could result in overreporting the intention to practice telemedicine, however, ensuring that the questionnaire was self-administered and filled out anonymously will reduce the pressure to provide socially desirable responses.

Conclusion

There was generally poor knowledge, perception of ease of use and benefits, and intention to practice telemedicine. Knowledge and perception influenced the intention to practice; this suggests that improving knowledge and perception of ease of use and benefits through education and training on telemedicine

would improve the intention. Doctors were less willing to practice telemedicine. Therefore, they should be prioritized for interventions.

What is already known about the topic

- Telemedicine has potential to expand access to health care for underserved populations
- Telemedicine is relatively new in Nigeria and has not been widely incorporated into healthcare delivery

What this study adds

- There is inadequate knowledge, poor perception of ease of use and benefits, and low intention to practice telemedicine among tertiary care health workers
- Doctors have lower intentions to practice telemedicine compared to nurses and laboratory scientists

Competing Interest

The authors declare that they have no competing interests

Authors' contributions

EY and NBN conceived the study design, developed the data collection tools, supervised data collection, and wrote the manuscript. NBN performed the data analysis and interpretation. JCD supervised, reviewed, and made substantial contributions to conception, design, analysis, and manuscript writing. All authors read and approved of the final manuscript.

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Table 1: Sociodemographic characteristics of the study participants (n = 313)

Variable	Frequency	Percent (%)
Sex		
Male	153	48.9
Female	160	51.1
Age group (years)		
20–29	58	18.5
30–39	136	43.5
40–49	68	21.7
50–59	51	16.3
Mean age \pm SD (years)	38.2 \pm 9.1	
Highest educational qualification		
Diploma	28	8.9
Higher National Diploma	20	6.4
Bachelors Degree	189	60.4
Postgraduate	76	24.3
Cadre		
Doctor	156	49.8
Pharmacist	16	5.2
Nurse	115	36.7
Laboratory Scientist	26	8.3
Working experience (years)		
< 10	184	58.8
10–19	76	24.3
\geq 20	53	16.9
Self-rated ability to use computer		
Low	19	6.1
Average	222	70.9
High	72	23.0
Taught telemedicine in School		
Yes	112	35.8
No	201	64.2
Training/Continuing education in telemedicine		
Yes	83	26.5
No	230	73.5

Table 2: Knowledge of telemedicine and intention to practice telemedicine among study participants (n=313)

Statement	Strongly Agree f (%)	Agree f (%)	Not Sure f (%)	Disagree f (%)	Strongly Disagree f (%)
Telemedicine disseminates patient health information from one department to another	118 (37.7)	128 (40.9)	48 (15.3)	10 (3.2)	9 (2.9)
Telemedicine is the use of telecommunication to provide medical information and services	153 (48.9)	127 (40.6)	30 (9.5)	3 (1.0)	0 (0.0)
Telemedicine is part of medical education technology	136 (43.5)	126 (40.2)	43 (13.7)	1 (0.4)	7 (2.2)
Telemedicine provides health care services where distance is a problem	144 (46.0)	122 (39.0)	40 (12.8)	3 (1.0)	4 (1.2)
Face-to-face interaction between patients and healthcare workers is possible through telemedicine	85 (27.2)	119 (38.0)	72 (23.0)	24 (7.6)	13 (4.2)
Patients' management with drugs can be done through telemedicine	78 (24.9)	149 (47.6)	67 (21.4)	10 (3.2)	9 (2.9)
Patients' examinations can be communicated through telemedicine	76 (24.3)	154 (49.2)	61 (19.5)	17 (5.4)	5 (1.6)
Patients' investigations can be communicated through the telemedicine	98 (31.3)	154 (49.2)	48 (15.3)	6 (2.0)	7 (2.2)
Follow-up of patients can be done through telemedicine	99 (31.6)	143 (45.7)	53 (16.9)	7 (2.2)	11 (3.6)
Electronic medical records of patients' registration can be maintained through telemedicine	130 (41.5)	136 (43.5)	41 (13.1)	6 (1.9)	0 (0.0)
Telemedicine can be used in battlefield casualties, prisons, for disabled patients and during natural and man-made calamities	91 (29.1)	112 (35.8)	84 (26.8)	17 (5.4)	9 (2.9)
Surgical treatment for patients can be done through telemedicine	72 (23.0)	80 (25.6)	85 (27.1)	54 (17.3)	22 (7.0)
Health care through the Internet is a recognized service	89 (28.4)	140 (44.8)	63 (20.1)	12 (3.8)	9 (2.9)
Overall Knowledge					
Poor	146		46.6%		
Good	167		53.4%		

Table 3: Perception of telemedicine and intention to practice telemedicine among study participants (n=313)

Statement	Strongly Agree f (%)	Agree f (%)	Not Sure f (%)	Disagree f (%)	Strongly Disagree f (%)
Perception of Benefits of Telemedicine					
Telemedicine would maximize the use of limited human resources	126 (40.3)	131 (41.8)	44 (14.1)	10 (3.2)	2 (0.6)
Using telemedicine would provide convenience in providing health services	111 (35.5)	153 (48.8)	40 (12.8)	9 (2.9)	0 (0.0)
Using telemedicine would reduce the cost of treatment	67 (21.4)	98 (31.3)	98 (31.3)	49 (15.7)	1 (0.3)
Using telemedicine would enhance access to healthcare services	88 (28.1)	155 (49.5)	55 (17.6)	11 (3.5)	4 (1.3)
Using telemedicine would improve efficiency in healthcare services	87 (27.8)	152 (48.6)	58 (18.5)	13 (4.1)	3 (1.0)
Using telemedicine would make information dissemination more efficient	112 (35.8)	146 (46.6)	46 (14.7)	6 (1.9)	3 (1.0)
The application of ICT in health care services would reduce the financial burden on the government	63 (20.1)	108 (34.5)	92 (29.4)	42 (13.4)	8 (2.6)
Being made to use computers as part of my work will unnecessarily increase my workload	47 (15.0)	81 (25.9)	65 (20.8)	83 (26.5)	37 (11.8)
Perception of Ease of Use of Telemedicine					
I will find telemedicine easy and convenient to use	86 (27.5)	153 (48.9)	56 (17.8)	14 (4.5)	4 (1.3)
Using telemedicine, I will have control over my job	71 (22.7)	127 (40.6)	87 (27.8)	26 (8.3)	2 (0.6)
I will be at ease using telemedicine	79 (25.2)	145 (46.4)	63 (20.1)	17 (5.4)	9 (2.9)
Using telemedicine will not change anything I currently do	57 (18.2)	79 (25.2)	80 (25.6)	83 (26.5)	14 (4.5)
Learning to use telemedicine will be easy for me	69 (22.0)	166 (53.1)	64 (20.4)	14 (4.5)	0 (0.0)
It will be easy for me to become skilful at using telemedicine	75 (24.0)	161 (51.4)	60 (19.2)	11 (3.5)	6 (1.9)
Using telemedicine will make my job easier	74 (23.6)	160 (51.2)	63 (20.1)	15 (4.8)	1 (0.3)
Overall Perception of Benefits of Telemedicine					
Poor	174		55.6%		
Good	139		44.4%		
Overall Perception of Ease of Use of Telemedicine					
Not Easy	182		58.1%		
Easy	131		41.9%		
Intending to Practice Telemedicine					
No	187		59.7%		
Yes	126		40.3%		

Table 4: Correlates of intention to practice telemedicine among the study participants

Variable	Intention to practice telemedicine		COR (95% CI)	p-value	AOR (95% CI)
	No (n = 187) f (%)	Yes (n = 126) f (%)			
Age Group (Years)					
20 – 29	33 (56.9)	25 (43.1)	1		1
30 – 39	78 (57.8)	58 (42.6)	0.98 (0.52–1.83)	0.953	1.45 (0.61–3.46)
40 – 49	39 (58.2)	28 (41.2)	0.92 (0.46–1.88)	0.827	2.53 (0.85–7.51)
50 – 59	15 (70.1)	15 (29.4)	0.55 (0.25–1.22)	0.141	0.88 (0.15–5.37)
Sex					
Female	93 (58.3)	67 (41.9)	1		
Male	94 (61.4)	59 (38.6)	0.87 (0.55–1.37)	0.550	
Educational Level					
Diploma	12 (57.1)	12 (42.9)	1.96 (0.80–4.84)	0.142	0.93 (0.27–3.16)
Higher National Diploma	9 (55.0)	9 (45.0)	2.14 (0.78–5.91)	0.141	1.61 (0.42–6.20)
Bachelors Degree	105 (55.6)	84 (44.4)	2.10 (1.17–3.74)*	0.012	1.42 (0.65–3.09)
Postgraduate	55 (72.4)	21 (27.6)	1		
Cadre					
Doctor	107 (68.6)	49 (31.4)	1		
Pharmacist	5 (31.3)	11 (68.7)	4.80 (1.58–14.58)*	0.006	6.30 (1.65–24.14)*
Nurse	58 (50.4)	57 (49.6)	2.15 (1.30–3.53)*	0.003	2.60 (1.25–5.43)*
Laboratory Scientist	17 (65.4)	9 (34.6)	1.16 (0.48–2.73)	0.746	0.59 (0.20–1.74)
Work Experience					
< 10 years	102 (55.6)	82 (44.4)	1.86 (0.97–3.58)	0.063	0.55 (0.11–2.92)
10 – 19 years	48 (63.2)	28 (36.8)	1.35 (0.64–2.85)	0.434	0.38 (0.07–1.95)
≥ 20 years	17 (63.0)	10 (37.0)	1		1
Self-rated ability to use computer					
Low	12 (63.2)	7 (36.8)	1		
Average	89 (60.0)	89 (40.1)	1.15 (0.44–3.03)	0.781	
High	42 (58.3)	30 (41.7)	1.22 (0.43–3.48)	0.704	
Taught telemedicine in school					
No	133 (66.2)	68 (33.8)	1		1
Yes	54 (48.2)	58 (51.8)	2.10 (1.31–3.37)*	0.002	1.22 (0.64–2.31)
Training/Continuing Education in telemedicine					
No	85 (60.7)	42 (49.4)	1.67 (1.01–2.76)*	0.049	0.76 (0.37–1.55)
Yes	102 (59.7)	84 (40.3)	1		1
Knowledge					
Poor	115 (78.8)	31 (21.2)	1		1
Good	72 (43.3)	95 (56.9)	4.90 (2.97–8.08)*	<0.0001	2.52 (1.28–4.99)*
Perception of ease of use					
Not Easy	144 (79.1)	38 (20.9)	1		1
Easy	43 (32.8)	88 (67.2)	7.76 (4.65–12.92)*	<0.0001	5.02 (2.65–9.51)*
Perception of benefits					
Poor	129 (74.1)	45 (25.9)	1		1
Good	58 (41.7)	81 (58.3)	4.00 (2.48–6.46)*	<0.0001	2.63 (1.47–4.72)*

* Statistically significant at $p < 0.05$, COR = Crude Odds Ratio, AOR = Adjusted Odds Ratio, CI = Confidence Interval