Texila International Journal of Public Health
ISSN: 2520-3134
DOI: 10.21522/TIJPH.2013.12.01.Art010

A Framework for Enhancing the Uptake and Utilisation of Telehealth in HIV Care in Harare, Zimbabwe

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Abstract

Telehealth, a rapidly evolving facet of modern healthcare, is revolutionising the way medical services are delivered. Implementing telehealth involves careful planning, coordination, and consideration of various factors. Despite the promotion of telehealth by the World Health Organisation and key health professionals, several implementation failures have been reported. Previous studies have reported failures related to a lack of well-structured frameworks that provide guidance and standardisation, efficiency, integration, and compliance. This study was part of a multi-phase study aimed at developing a framework to improve the uptake and utilisation of telehealth in HIV care in Harare, Zimbabwe. A mixed-methods approach which includes both qualitative and quantitative approaches was used. Three separate studies of this multi-phase study have been published. Guided by the findings of the previous three studies, and the Non-adoption, Abandonment, Scale-up, Spread and Sustainability framework, a consolidation process was undertaken using an iterative inductive approach to design a framework that demonstrated relationships between the identified key elements and their role in improving telehealth uptake and utilisation in HIV care services. The designed framework highlights separate and distinct sections: current telehealth status; strategies to enhance telehealth implementation, utilisation and scale-up; and recommended actions. Suggested strategies include an improvement of existing infrastructure, increased funding, development of guiding policies, and partnerships. The framework could guide policy formulation and decision-making among stakeholders. Careful consideration of the framework could also ensure the successful future implementation of telehealth across the whole country. However, significant hurdles to telehealth utilisation and scale-up exist and should be addressed to realise the full potential.

Keywords*: Framework; HIV; Telehealth; Utilisation.*

Introduction

The use of information and communication technologies (ICT) in supporting health and health-related fields such as service delivery, health surveillance, health education and research gained significant attention in recent years [1]. Telehealth which involves the use of information and telecommunication tools, such as telephone and video conferencing, to provide health services and medical consultation at a distance has been an area of priority for the

World Health Organization since 2005 [2]. Implementation of telehealth continues to grow in most countries despite various hurdles in developing countries [3].

Africa's healthcare sector currently faces challenges on the quality of services, accessibility, affordability, and availability of resources [4, 5], and these could be mitigated by telehealth implementation [6]. Telehealth is convenient and beneficial to both healthcare providers and patients, compared to conventional methods of service delivery [7, 8, 9, 10, 11]. Several studies have demonstrated that telehealth is effective [12, 13, 14], cost-effective [15, 16], offers flexibility [8, 17, 18], improves patient outcomes, and enables better resource allocation and management [19]. Reports also highlighted that telehealth services have positive effects on adherence to antiretroviral therapy (ART) among people living with HIV (PLHIV) [19, 20, 21].

Despite the promotion of telehealth by the World Health Organisation, several implementation failures have been reported [22, 23]. Most of these failures are related to a lack of a well-structured framework that provides guidance and standardisation, efficiency, integration, and compliance [24, 25]. Although several frameworks have been suggested for implementing technological innovation, existing frameworks in literature are generic, and they fail to cover all the factors of success and failure for every digital innovation [26]. In addition, countries have different political and economic outlooks, and different cultures that need careful consideration when implementing digital innovations.

Zimbabwe drafted an e-health strategy in 2012 to revitalise the public healthcare sector and enhance access to treatment for the public. However, the strategy is failing to meet its objectives, and the country's healthcare sector has been facing many challenges. The e-health strategy is also too broad and does not particularly address the need for telehealth in HIV services. There is an urgent need for the government to establish more robust, longer-lasting and more equitable policy changes to ensure that telehealth is accessed by PLHIV and at-risk groups. Studies show that the success of implementing and promoting a specific technology lies in developing a framework tailored to the characteristics of the condition, the technology, and the country under study [27]. Accordingly, this study sought to develop a framework for improving the uptake and utilisation of telehealth in HIV Care in the context of Harare, Zimbabwe.

Materials and Methods

Study Design

This study was part of a multi-phase study aimed at developing a framework to improve the uptake and utilisation of telehealth in HIV care in Harare. A mixed-methods approach which includes both qualitative and quantitative approaches was used with a concurrent triangulation design. Three separate studies of this multi-phase study have been published [28, 29, 30]. The first phase conducted between July and September 2022 was a scoping review [28] to map the literature on telehealth use in HIV care and identify key concepts and gaps in research. A total of 13 studies met the inclusion criteria and highlighted the current status of telehealth use in HIV care in sub-Saharan Africa.

In phase two, a cross-sectional survey [29] was employed to assess telehealth awareness and acceptability among healthcare workers in Harare. The survey of 395 healthcare workers conducted between October 2022, and April 2023 provided insights into healthcare workers' expectations and intentions to use telehealth.

In phase three, interviews were conducted with stakeholders [30] in HIV response and digital health, to determine their perspectives on the implementation, utilisation and scale-up of telehealth. The study was conducted between

May 2023 and August 2023. In-depth interviews were conducted to collect qualitative data from the key stakeholders. The stakeholders' perspectives further provided insights on barriers and facilitators to telehealth implementation and strategies for enhancing utilisation. The framework in this paper is evidence-based and was guided by the findings in phases one, two and three.

Development of the Framework

The NASSS (Non-adoption, Abandonment, Scale-up, Spread and Sustainability) framework further provided direction in the development of the framework for this study. The NASSS framework was developed to study unfolding technology programmes in real-time and to identify and manage their emergent uncertainties and interdependencies [31]. The NASSS framework comprises of seven domains: the value proposition, the condition or illness, the adopter system, the organisation, the technology, the broader context, and the interaction and mutual adaptation of these domains over time [32]. The NASSS framework was therefore selected to guide this current study because it best fits the research to identify the factors that influence the uptake and utilisation of telehealth.

A consolidation process was undertaken in developing the framework for this current study. The initial step involved the authors identifying key elements relevant to and essential to the development of the framework. Identification of these key elements was guided by findings in phases one, two and three, which provided information relating to current telehealth status, awareness, acceptability, readiness, challenges, and strategies [28, 29, 30]. Using an iterative inductive approach, this gathered knowledge was refined and used to design preliminary frameworks that demonstrated relationships between the identified key elements and their role in improving telehealth uptake and utilisation.

Upon designing a plausible framework, the iterative inductive processes ceased, and the framework was considered sufficiently robust that it could be used to guide telehealth uptake and scale-up. The proposed framework was then evaluated by the authors to determine if it was suitable for the desired objective. The authors assessed the framework by reflecting on their previous work, as well as their experiences with past contexts, and assessing whether the framework is practical and understandable. Modifications were made by removing or adding any elements deemed redundant or lacking.

Results

The proposed telehealth framework for improving the uptake and utilisation of telehealth in HIV Care in Harare is presented in Figure 1. The framework highlights separate and distinct sections: current telehealth status; strategies to enhance telehealth implementation, utilisation and scale-up; and recommended actions. Despite most telehealth systems being currently at pilot stages in Harare, it was revealed that telehealth is acceptable and perceived as efficient. Suggested strategies include an improvement on existing infrastructure, increased funding, development of guiding policies, and partnerships. The establishment and empowerment of a task force for telehealth implementation, and political engagement were identified as essential actions to take.

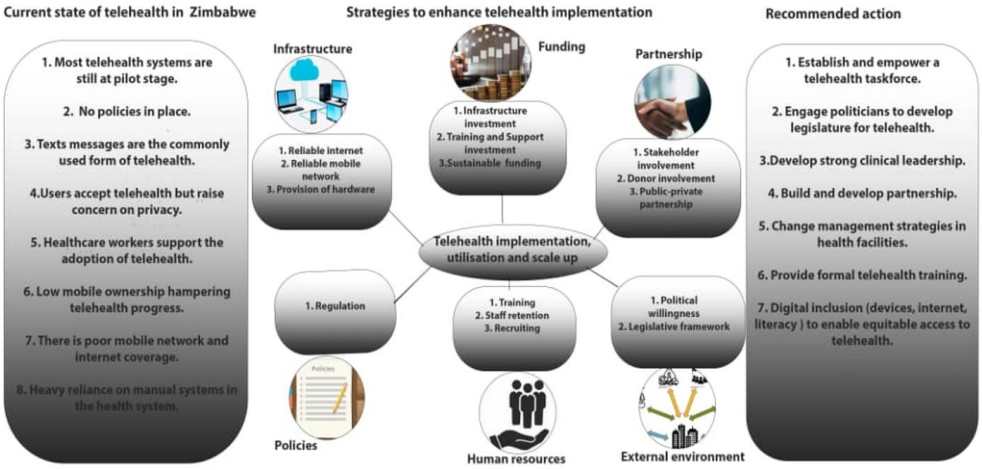

Figure 1 Framework for Improving the Uptake and Utilisation of Telehealth in HIV Care in Harare, Zimbabwe

Discussion

This study presents the consensus of the authors culminating from the previous three studies on the development of a telehealth framework for HIV care. The proposed framework is developed specifically for application in the context of Harare, Zimbabwe. The framework presented in this paper provides insights regarding how relevant authorities may make use of multiple factors to influence the implementation, scale-up and utilisation of telehealth in the given setting, and how this knowledge helps identify action for intervention.

The framework presented in this paper is based on local circumstances. Previous studies on digital health implementation identified six key dimensions as influential for successful implementation: being designed in response to people's health needs; enabling environment; ensuring IT systems integration; partnership with stakeholders; ensuring implementation requirements are met; and addressing issues related to end users' abilities to access, trust, accept, and utilise digital health platforms [33, 34, 35, 36, 37]. The framework in this paper identified similar issues, although contextualised. However, in this current study, the framework is more programmatic as it provides a comprehensive overview of the status of telehealth in Harare and action points to be addressed.

The framework highlights the absence of effective telehealth systems in Harare, and over-reliance on manual systems in healthcare facilities. Similarly, a review of telehealth in some developing countries revealed that telehealth is not fully integrated into the healthcare systems yet, and closing this gap requires coordinated political and professional will [2]**.** Additionally, the current framework portrays that users support telehealth. This is in tandem with a systematic review conducted by Kruse et al. [38] which revealed apathy as one of the least barriers to telehealth uptake. This acceptance of telehealth can be remarkably advantageous to telehealth implementers.

Emphasised in the current framework is multi-sectoral collaboration to provide an enabling environment for telehealth uptake. Policy development, infrastructure development and funding are also recommended, in agreement with a systematic review conducted by Shuvo et al. [33].

In developed countries, telehealth is funded by the government, which is somewhat different from many developing countries whose digital health innovations are largely funded directly or indirectly, by external donors. A political environment conducive for foreign donors and non-governmental organisations (NGOs), is therefore of uttermost

importance [33, 39]. The role of the private sector cannot be over-emphasised creating a need for public-private partnerships in the process of focussed telehealth implementation [2]. This is illustrated in the framework.

Several studies have documented the crucial role of the government in implementing digital health systems [39, 40, 41, 42]. Similarly, all the six dimensions shown in the framework in this paper require government regulation for successful telehealth implementation, utilisation and scale-up.

Other specific recommendations included in the framework are strong clinical leadership and change management strategies. Likewise, change management and good communication approaches have been shown to enhance telehealth adoption [2]. The framework also illustrates that other efforts from the creation of a telehealth task force, formal pieces of training, and digital inclusion strengthen digital innovations, as demonstrated in previous studies [41, 42].

Strengths and Limitations of the Study

The framework's main strength is that it has been purposively designed to address the needs of a particular location. Therefore, the framework is more comprehensive and programmatic. Additionally, the framework is evidence-based having been formulated based on literature, and users', stakeholders', and experts' opinions. A potential weakness of this framework is that its effectiveness and value have not been empirically demonstrated.

Recommendations for Further Research

The effectiveness of the framework must be practically verified through application.

Conclusions

The telehealth utilisation and scale-up framework presented in this study is evidence-based, informed by prior investigations. The framework will guide policy formulation and decision-making. Careful consideration of the framework will also ensure the successful future implementation of telehealth across the whole country. However, significant hurdles to telehealth utilisation and scale-up exist and should be addressed to realise the full potential.

Conflict of Interest

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

Acknowledgements

The authors would like to thank all stakeholders who participated in this study by sharing their valuable input.

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