ORIGINAL PAPER

Risk screening for HIV testing in Zimbabwe: a qualitative study

Hamufare Dumisani Mugauri[1,2], Joconiah Chirenda[1], Kudakwashe Takarinda[3], Owen Mugurungi[2], Ishmael Chikondowa[2], Patrick Mantiziba[4], Mufuta Tshimanga[1]

[1]Department of Primary Health Care Sciences, University of Zimbabwe, Harare, Zimbabwe
[2]Ministry of Health and Child Care, AIDS and TB Unit, Harare, Zimbabwe
[3]Organization for Public Health Interventions and Development (OPHID), Harare, Zimbabwe
[4]Clinton Health Access Initiative (CHAI), Harare, Zimbabwe

Abstract

Introduction: The use of screening tools for targeted human immunodeficiency virus (HIV) testing improves efficiency by identifying individuals, who are likely to test positive. Effective utilization of screening tools needs an understanding of healthcare workers (HCWs) and willingness to use these tools. In this study, health workers' perspectives on screening tools were determined to augment their effective and consistent utilization.

Material and methods: A qualitative study among HCWs at eight selected primary healthcare facilities in Zimbabwe was conducted. Interviewer-guided, in-depth interviews were performed with HCWs and their immediate supervisors. Inductive and deductive coding (hybrid) was applied to develop and analyze themes following a framework built around the grounded theory model to describe perspectives, which influence effective and consistent utilization of HIV screening tools as well as suggestions for enhanced eligibility screening.

Results: Behavioral factors facilitating the application of a screening tool included motivation to adhere to standard practice, awareness of screening role in targeting testing, and its ability to manage workload through screening out ineligible subjects. This was apparent across all service delivery levels. Barriers included limited healthcare capacity, lack of confidentiality space, multiple screening tools, obscure screening in/out criteria, and the possibility of subjects not responding to screening questions truthfully.

Conclusions: Across all geographical and service delivery levels, the correct placing of screening tool at HIV testing entry points and HCWs knowledge on screening in/out criteria, emerged as the key factors for correct and consistent utilization of screening tools. Standardization of the tools would improve their appropriate choice and utilization.

HIV AIDS Rev 2025; 24, 3: 234-241
DOI: https://doi.org/10.5114/hivar/175793

Key words: qualitative, HIV testing services, screening tool, health worker perspectives, grounded theory framework.

Address for correspondence: Hamufare Dumisani Mugauri, Department of Primary Health Care Sciences, University of Zimbabwe, New Health Sciences building, Parirenyatwa complex, 04, harare, Zimbabwe, e-mail: dumiwaboka@gmail.com

Article history:
Received: 22.03.2023
Revised: 30.08.2023
Accepted: 23.11.2023
Available online: 15.07.2025

International Journal of HIV-Related Problems
HIV & AIDS Review

Introduction

More than two decades into the human immunodeficiency virus (HIV) pandemic, the virus remains a leading public health threat, with an estimated 39 million people living with HIV (including 1.7 million children) globally in 2022 [1, 2]. Notably, approximately 16% of people living with HIV (6.1 million) do not know their HIV status, exposing a large gap in testing [1]. The main prevalence of HIV individuals is reported in East and Southern Africa, with 20.8 million people living with HIV and 500,000 new HIV infections in 2022, constituting these regions the epicenter of HIV pandemic [3]. Further, Zimbabwe failed the first 90 of the UNAIDS 90-90-90 targets in 2020, scoring 86.8% instead [4]. These targets have been revised to 95% targets, and are now more robust to cover the identification of people living with HIV, their linkage to prevention and treatment services as well as creating a supporting environment for HIV programing [5]. This presents a critical task for the country to expedite case identification, aided by screening tools, and meet the new targets in 2025 when country's performance is evaluated [1].

Knowing one's HIV status through testing is vital for extenuating the onward transmission of the virus in the community. While universal testing (provider and patient-initiated testing) remains the gold standard, many resource-deprived settings are struggling to consistently offer this modality, mainly because of test kit shortages, indicating the need for cost-effective approaches to HIV testing. In order to overcome this problem, screening tools are recommended to support testers in segregating subjects, and prioritize those patients who are most likely to test HIV-positive, thereby decreasing 'unnecessary testing', where a negative test result is almost predictable. Screening tools remain an integral component of the targeted testing strategy [6].

Zimbabwe shifted from testing for coverage, and adopted targeted testing in 2017 in compliance with WHO recommendations. As a scheme to enhance positivity yield, efficient utilization of limited resources and enhanced effectiveness in HIV testing are required [7]. Furthermore, an adult HIV self-testing (HTS) screening tool was introduced in 2019 to aid testers in identifying and prioritizing individuals at high-risk for HIV and most likely to test positive [8]. This tool was subsequently evaluated and validated, resulting in a revised instrument that met the attributes acceptable to effectively reduce testing volumes, while minimally screen out potential HIV-positive testers [9].

During the evaluation and validation process, it was projected that the positivity yield would decline since no screening out was being done (all subjects were being tested regardless of screening outcome) in contrast with that before the process, when the screening tool determined eligibility for testing. However, a positivity yield of 7.53% was documented during the evaluation compared with 7.68 documented at the same facilities a month before the evaluation process [9]. This finding convincingly suggested that either the tool was not being routinely utilized as expected, or the tool was not effective in its determination of eligibility for testing.

Therefore, this qualitative study was conducted as an explanatory sequential to a quantitative study that developed the screening tool, to cross-examine the perspectives of nurse managers and testers to develop an in-depth understanding of the key factors, which influence the utilization of screening tools at public health facilities in Zimbabwe. The objective was to estimate the correct, consistent, and standardized implementation of screening tools to guide targeted HIV testing in Zimbabwe.

Material and methods

Study design and theoretical framework

A qualitative study using in-depth interviews (IDIs) was conducted to understand and describe the factors that influence healthcare workers' (HCWs) and their managers' perspectives on the utility of HIV testing services screening tools. Objectivist (an impartial approach to information synthesis) and constructivist (an interpretive tradition and relativism) attributes of the grounded theory were adapted. This facilitated the application of comparative methodology and allowed systematic guidance for gathering, synthesizing, analyzing, and conceptualizing qualitative data to understand HCWs' perspectives on the use of screening tools in HIV testing [10]. The grounded theory was adapted, as illustrated in Figure 1.

Two-part questionnaire was employed to guide the elicitation of key variables from nurse managers (sister in charge and matrons) and testers (nurses and primary counsellors).

Study setting

The study was conducted at primary healthcare (PHC) facilities, which are the first health places for communities seeking healthcare in Zimbabwe. All patients, who register at public health facilities are offered HIV testing services after being screened for eligibility, according to existing job aides and operational service delivery manual (OSDM) [11]. Provider-initiated testing and counselling (PITC) are offered at the facility and in community, where HCWs propose HIV testing services to all eligible subjects regardless of the visit's purpose, while individuals may also request the services (client-initiated testing and counselling, CITC) [12]. HIV screening results are not routinely documented; the process only helps service provider to determine if a person can be tested during a visit or advised to report back at a later date, according to the risk profile. Outpatients (OPD), family, and child health (FCH) departments as well as opportunistic infections clinics (OIC) are the popular entry points for HTS. Admitted patients may also be tested within the wards.

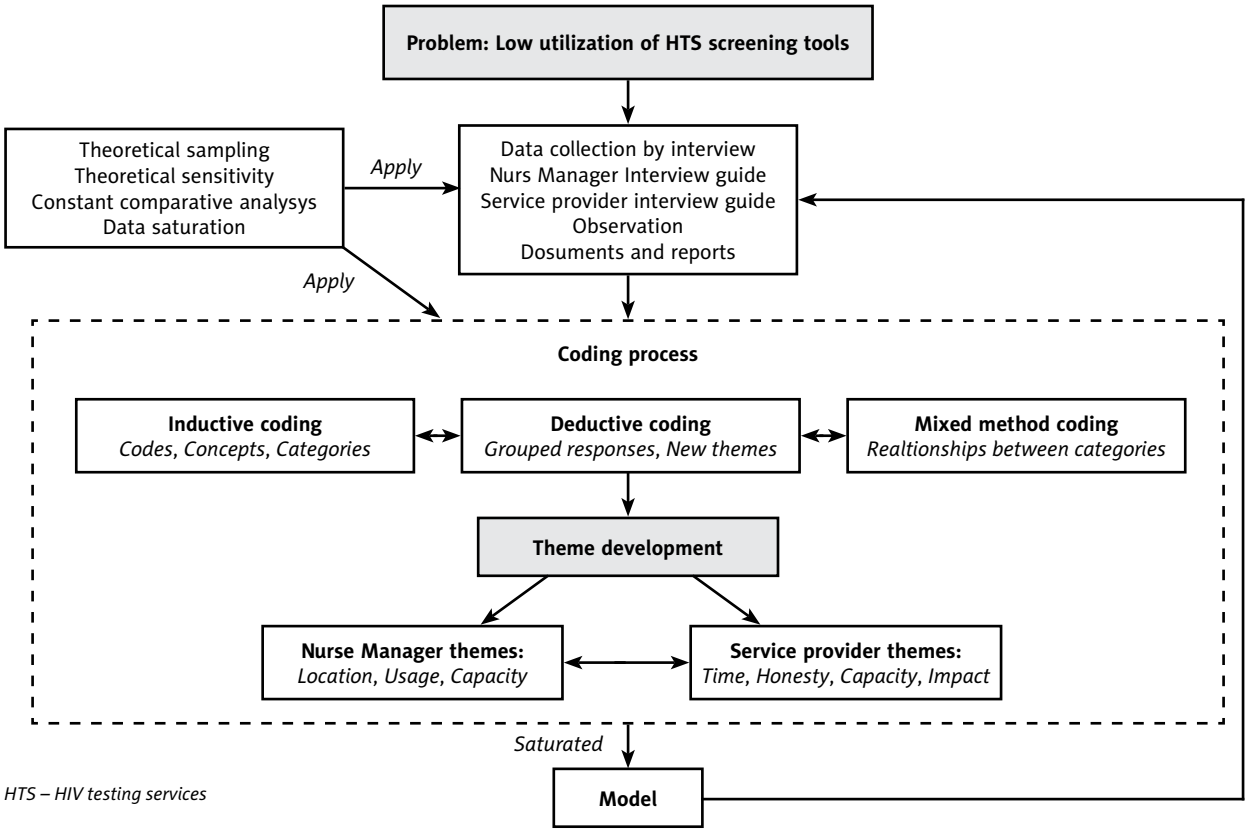

Figure 1. Adaptation of the grounded theory

Sampling, participant recruitment, and data collection

Eight healthcare facilities were recruited from the 25 facilities, which participated in the quantitative evaluation and validation of the screening tool, since this qualitative evaluation was done as an explanatory sequential to the quantitative study. The reason for this selection was to synthesize inter-related circumstances and participants for the quantitative and qualitative assessments, on the account of their inter-relatedness. HCWs (nurse managers and testers) identified during the data collection exercise that recorded a 100% response rate from the HCWs identified, were included in the study. Data were collected during 2 weeks in November 2021 by data collectors with experience in conducting qualitative interviews. Facilities selected from 4 of 10 provinces of the country, included 1 rural hospital (Hwedza), 1 district hospital (Banket), 1 mission hospital (Avilla), 3 urban polyclinics (Zengeza, Overspill, and Seke South), partner-run site (New Africa House Newstart Center), and a rural clinic (Ruyamuro), as demonstrated in Table 1. All participants were informed about the study objectives and processes involved in participation before obtaining their written informed consent. Participants were either nurse managers (sister in charge or matron) or testers (nurses and primary counsellors) working at the selected clinics, and willing to consent to audio recording of interviews. Recruited participants were assigned a unique study number for confidentiality. A final sample of 20 participants, male and female nurse managers, nurses, and primary counsellors, were included in the analysis. Inclusivity

Table 1. Sites for qualitative data collection for adult HIV testing services screening tool implementation, 2021

Province	District	Site
Mashonaland West	Banket	Banket District Hospital
Harare	Harare City	Ruyamuro Clinic, Overspill Clinic, New Africa House Newstart Centre
	Chitungwiza	Seke South Clinic, Zengeza Clinic
Manicaland	Nyanga	Avila Mission Hospital
Mashonaland East	Hwedza	Hwedza Rural Hospital

of this ultimate sample enabled obtaining a comprehensive picture of experiences and perceptions related to using HTS screening tools [13].

Interviews lasted for 25-35 minutes, and were carried out using a guide with open-ended questions. Topics covered in this guide included awareness of the existence of screening tool, its usefulness, and consistency in its usage to guide decision-making in eligibility screening for HIV testing. Experiences in using screening tools, barriers and facilitators for usage, and providers' perceptions on their importance in targeting HIV testing were also investigated. Interviews were conducted in identified and quiet locations, mostly in open spaces or offices. Discussions were primarily conducted in English, although participants were free to express themselves in vernacular (Shona) that better articulated their experiences in utilizing HTS screening tools. Data were collected until saturation [14], and interviews were stopped when no new perspectives emerged.

Data analysis

A step-wise approach was employed for data analysis. All interviews were transcribed verbatim. Audio recordings in local languages were directly transcribed and translated into English by the investigators fluent in these languages and accuracy of transcripts in digital recordings. Multiple reading of transcripts was done by both investigators, followed by manual coding and classification into pre-set themes, while new themes were also developed from recurring-related responses.

Two members of the study team independently reviewed and coded the transcripts guided by the grounded theory constructs to explore the perceptions of participants on the utility of screening tools in public healthcare settings. Working in collaboration, the investigators reviewed and refined emerging key dimensions and themes. The process of refining and reviewing key dimensions as well as the emerging themes were repeatedly performed, until saturation was achieved, and no additional themes or categories could be identified [15].

Transcripts were imported into QSR International NVivo version 10 software to arrange the initial codes into themes, and subsequently categorize them into key dimensions and identify patterns across the groups [15]. Soft-copy transcripts were stored securely and safely on password-protected computers, while audio recordings were deleted from recorders immediately after data processing.

Open and axial coding was applied to assist in the interpretation of collected data. Additionally, thematic analysis as well as inductively and deductively developed codes (hybrid) were utilized. The codes were categorized into three principal domains of factors for nurse managers, such as location, usage, and capacity. Whereas for the implementers, there were four key themes determined, including time, honesty, capacity, and impact.

The analysis process identified prominent differences in the HCWs' perceptions of screening tools and their utility in public health settings. Participants' demographic characteristics were extracted during qualitative interviews.

Table 2. Demographic characteristics of participants (N = 20)

Factor	
Sex, *n* (%)	
Female	13 (65)
Male	6 (35)
Age (years), median (interquartile range)	37 (31-40)
Professional category, *n* (%)	
Matron	1 (5)
Sister in charge	6 (30)
Registered general nurse	4 (20)
Primary counsellor	9 (45)
Years of professional experience, *n* (%)	
< 2 years	4 (20)
2-5 years	9 (45)
> 5 years	7 (35)
Years working in the current clinic, *n* (%)	
< 2 years	8 (40)
2-5 years	5 (25)
> 5 years	7 (35)

Results

Participants' characteristics

The demographic characteristics of the study participants (N = 20) are depicted in Table 2.

Thematic results

There were five themes from the analysis (Table 3), supported by verbatim, and minimally edited quotes.

Healthcare workers' perceptions of screening tools

HCWs expressed varying opinions on the ideal placement of screening tool, as highlighted in the following themes.

Theme 1. The ideal placing of HTS screening tool within the healthcare facility

This theme was observed across various levels of the facilities included. Most clinics have single-entry points, and usually attend to low-volume patients, whereas larger facilities, such as district and rural hospitals, have multi-entry points. The need to determine the ideal placement of the tool was expressed.

"It is useful but it needs to be placed at the right entry point, where the health worker engages with the client one-on-one." (Male, primary counsellor, district hospital).

Furthermore, a relationship between correct placing and subsequent utilization and the tool was suggested.

Table 3. Themes and key dimensions from in-depth interviews and their relevant grounded theory constructs and domains

Theme and key dimensions	Relevant grounded theory construct and operational definition	Relevant grounded domain
Theme 1: Ideal placing of HTS screening tool within healthcare facility **Key dimensions** Screening for HTS eligibility at facility entry, reception area, consultation room, or HIV testing point Opinions on the best placing of screening tool within the healthcare setup	**Outcome expectations** Healthcare workers identified the ideal location of the screening process to achieve optimal patients' flow and utility of the tool	Social or environmental factors
Theme 2: Potential negative sequelae from utilizing HIV screening tools by healthcare workers **Key dimensions** Fear of the screening process increasing the workload for HIV testing Healthcare workers are not clear about the screening in/out process due to a lack of knowledge Concerns from providers that multiple tools are available, and lack of clarity which tool to utilize Patients' flow is already reduced at healthcare facilities; the need to screen the few that come	**Reciprocal determinism** Interactions between personal and social/environmental factors, which positively or negatively influence utilization of HIV screening tools	
Theme 3: Potential deliberate misinformation by patients desiring HIV testing **Key dimensions** Fear that persons will not respond honestly when asked screening questions, because of their desire to be tested/not tested Creation of confidentiality environment and assurance on the onset of engaging with the patient Subjects' attitudes towards being screened for eligibility before testing	**Behavioral capability** Having and using acquired knowledge and skills to promote honesty in responding to screening questions, to ensure that screening decision is based on real factors	Professional and personal factors
Theme 4: Amount of time required to perform the screening process **Key dimensions** To correctly ascertain the amount of time required to conduct HIV screening Contrasting the amount of time required to conduct an HIV test against the amount of screening Determining screening duration time reduction when screening is routinely performed	**Self-efficacy** Having a good understanding of the importance of screening for HIV testing, and the minimum time required in routine application	
Theme 5: Various health aspects effecting screening for HIV testing, such as resources, workload, and efficiency **Key dimensions** Reflect on how reducing testing volumes through eligibility screening discourages high-frequency testing, with no corresponding positivity yield Drawing from regular onsite data analysis how positivity yield is impacted by testing volumes	**Observational learning** Reflecting on the role of eligibility screening for HIV testing in reducing testing volumes, reducing workload, and promoting efficiency in HIV testing **Reinforcements** Encouraging positive changes through inter-personal and structural supports	Environmental and professional factors

"We need to screen the clients at all testing points for HIV where we meet the client who has opted in for HIV testing following the group education sessions. If we screen them on arrival, this may discourage them from coming to our facility." (Female, sister in charge, rural hospital).

Theme 2: Potential negative sequelae from utilizing HIV screening tools by HCWs

The participants across all geographical areas had different views on how screening tools would impact their workload.

"When the clients come into the testing room, they want to be tested. I would rather not waste my time asking them screening questions when there is a queue outside." (Female, primary counsellor, urban clinic).

"Few clients are turning up for HIV testing these days because of COVID-19. I think these few who come should just be tested because they have made efforts to come. Those who think that they are not at risk are not coming." (Male, primary care nurse, mission hospital).

Most of the HCWs were aware of the role of screening tool in assessing eligibility for HIV testing that inevitably resulted in some persons being screened out.

"When a client is screened out, I will not proceed with testing them and explain that they are not eligible at the time." (Female, sister in charge, urban clinic).

A few of the participants were not well-informed about the utility of screening tool that should be applied to assess eligibility for HIV testing on the day of visit. If subjects do not meet screening criteria, they should not be tested but advised next visit for re-screening. Furthermore, some patients, such as pregnant women, should not be screened because they have a separate HIV testing algorithm.

"A client would still be tested despite being screened out according to SOP." (Female, sister in charge, district hospital).

Standard operating procedure (SOP) refers to pregnant and lactating women's re-testing algorithm.

Multiple screening tools were being utilized, particularly among partner-run healthcare sites.

"Here, we use our tool, which is supplied by our organization, which is electronic because we review the work done by our counsellors in determining who to test and who not to test." (Female, doctor, partner-run healthcare center).

Lastly, the discussions revealed that the utilization of available interventions was reported to depend on an attitude and HIV risk perception.

Theme 3: Potential deliberate misinformation by individuals desiring HIV testing

In line with the behavioral capability construct, this theme focused on the risk of patients, who deliberately provide false information during the screening process to access an HIV test or refuse it.

"Some clients will lie about their risk because they want to get tested and will be angry if you say you will not test them." (Female, registered general nurse, mission hospital).

HCWs from all settings agreed that creating confidential space and assuring patient's privacy are required in routine practice related to HIV issues, and this can help to decrease misinformation.

"To get honest responses, we discuss with our clients in private and assure them that no one will know about our conversation. We also explain that the risk assessment provides us with necessary information to advise them on how best to live their lives, without exposing themselves to HIV." (Female, primary care nurse, rural hospital).

Further probing demonstrated that the screening process, just like any other medical procedure, requires the HCW to create private environment and assure confidentiality. Patients may fluctuate their responses to achieve their goals, and it is the HCWs responsibility to identify inconsistencies and highlight them courteously for reality verification.

Theme 4: The amount of time required to perform the screening process

The participants, who had never used the screening tool were allowed to utilize the tool in pairs, and to determine the amount of time they required to apply it, while those who had experience using the tool, provided feedback on the time they usually require to complete the screening process.

"I only needed 6 minutes to ask all the questions because I was not familiar with them, with routine use, I will probably need less than 5 minutes because I will definitely memorize them." (Male, primary counsellor, rural clinic).

Further investigating revealed that HCWs take an average of 5 minutes if they routinely utilize the screening tool. In addition, observing medical work ethics is essential to avoid the screening process being used to excessively reduce workload.

"The time I need to complete conducting an HIV test is 25 minutes at the minimum, that is if I am doing things right, the screening time is less than a third of that time, so it is not much, but there is a need to make sure everyone screened out was not eligible for a test, to avoid some screening out of clients to reduce workload." (Male, primary counsellor, urban clinic).

Theme 5: Various health aspects effecting screening for HIV testing, such as resources, workload, and efficiency

This theme focused on the impact of eligibility screening for HIV testing on workload compared with the positivity yield obtained and efficiency in the delivery of HIV testing services. Consistency was observed in locations, showing that screening and testing of subjects who are likely to test HIV-positive result in efficiency and economic use of limited resources (test kits), whilst ensuring the optimal positivity yield.

"Seeing that our positivity remains low despite efforts to raise it, the screening tool will reduce the total number of tests we do, and we will test clients who mostly test positive, and we would have done well." (Female, matron, district hospital).

The HCWs suggested additional strengthening of the existing system to ensure that screening becomes mandatory at all facilities, and that patients' responses to screening questions should be documented for verification.

Discussion

In this study, we identified the key attributes required to enhance the consistent utilization of screening tools in risk-profiling HIV testers and prioritizing those at high-risk. Moreover, the ideal placement of screening tool, time frame required to proficiently conduct the screening process, how the screening decision would be best communicated to the person, and suggestions to deal with those who may fabricate responses to obtain the desired HIV test or to avoid it, were determined. The findings underscore the effectiveness of applying the GTM framework of objectivism and constructivism, to enhance the routine utilization of HIV risk screening tools by HCWs. In this regard,

the FGDs revealed that placing the screening tool at all HIV testing entry points is ideal to ensure that the tool is administered to subjects, who are willing to conduct an HIV test, and the screening process is conducted within a confidential space. Assuring patients' confidentiality was suggested to complement the environment, ensuring that they can freely discuss sexual issues. The relationship between confidentiality and individual's willingness to reveal sensitive information is well-documented in the literature [16-18]. Interactions between factors at each of the levels are important for their understanding, which motivate the routine utilization of screening tools by HCWs in heterogeneous settings.

The construct of self-efficacy highlighted the importance of being informed about the screening process and having knowledge on the right tool to use. The existence of multiple screening tools was identified as an obstacle in their effective utilization. HCWs across all facility levels suggested the standardization of screening tools in the country, regardless of whether a facility is supported by a partner or entirely run by the government. This will establish a comprehensive database of eligibility screening for testing, thereby creating an opportunity to evaluate adherence to the administered procedures at determined intervals.

The construct of behavioral capability underscored the need for creating a therapeutic relationship with patients based on confidentiality to ensure honesty in responses to screening questions. Inconsistencies in subjects' responses to questions can be confronted in a confidential and quiet environment, complimented by assurance of privacy. This can be achieved if the HCWs are skilled in counselling dynamics, as emphasized in previous literature [19, 20].

The current study revealed that the minimal time needed to conduct screening is around 5 minutes. Consistent implementation of the screening tool will result in the questions being integrated as a part of continuous therapeutic conversation with a HCW, during which the risk profile of the person is determined, and hence the screening decision made. This finding is in line with that documenting the importance of targeting HIV testing to high-risk individuals, who are likely to obtain a positive test result [21, 22]. Discussions with HCWs showed that the time taken to screen is worth the benefits of screening out ineligible testers, improving efficiency in testing services, and decreasing positivity yield, since the targeted testing is enhanced by testing individuals likely to obtain a positive diagnosis. Applied regularly and consistently, screening is an effective stratagem to improve patients' flow at healthcare facilities.

Furthermore, it was detected that the screening process needs to be integrated into the minimum package for subjects seeking HIV testing services. In order to achieve that, screening should be mandatory for all patients seeking HIV testing services. This is consistent with the thrust to target HIV testing, where screening tools form an integral part of risk assessment, particularly among individuals who have a culture of high-frequency testing regardless of the risk. If done correctly and consistently, eligibility screening for HIV testing has documented benefits [23, 24].

Conclusions

Assessing eligibility for an HIV test is a fundamental part of targeting HIV testing services. This reduces the frequency of re-testing, and considers the risk profile before offering an HIV test. Across geographical and service delivery levels, the correct placing of screening tool at HIV testing entry point and HCW knowledge on screening in/out criteria, emerged as the key factors for the correct and consistent utilization of screening tools. Furthermore, the standardization of the tools would improve their utilization.

Disclosures

1. Institutional review board statement: Approval to conduct this study was obtained from the Ministry of Health and Child Care Head Office, the Joint Research Ethics Committee for the University of Zimbabwe Faculty of Medicine and Health Sciences and Parirenyatwa Group of Hospitals (JREC 280/2021), and the Medical Research Council of Zimbabwe (MRCZ/A/2783). Written informed consent was obtained from all participants before conducting interviews and audio recordings.
2. Assistance with the article: We would like to acknowledge several individuals and institutions. Special gratitude for academic supervisors, Professor M. Tshimanga, Dr J. Chirenda, and Dr K. Takarinda, the Director of AIDS and TB Unit, Dr O. Mugurungi, and the entire HTS team for their tremendous support during this study. Furthermore, we would like to thank the Clinton Health Access Initiative, for providing financial support to meet travelling costs associated with the implementation of this study.
3. Financial support and sponsorship: None.
4. Conflicts of interest: None.

References

1. UNAIDS. Global HIV Statistics. Fact Sheet 2021 [Internet]. 2021. Available from: https://www.unaids.org/en/resources/fact-sheet (Accessed: 30.09.2023).
2. UNAIDS 2022. Global HIV Statistics [Internet]. 2022. Available from: https://www.unaids.org/en/resources/fact-sheet (Accessed: 14.07.2023).
3. UNAIDS GAN. Global AIDS Update: Confronting Inequalities [Internet]. 2021. Available from: https://www.unaids.org/en/resources/documents/2021/2021-global-aids-update (Accessed: 30.09.2023).
4. Ministry of Health and Child Care, Zimbabwe. Zimbabwe Population-based HIV impact assessment 2020 (ZIMPHIA) [Internet]. Zimbabwe Population-based HIV Impact Assessment. ZIMPHIA 2020. Final Report; 2020, p. 71.
5. UNAIDS World AIDS Day Report 2020. Prevailing Against Pandemics by Putting People at the Centre [Internet]. 2020. Available from: https://www.unaids.org/en/resources/documents/2020/prevailing-against-pandemics (Accessed: 30.09.2023).
6. Routine and Targeted HIV Testing [Internet]. Available from: https://www.thebodypro.com/article/routine-and-targeted-hiv-testing (Accessed: 10.02.2022).
7. Ministry of Health and Child Care, Zimbabwe National HIV Testing Services Strategy, 2017-2020 [Internet]. 2017; Available from: https://hts.hivci.org/hts-score.html?countryid=GTM.

8. Ong JJ, Coulthard K, Quinn C, Tang MJ, Huynh T, Jamil MS, et al. Risk-based screening tools to optimise HIV testing services: a systematic review. Curr HIV/AIDS Rep 2022; 19: 154-165.
9. Mugauri HD, Chirenda J, Takarinda K, Mugurungi O, Ncube G, Chikondowa I, et al. Optimising the adult HIV testing services screening tool to predict positivity yield in Zimbabwe, 2022. PLoS Glob Public Health 2022; 2: e0000598. DOI: 10.1371/journal.pgph.0000598.
10. Charmaz K. Grounded theory: methodology and theory construction. In: International Encyclopedia of the Social & Behavioral Sciences. Elsevier; 2001, pp. 6396-6399.
11. Ministry of Health and Child Care, Zimbabwe. Zimbabwe Operational and Service Delivery Manual (OSDM) for the Prevention, Care and Treatment of HIV in Zimbabwe, 2017 [Internet]. 2017. Available from: http://www.ophid.org/treat-all-toolkit/MOHCC-%20Guidelines/MOHCC%20Zimbabwe%20OSDM%202017.pdf (Accessed: 09.12.2020).
12. Ministry of Health and Child Care, Zimbabwe. National AIDS Council. Zimbabwe HIV and AIDS Strategy for the Informal Economy 2017-2020 [Internet]. 2017. Available from: https://www.ilo.org/africa/countries-covered/zimbabwe/WCMS_619882/lang--en/index.htm (Accessed: 08.09.2020).
13. Moser A, Korstjens I. Series: Practical guidance to qualitative research. Part 3: Sampling, data collection and analysis. Eur J Gen Pract 2018; 24: 9-18.
14. Elo S, Kääriäinen M, Kanste O, Pölkki T, Utriainen K, Kyngäs H. Qualitative content analysis: a focus on trustworthiness. Sage Open 2014; 4: 215824401452263. DOI: https://doi.org/10.1177/2158244014522633.
15. Wong L. Data analysis in qualitative research: a brief guide to using Nvivo. Malays Fam Physician 2008; 3: 14-20.
16. Sirinskiene A, Juskevicius J, Naberkovas A. Confidentiality and duty to warn the third parties in HIV/AIDS context. Med Etika Bioet 2005; 12: 2-7.
17. Mair J. Duty of confidentiality and HIV/AIDS. Health Inf Manag 2008; 37: 50-54.
18. Konradsen H, Lillebaek T, Wilcke T, Lomborg K. Being publicly diagnosed: a grounded theory study of Danish patients with tuberculosis. Int J Qual Stud Health Well-being 2014; 9: 23644. DOI: 10.3402/qhw.v9.23644.
19. Sauka M, Lie GT. Confidentiality and disclosure of HIV infection: HIV-positive persons' experience with HIV testing and coping with HIV infection in Latvia. AIDS Care 2000; 12: 737-743.
20. Deribe K, Woldemichael K, Wondafrash M, Haile A, Amberbir A. Disclosure experience and associated factors among HIV positive men and women clinical service users in Southwest Ethiopia. BMC Public Health 2008; 8: 81. DOI: 10.1186/1471-2458-8-81.
21. Liu GG, Guo JJ, Smith SR. Economic costs to business of the HIV/AIDS epidemic. Pharmacoeconomics 2004; 22: 1181-1194.
22. Bloom DE, Glied S. Benefits and costs of HIV testing. Science 1991; 252: 1798-1804.
23. Howard J. HIV screening: scientific, ethical, and legal issues. J Leg Med 2018; 252: 1798-1780.
24. Leiner S. Screening for HIV, diagnosis and treatment. N Engl J Med 1988; 318: 378-380.