

Telehealth Utilisation in HIV Care Services in Harare, Zimbabwe: Awareness and Acceptability among Healthcare Workers

Stanford Chigaro^{1*}, Ian Machingura Ruredzo², Takudzwa Marembo³, Godwell Nhidza⁴

¹*Ph.D. in Public Health, Texila American University, Guyana*

²*Department of Laboratory Diagnostic and Investigative Sciences, University of Zimbabwe, Faculty of Medicine and Health Science, Harare, Zimbabwe*

³*Africa Centres for Disease Control and Prevention, African Union Commission, Addis Ababa, Ethiopia*

⁴*National Microbiology Reference Laboratory, Zimbabwe*

Abstract

Access to healthcare in developing countries is generally poor due to limited health facilities and shortage of healthcare workers. Recent developments in technology and telehealth promise to address challenges of access to health facilities through remote service provision. However, the level of awareness and acceptability of telehealth in HIV care among healthcare workers in Zimbabwe is not well known. The main objective of this study is to assess the level of awareness and acceptability of telehealth among healthcare workers involved in HIV care in Harare, Zimbabwe. A cross-sectional survey was employed to conveniently sample and interview 395 healthcare workers from 15 public healthcare facilities and 34 private healthcare facilities in Harare. A pretested questionnaire was employed to collect data. Logistic regression analysis was carried out to establish possible association of the independent variable and dependent variables (awareness and acceptance). All statistical analyses were performed using SPSS software version 28.0.1.1. Of the 395 healthcare workers interviewed, 87% were aware of telehealth, while 85% found it acceptable. Logistic regression analysis identified educational level, and type of profession to be significantly ($p < 0.05$) associated with telehealth awareness. There was an association between telehealth acceptance and level of education ($p < 0.05$). Lack of resources was a major barrier to telehealth utilisation. The findings of this study reveal high awareness and acceptability of telehealth in HIV care among healthcare workers in Harare. The findings provide optimism for telehealth uptake and the promotion of telehealth as an important intervention in HIV care.

Keywords: Acceptability, Awareness, HIV care, Telehealth.

Introduction

Healthcare is an important determinant in promoting the general physical, mental, and social well-being of people [1]. Access to healthcare in developing countries is generally poor due to limited health facilities, unavailability of medical drugs and shortage of healthcare workers [2-6]. Distance to healthcare centres especially in rural areas has been cited as one of the greatest barriers to accessing

healthcare. In Zimbabwe, people in rural areas often have to walk for an average of 30 km to access the nearest health facility [7]. However, the recent developments in technology and telehealth promises to address challenges of access to healthcare facilities [8].

Telehealth refers to “the use of electronic information and telecommunications technologies to support and promote long-distance clinical health care, patient and

Received: 15.06.2023

Accepted: 13.07.2023

Published on: 29.09.2023

*Corresponding Author: chigarostan@gmail.com

professional health-related education, public health, and health administration” [9]. Telehealth enables virtual consultations and helps conserve scarce resources for both the service provider and the patient. Furthermore, telehealth enables the provision of quality and convenient patient care through electronic follow-up visits [10]. In the context of this study, telehealth as presented to participants refers to remote patient monitoring, utilisation of mobile phone applications for communication and education, and live video-conferencing.

Studies indicate that age, gender, educational qualification, and employment status are among the human characteristics affecting telehealth acceptance [11-13]. Models, such as the technology acceptance model (TAM) [14], and the unified theory of acceptance and use of technology (UTAUT) [15] have been used to portray interest and willingness to use digital technology in healthcare. The common key concepts across the models include attitudes, behavioural intention, and behaviour. However existing frameworks are generic for implementing technological innovations, and they fail to cover all the factors of success and failure for every digital innovation. Scholars therefore encourage the development of models specific for the context under study, after careful examination [16].

Telehealth research in Zimbabwe is lagging behind despite the great need created by the HIV pandemic [17]. Zimbabwe needs telehealth services that help in situations, where there is a shortage of healthcare workers, when specialist healthcare workers are not available and when people and healthcare workers in rural areas need assistance in the delivery of health services. The perspective and characteristics of healthcare workers on the adoption of telehealth for HIV care have not received much attention in Zimbabwe [18]. Given that 12% of Zimbabweans live with HIV [19], it is important to understand healthcare workers’ perspectives and factors that influence their acceptance of telehealth, for enhancing adoption. The

objective of this study was therefore to assess awareness and acceptability of telehealth in HIV care among healthcare workers in Harare, Zimbabwe

Methods

Study Design

A mixed-method study was conducted, using both closed-ended and open-ended questions.

Study Setting

Healthcare workers involved in HIV care services from institutions (hospitals, clinics, laboratories, and pharmacies), in Harare were selected for the study. Participants from both public (government-owned, mission-owned, council-owned, and non-governmental organisations) and private-run institutions were enrolled. Harare is the largest province in Zimbabwe by population, with a total of 32 healthcare facilities offering HIV care [20]. The province has an adult HIV prevalence of 11.5%, one of the highest in the country [19].

Population and Sampling

Participants were drawn from the 4 professions directly involved in HIV care: nurses, doctors, pharmacy staff and laboratory staff. The sample size was determined using the Rao soft calculator [21] with 5% as the margin of error, 95% as a confidence interval (CI) and a response distribution of 50%. According to the World Health Organisation [22], Zimbabwe's healthcare workers population estimate is 34,500, so a minimum sample of 380 was required.

Recruitment of Participants

The survey was conducted using Google Forms from October 31, 2022, to April 19, 2023. A questionnaire was administered to convenience samples of healthcare workers at 15 public healthcare facilities and 34 private healthcare facilities in Harare. The healthcare facilities were randomly selected to align with Zimbabwe’s decentralised healthcare structure.

Consent was obtained prior to any study procedures.

Data Collection Tool

The questionnaire used in the study gathered data on the sociodemographic characteristics of the participants (age, gender, education level and occupation), perspectives on telehealth, outcome variables (awareness of telehealth, and acceptability), and exploratory variables (attitudes towards telehealth). Questions adopted from previous studies [23] and existing national surveys were adopted in the development of the questionnaire with minor modifications. The survey was piloted to assess participant understanding of the questions.

Outcome Measures

Awareness of Telehealth

Awareness of telehealth was assessed by asking: “Do you know what telehealth is?” A binary “yes” (aware) or “no” (unaware) response was captured. The definition of telehealth was then later provided to enable all the participants to respond to proceeding questions.

Acceptability of Telehealth

Acceptability of telehealth was assessed by asking participants to rate their level of agreement with the following statement: “If the possibility existed, I would use telehealth in HIV patient care to a larger extent”. Responses were captured in a seven-point Likert scale: strongly disagree, disagree, somewhat disagree, neither disagree nor agree, somewhat agree, agree, and strongly agree. The data was then categorised into two nominal groups: acceptable (strongly agree, agree, and somewhat agree) and unacceptable (neither disagree nor agree, somewhat disagree, disagree, and strongly disagree) for bivariate analysis.

Exploratory Variable

Attitude Towards Telehealth

The questionnaire also evaluated participants’ attitude towards telehealth by asking them to rate

their level of agreement with seven statements that reflected general impressions of telehealth in HIV care and willingness to use it. Responses were captured on a seven-point Likert scale and then categorised into two nominal groups: positive and negative, for further analysis. The mean attitude scores were calculated for each statement. The scores were interpreted as follows: 1.0-4.4 indicated a negative attitude, and 4.5-7.0 indicated a positive attitude.

Data Analysis

Completed Google Forms questionnaires were sent directly to the main survey server whenever transmission was possible. Afterwards, the responses from all the questionnaires were transferred to an Excel sheet. The data was then exported to SPSS software version 28.0.1.1 for cleaning and coding. Frequency tables and cross-tabulation were used to present categorical and continuous variables. A bivariate logistic regression analysis was carried out to establish a possible association of the independent variable and dependent variables (awareness and acceptance). Statistical significance was set at $p < 0.05$. Qualitative data was first assigned numerical values before analyses.

Ethics

This study was ethically reviewed and approved by two institutional review boards: the Joint Research Ethics Committee for the University of Zimbabwe Faculty of Medicine and Health Sciences and Parirenyatwa Group Hospitals (JREC) (approval number: JREC 123/2023); and Sally Mugabe Central Hospital Ethics Committee (approval number: SMCHEC090123/06).

Results

Characteristics of Study Participants

A total of 395 healthcare workers participated in the study. The median age group of the participants was 30-34 years. All participants had at least a college diploma, and the majority

(39%) of the respondents were nurses. Nearly three quarters of the respondents were never trained on telehealth. More information on the

demographic characteristics of the participants is presented in Table 1.

Table 1. Participants’ Demographic Characteristics and Training Status

Variable	Frequency (n = 395)	Percentage
Age (years)		
< 25	16	4
25 - 29	71	18
30 - 34	119	30
35 - 39	85	22
40 - 44	47	12
45 - 49	23	6
> 49	34	9
Gender		
Male	155	39
Female	240	61
Profession		
Nurses	152	39
Doctors	64	16
Pharmacy staff	51	13
Laboratory staff	128	32
Education level		
College diploma	107	27
Undergraduate degree	150	38
Master’s degree	133	34
PhD	5	1
Years of experience		
≤ 5	95	24
6 - 10	122	31
11 - 15	96	24
> 15	82	21
Training on telehealth		
Yes	107	27
No	288	73

Types of Telehealth Services in Use

Participants were asked to state the type of telehealth service currently being offered at their institution. Of the 342 participants who responded to the question, 75% indicated that

they frequently use text messages to communicate with patients. Live video conferencing was the least used. In addition, most institutions use more than one telehealth service in HIV care. Further information is provided in Figure 1.

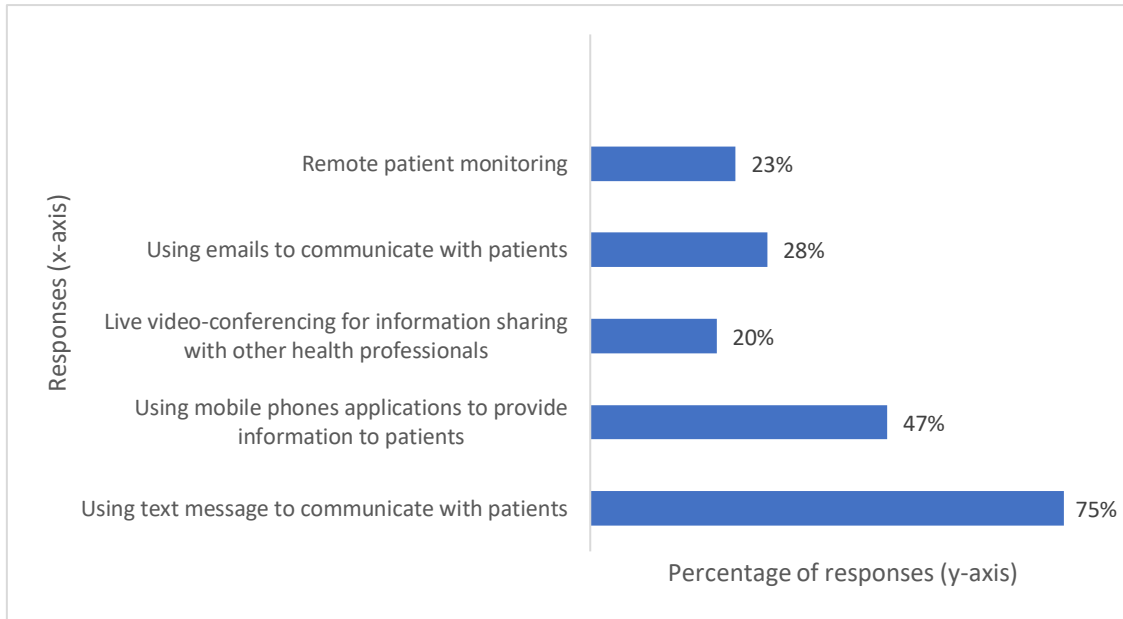


Figure 1. Telehealth Services in Use in Harare

Awareness of Telehealth

Of the 395 healthcare workers interviewed, 87% were aware of telehealth. There was no association between awareness status and gender, type of institution (private or public), age, and years of work experience. There was an association between telehealth awareness and level of education. Participants with

undergraduate diploma ($p=0.042$) and those with master's degree ($p=0.009$) were more aware of telehealth, compared to participants with college diploma. There was also an association between telehealth awareness and participants' profession with doctors ($p=0.017$), pharmacy staff ($p=0.049$) and laboratory staff ($p=0.049$) more aware of telehealth compared to nurses. More details are presented in Table 2.

Table 2. Bivariate Analysis Results for Factors Associated with Telehealth Awareness

Variable	Odds ratio (95% CI)	p value
Age in years		
< 25	Reference	-
25 - 29	0.71 (0.131 – 3.838)	0.691
30 - 34	0.932 (0.142 – 5.988)	0.932
35 - 39	0.835 (0.033 – 2.312)	0.235
40 - 44	1.001 (0.207 – 1.890)	0.997
45 - 49	0.950 (0.180 – 4.130)	0.294
> 49	0.520 (0.231 – 3.768)	0.998
Gender		
Female	Reference	-
Male	0.438 (0.222 – 0.867)	0.018*
Profession		
Nurse	Reference	-
Doctor	2.340 (0.809 – 6.772)	0.017*
Pharmacy staff	3.018 (1.005 – 9.064)	0.049*
Laboratory staff	1.050 (0.415 – 2.653)	0.019*

Highest level of qualification		
College diploma	Reference	-
Undergraduate degree	4.947 (1.054 – 12.222)	0.043*
Masters	8.026 (1.670 - 18.580)	0.009*
Years of work experience		
≤ 5	Reference	-
6 - 10	0.928 (0.299 - 2.882)	0.898
11 - 15	3.277 (0.796 - 13.494)	0.100
> 15	2.125 (0.137 - 12.999)	0.590
Type of institution		
Public	Reference	-
Private	0.468 (0.196 - 1.119)	0.088

*Statistically significant

Acceptability of Telehealth

Of the 395 participants interviewed, 85% found telehealth acceptable. There was no association between telehealth acceptance and gender, age, profession, type of institution (private or public), and years of work

experience. There was an association between telehealth acceptance and level of education. Participants with undergraduate degrees (p=0.009) and those with master's degrees (p=0.005) were more acceptable to using telehealth compared to participants with college diplomas. More details are shown in Table 3.

Table 3. Bivariate Analysis Results for Factors Associated with Telehealth Acceptance

Variable	Odds ratio (95% CI)	p value
Age in years		
< 25	Reference	-
25 - 29	3.334 (0.613 – 8.127)	0.163
30 - 34	2.156 (0.374 – 4.428)	0.390
35 - 39	1.229 (0.194 – 7.772)	0.826
40 - 44	1.002 (0.126 – 7.955)	0.999
45 - 49	0.901 (0.428 – 1.834)	0.998
> 49	0.606 (0.362 – 8.784)	0.342
Gender		
Female	Reference	-
Male	1.414 (0.750 – 2.670)	0.283
Profession		
Nurse	Reference	-
Doctor	1.074 (0.349 – 3.305)	0.901
Pharmacy staff	1.764 (0.665 – 4.680)	0.254
Laboratory staff	1.129 (0.481 – 2.649)	0.780
Highest level of qualification		
College diploma	Reference	-
Undergraduate degree	1.947 (0.754 – 5.222)	0.009*
Masters	1.326 (0.670 - 4.580)	0.005*
Years of work experience		
≤5	Reference	-

6 - 10	0.583 (0.217 - 1.562)	0.283
11 - 15	1.584 (0.493 – 5.091)	0.440
> 15	0.842 (0.209 - 3.398)	0.809
Type of institution		
Public	Reference	-
Private	1.358 (0.665 - 2.771)	0.400

*Statistically significant

Attitude to Telehealth

Overall, participants reported positive attitudes towards the use of telehealth for HIV care. The majority of the participants agreed

with the idea that telehealth systems are easy to use; learning to operate the telehealth system is easy; and telehealth improves job performance, as presented in Table 4.

Table 4. Participant Responses to Attitudinal Statements Related to Telehealth in HIV Care

Statements	1	2	3	4	5	6	7	Total score	Mean score	Attitude
Learning to operate the telehealth system is easy for me	9*1	13*2	9*3	49*4	57*5	68*6	190*7	2272	5.8	Positive
In general, use of telehealth improves job performance	15*1	10*2	21*3	67*4	77*5	91*6	114*7	2077	5.3	Positive
In general, use of telehealth enables tasks to be accomplished more quickly	6*1	5*2	6*3	46*4	42*5	97*6	193*7	2379	6.0	Positive
If the possibility existed, I would use telehealth in HIV patient care to a larger extent	9*1	11*2	0*3	37*4	52*5	84*6	202*7	2357	6.0	Positive
I would find the telehealth system easy to use for providing HIV care	9*1	12*2	12*3	74*4	63*5	69*6	156*7	2174	5.5	Positive
My institution has an effective environment for collaboration within and between departments	27*1	11*2	29*3	66*4	75*5	71*6	116*7	2013	5.1	Positive

Telehealth is compatible with other systems I use at my institution.	45*1	43*2	34*3	61*4	55*5	75*6	82*7	1776	4.5	Positive
--	------	------	------	------	------	------	------	------	-----	----------

1=Strongly disagree;2=Disagree;3=Somewhat disagree;4=Neither disagree nor agree;5=Somewhat agree;6=Agree;7=Strongly agree; * Multiply by

Barriers to Telehealth Utilisation

Participants were presented with one open-ended question asking their perceived barriers to

telehealth utilisation. A total of 310 participants responded. Lack of resources and poor mobile and internet networks were the main challenges cited as presented in Figure 2.

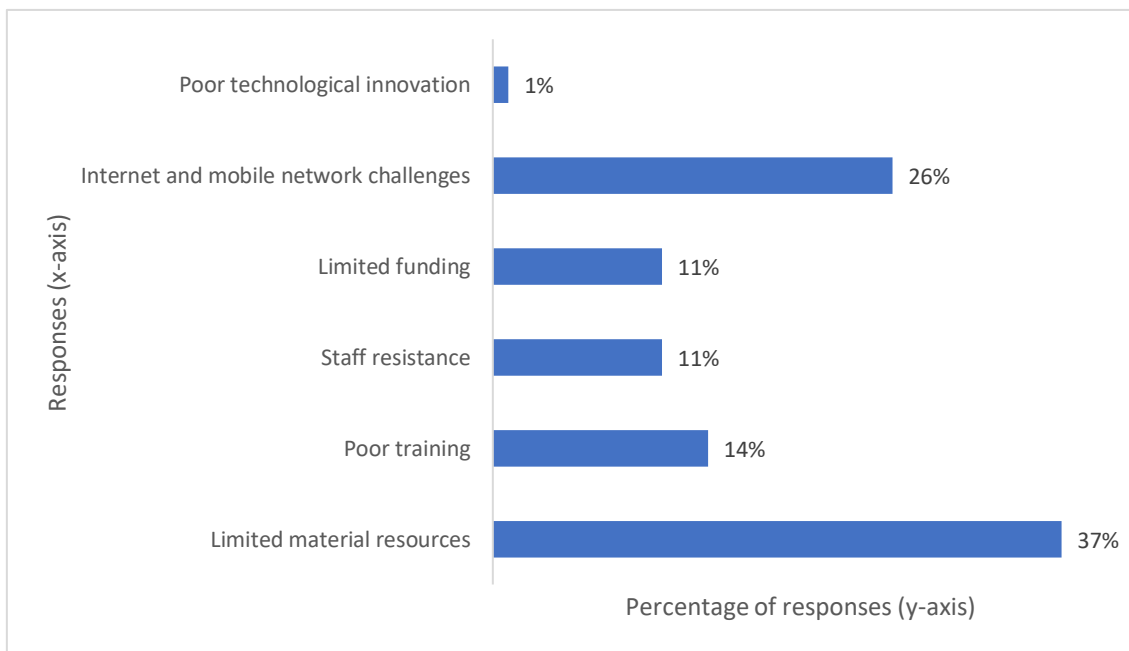


Figure 2. Barriers to Telehealth Utilisation in Harare

Discussion

The main aim of this study was to explore the awareness and acceptability of telehealth among healthcare workers involved in HIV care services. In this study, 87% of the participants were aware of telehealth, while 85% found it acceptable. However, a number of barriers were cited to impede telehealth utilisation. A key focus set out in the Zimbabwe 2021 -2025 eHealth/Digital Health strategy is to digitise health service delivery and enable the country to meet its obligation of universal health coverage by 2030, especially in eradicating HIV/AIDS [24]. Telehealth has been reported to have the potential to improve health coverage, especially in resource-limited settings [17].

The high acceptance and awareness status revealed by this study is in tandem with findings from a recent study conducted across 57 countries that showed an awareness status of 75% among healthcare workers, while 79% found it acceptable [25]. Another study exploring the awareness and attitudes toward telehealth in a low-resource country reported that 87% of the respondents were familiar with this technology whereas 79% reported a positive attitude [26]. Although a 2015 study in Iran showed that most healthcare workers (96%) were not aware of telehealth [27], this may have since changed with the recent developments in technology and regulations [8; 28; 29], and the advent of COVID-19.

A French study carried out in 2018 stated that 98% of the respondents were not sufficiently trained to provide service using telehealth [30]. According to the research, 85% of the participants were not familiar with telehealth regulations. Similarly, this study showed poor training in telehealth with 73% of the respondents not sufficiently trained.

Furthermore, the findings of this study revealed an association between telehealth awareness with level of education and profession. This agrees with findings from a 2021 study in the USA which proved that individuals with high school education were 5% less likely to use telehealth than those with a bachelor's degree or higher [12]. The same study further pointed out that men are less aware of telehealth compared to females, as shown in this study.

The open-ended responses provided an additional perspective. Limited resources, including poor mobile and internet networks, were the key barriers hindering telehealth utilisation. This is consistent with findings from a Botswana study that cited resource shortages (health human resources and infrastructure) as the most important barrier to telehealth along with privacy, security, and confidentiality issues [31].

Strengths and Limitations of the Study

While this study is not an exhaustive evaluation of factors that influence telehealth acceptance among healthcare workers, key factors that may contribute to usage were considered. Therefore, the study adds to a body of knowledge of telehealth in Zimbabwe. Furthermore, the study is quantitative thus, relationships between variables were explored.

Whilst the findings of this study are anticipated to be accurate, the desired depth and breadth of the outcome may not have been achieved. Of note, the survey questions could not probe further specific issues related to telehealth.

Recommendations for Further Research

Further research is recommended that provide more insight into the determinants of telehealth awareness and acceptance. Key informant interviews at a larger scale using more granular survey questions may enable an exhaustive examination. In addition, service users, who were not involved in this study, may provide crucial information missed by the service providers.

Conclusions

Overall, telehealth is a novel and emerging practice in Zimbabwe. Healthcare workers view telehealth as satisfactory and beneficial in HIV care. The findings of this study showed good awareness, acceptance and a positive attitude towards telehealth which bodes well for the government's attempt to enhance utilisation of telehealth in HIV care. The findings of this study provide optimism for telehealth, especially after appropriate training of healthcare workers.

Conflict of Interest

The authors wish to declare no conflict of interest in this manuscript.

Acknowledgements

We gratefully acknowledge the support of the data collectors.

References

- [1] World Health Organization. (n.d.). Social determinants of health. Retrieved 3 August 2022, from https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1.
- [2] Loewenson, R., & Masotya, M. (2018). Equity Watch: Assessing progress towards equity in health in Zimbabwe, 2018 Training and Research Support Centre, Regional Network for Equity in Health in East and Southern Africa (*EQUINET*). <https://www.tarsc.org/publications/documents/Zim%20equitywatch%2009.pdf>.
- [3] Mangundu, M., Roets, L., & Van Rensberg, E. J. (2020). Accessibility of healthcare in rural Zimbabwe: The perspective of nurses and healthcare users. *African Journal of Primary Health Care & Family Medicine*, *12*(1). <https://doi.org/10.4102/phcfm.v12i1.2245>.
- [4] Tessema, Z. T., Worku, M. G., Tesema, G. A., Alamneh, T. S., Teshale, A. B., Yeshaw, Y., Alem, A. Z., Ayalew, H. G., & Liyew, A. M. (2022). Determinants of accessing healthcare in Sub-Saharan Africa: A mixed-effect analysis of recent Demographic and Health Surveys from 36 countries. *BMJ Open*, *12*(1), e054397. <https://doi.org/10.1136/bmjopen-2021-054397>.
- [5] Oleribe, O. E., Momoh, J., Uzochukwu, B. S., Mbofana, F., Adebisi, A., Barbera, T., Williams, R., & Taylor Robinson, S. D. (2019). Identifying Key Challenges Facing Healthcare Systems In Africa And Potential Solutions. *International Journal of General Medicine*, *Volume 12*, 395–403. <https://doi.org/10.2147/IJGM.S223882>.
- [6] Druetz, T. (2018). Integrated primary health care in low- and middle-income countries: A double challenge. *BMC Medical Ethics*, *19*(S1), 48. <https://doi.org/10.1186/s12910-018-0288-z>.
- [7] Tafuma, T. A., Mahachi, N., Dziwa, C., Moga, T., Baloyi, P., Muyambo, G., Muchedzi, A., Chimbidzikai, T., Ncube, G., Murungu, J., Nyagura, T., & Lew, K. (2018). Barriers to HIV service utilisation by people living with HIV in two provinces of Zimbabwe: Results from 2016 baseline assessment. *Southern African Journal of HIV Medicine*, *19*(1), 721. <https://doi.org/10.4102/hivmed.v19i1.721>.
- [8] Keesara, S., Jonas, A., & Schulman, K. (2020). Covid-19 and Health Care's Digital Revolution. *New England Journal of Medicine*, *382*(23), e82. <https://doi.org/10.1056/NEJMp2005835>.
- [9] *Health Resources and Services Administration*. (2020). Glossary. <https://bhwh.hrsa.gov/glossary#>.
- [10] Lurie, N., & Carr, B. G. (2018). The Role of Telehealth in the Medical Response to Disasters. *JAMA Internal Medicine*, *178*(6), 745. <https://doi.org/10.1001/jamainternmed.2018.1314>.
- [11] Miyawaki, A., Tabuchi, T., Ong, M. K., & Tsugawa, Y. (2021). Age and Social Disparities in the Use of Telemedicine During the COVID-19 Pandemic in Japan: Cross-sectional Study. *Journal of Medical Internet Research*, *23*(7), e27982. <https://doi.org/10.2196/27982>.
- [12] Williams, C., & Shang, D. (2023). Telehealth Usage Among Low-Income Racial and Ethnic Minority Populations During the COVID-19 Pandemic: Retrospective Observational Study. *Journal of Medical Internet Research*, *25*, e43604. <https://doi.org/10.2196/43604>.
- [13] Fouad, A. A., Osman, M. A., Abdelmonaem, Y. M. M., & Karim, N. A. H. A. (2023). Awareness, knowledge, attitude, and skills of telemedicine among mental healthcare providers. *Middle East Current Psychiatry*, *30*(1), 5. <https://doi.org/10.1186/s43045-022-00272-3>.
- [14] Ammenwerth, E. (2019). Technology Acceptance Models in Health Informatics: TAM and UTAUT. *Studies in Health Technology and Informatics*, *263*, 64–71. <https://doi.org/10.3233/SHTI190111>.
- [15] Venkatesh, Morris, Davis, & Davis. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, *27*(3), 425. <https://doi.org/10.2307/30036540>.
- [16] López-Cabarcos, M. Á., Piñeiro-Chousa, J., & Quiñoa-Piñeiro, L. (2021). An approach to a country's innovation considering cultural, economic, and social conditions. *Economic Research-Ekonomska Istraživanja*, *34*(1), 2747–2766. <https://doi.org/10.1080/1331677X.2020.1838314>.
- [17] Chitungo, I., Mhango, M., Mbunge, E., Dzobo, M., Musuka, G., & Dzinamarira, T. (2021). Utility of telemedicine in sub-Saharan Africa during the

- COVID -19 pandemic. A rapid review. *Human Behavior and Emerging Technologies*, 3(5), 843–853. <https://doi.org/10.1002/hbe2.297>.
- [18] Furusa, S. S., & Coleman, A. (2018). Factors influencing e-health implementation by medical doctors in public hospitals in Zimbabwe. *SA Journal of Information Management*, 20(1). <https://doi.org/10.4102/sajim.v20i1.928>.
- [19] *International Center for AIDS Care and Treatment Program (2020)*. Zimbabwe population-based HIV impact assessment. <https://phia.icap.columbia.edu/zimbabwe2020-final-report/>
- [20] Banya, N. (2018). *Zimbabwe's health delivery system*. ZimFact. <https://zimfact.org/factsheet-zimbabwes-health-delivery-system/>.
- [21] Raosoft. (2004). *Sample Size Calculator*. <http://www.raosoft.com/samplesize.html>.
- [22] Mugarisi, V. (2022). *Zimbabwe conducts health labour market analysis*. World Health Organization. <https://www.afro.who.int/countries/zimbabwe/news/zimbabwe-conducts-health-labour-market-analysis>.
- [23] Gurupur, V. P., & Wan, T. T. H. (2017). Challenges in implementing mHealth interventions: A technical perspective. *MHealth*, 3, 32–32. <https://doi.org/10.21037/mhealth.2017.07.05>.
- [24] *Ministry of Child and Child Care*. (n.d.). National Health Strategy 2020-2025 on the cards. Retrieved 3 September 2023, from http://www.mohcc.gov.zw/index.php?option=com_content&view=article&id=343:national-health-strategy-2020-2025-on-the-.
- [25] Naqvi, S. Z., Ahmad, S., Rocha, I. C., Ramos, K. G., Javed, H., Yasin, F., Khan, H. D., Farid, S., Mohsin, A., & Idrees, A. (2022). Healthcare Workers' Knowledge and Attitude Toward Telemedicine During the COVID-19 Pandemic: A Global Survey. *Cureus*. <https://doi.org/10.7759/cureus.30079>.
- [26] Elhadi, M., Elhadi, A., Bouhuwaish, A., Bin Alshiteewi, F., Elmabrouk, A., Alsuyihili, A., Alhashimi, A., Khel, S., Elgherwi, A., Alsoufi, A., Albakoush, A., & Abdulmalik, A. (2021). Telemedicine Awareness, Knowledge, Attitude, and Skills of Health Care Workers in a Low-Resource Country During the COVID-19 Pandemic: Cross-sectional Study. *Journal of Medical Internet Research*, 23(2), e20812. <https://doi.org/10.2196/20812>.
- [27] Ayatollahi, H., Sarabi, F. Z. P., & Langarizadeh, M. (2015). Clinicians' Knowledge and Perception of Telemedicine Technology. *Perspectives in Health Information Management*, 12(Fall), 1c.
- [28] Renu, N. (2021). Technological advancement in the era of COVID-19. *SAGE Open Medicine*, 9, 205031212110009. <https://doi.org/10.1177/20503121211000912>.
- [29] Mahtta, D., Daher, M., Lee, M. T., Sayani, S., Shishehbor, M., & Virani, S. S. (2021). Promise and Perils of Telehealth in the Current Era. *Current Cardiology Reports*, 23(9), 115. <https://doi.org/10.1007/s11886-021-01544-w>.
- [30] Yaghobian, S., Ohannessian, R., Iampetro, T., Riom, I., Salles, N., De Bustos, E. M., Moulin, T., & Mathieu-Fritz, A. (2022). Knowledge, attitudes and practices of telemedicine education and training of French medical students and residents. *Journal of Telemedicine and Telecare*, 28(4), 248–257. <https://doi.org/10.1177/1357633X20926829>.
- [31] Ncube, B., Mars, M., & Scott, R. E. (2023). Perceptions and attitudes of patients and healthcare workers towards the use of telemedicine in Botswana: An exploratory study. *PLOS ONE*, 18(2), e0281754. <https://doi.org/10.1371/journal.pone.0281754>.