



Knowledge, perceptions, and acceptability of HIV Self-Testing among Primary Healthcare Workers in Calabar, Nigeria: A cross-sectional study

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Abstract

Context: HIV self-testing (HIVST) can expand early HIV diagnosis by reducing barriers related to stigma, confidentiality, and access. Primary healthcare workers are important to its delivery, but evidence on their knowledge, perceptions, and acceptability remains limited in many Nigerian settings.

Objective: This study assessed knowledge, perceptions, acceptability, and factors associated with HIVST among primary healthcare workers in Calabar, Nigeria.

Materials and Methods: A facility-based cross-sectional study was conducted among 128 primary healthcare workers selected from primary healthcare facilities in Calabar Metropolis using a multi-stage sampling approach. Data were collected with a semi-structured, interviewer-administered questionnaire and analyzed using SPSS version 25. Descriptive statistics were presented as frequencies, percentages, means, and standard deviations; associations were examined using Chi-square or Fisher's exact tests at $p < 0.05$.

Results: High acceptability of HIVST was reported by 110 (85.9%) respondents. Good knowledge and positive perception were reported by 94 (73.4%) and 92 (71.9%) respondents, respectively. Marital status ($p = 0.0003$), educational level ($p = 0.0054$), work experience ($p < 0.001$), knowledge of HIVST ($p = 0.0001$), and perception of HIVST ($p = 0.0007$) were significantly associated with acceptability. The leading barriers were cost, poor kit availability, fear of a positive result, stigma, and limited counselling support.

Conclusion: HIVST was highly acceptable among primary healthcare workers in Calabar. Integrating HIVST into routine primary healthcare, ensuring affordable kit supply, and strengthening training, counselling, and linkage systems may support safe implementation.

Keywords: Healthcare workers; HIV self-testing; acceptability; knowledge; perceptions; Calabar; Nigeria

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Introduction

Human Immunodeficiency Virus (HIV) remains a major public health concern in sub-Saharan Africa, where many individuals still do not know their HIV status despite gains in prevention, testing, treatment, and viral suppression.^{1,2} Limited awareness of HIV status delays treatment initiation, reduces prevention opportunities, and weakens

progress along the HIV care continuum.^{2,3}

Facility-based HIV testing has expanded access to diagnosis, but stigma, fear of disclosure, confidentiality concerns, distance, waiting time, and inconvenience continue to limit uptake.^{2,4,5}

HIV self-testing (HIVST), which allows individuals to collect their own specimen, perform the test, and interpret the result privately, is promoted as a differentiated, client-centered testing approach.²

Evidence from Africa shows that HIVST can increase access among populations who may not use facility-based services, including men, young people, female sex workers, and other underserved groups.^{4-8,11-15}

However, implementation concerns remain, especially incorrect test performance, misinterpretation of results, limited counselling, coercive testing, improper disposal of kits, and weak linkage to confirmatory testing and care.^{2,4,9,10}

In Nigeria, HIVST is increasingly relevant to efforts to improve testing coverage. Studies among students and other populations indicate general acceptability, but willingness may be shaped by perceived accuracy, cost, confidentiality, counselling needs, and linkage to care.¹⁷ Evidence among primary healthcare workers in Enugu State also showed gaps in awareness and knowledge despite their central role in HIV prevention and community-level service delivery.¹⁸

Healthcare workers may use HIVST personally and also influence whether clients accept, use, and link appropriately from self-testing. Their knowledge, perceptions, and confidence may shape readiness to recommend HIVST, especially because healthcare workers remain at risk of occupational exposure to HIV.^{6,16,19-21}

This study was guided by the Technology Acceptance Model, which links technology acceptance to perceived usefulness and ease of use.²²

This study assessed knowledge, perceptions, acceptability, and factors associated with HIVST among primary healthcare workers in Calabar Metropolis, Nigeria. The findings provide context-specific evidence to guide provider training and the integration of HIVST into primary healthcare-based HIV testing services.

Materials and Methods

Study setting

The study was conducted in Calabar Metropolis, Cross River State, Nigeria. Calabar Metropolis

comprises Calabar Municipality and Calabar South Local Government Areas with coordinates of approximately 4°58'N, 8°20'E. It serves as the administrative, commercial, educational, and public health hub of the state. The metropolis had a 2006 census population of 371,022 persons and has a concentration of primary healthcare facilities serving a diverse urban population.²³ The setting was considered appropriate because of its relevance to HIV testing and prevention programming in the state.

Study design

A facility-based descriptive cross-sectional design was used to assess knowledge, perceptions, and acceptability of HIVST among healthcare workers in selected primary healthcare facilities in Calabar Metropolis.

Study population and eligibility criteria

The study population comprised healthcare workers actively providing services in selected primary healthcare facilities during data collection. Eligible participants included nurses, community health extension workers, laboratory scientists/technicians, health officers, midwives, and other frontline workers involved in client care, counselling, testing, referral, or health education. Healthcare workers who were absent during data collection or declined consent were excluded.

Sample size determination

The sample size was determined using Yamane's formula for finite populations at a 95% confidence level and 5% margin of error.²⁴ Using an accessible population of 165 eligible primary healthcare workers in the study area,²⁵ the minimum sample size was 117. After adding 10% for possible nonresponse or incomplete questionnaires, the final sample size was 128 respondents.

Sampling procedure

A multi-stage sampling technique was used. First, 12 political wards were selected by ballot method, six each from Calabar Municipality and Calabar South. Second, one primary healthcare facility was randomly selected from each ward, giving 12 facilities. Finally, 10 to 11 eligible healthcare workers who were available during data collection

were recruited from each facility until the sample size was reached.

Data collection instrument

Data were collected using a semi-structured, interviewer-administered questionnaire developed after a literature review on HIVST knowledge, perceptions, and acceptability.^{18,25-27} The questionnaire covered socio-demographic/professional characteristics, factual knowledge of HIVST, perceptions of HIVST, acceptability of HIVST, and perceived barriers. It was pretested among 12 healthcare workers in a neighbouring locality outside the selected facilities, and minor modifications were made for clarity and contextual relevance.

Data collection procedure

Data were collected by the principal investigator and trained research assistants. Questionnaires were administered during working hours at times that did not interfere with routine service delivery. Written informed consent was obtained before participation, and completed questionnaires were checked daily for completeness and consistency.

Data analysis

Data were coded, entered, cleaned, and analyzed using IBM SPSS version 25. Categorical variables were summarized using frequencies and percentages, while composite scores were summarized using means and standard deviations. Acceptability of HIVST was the primary outcome and was assessed using eight direct acceptability items. Each accepting, willing, or affirmative response was scored 1, and each non-accepting, unwilling, or negative response was scored 0. Total scores ranged from 0 to 8, with scores of 4 or above classified as high acceptability and scores below 4 as low acceptability.

Knowledge was assessed using nine core factual items. Each correct response was scored 1 and each incorrect response 0, giving total scores from 0 to 9. Scores of 0-3, 4-6, and 7-9 were categorized as poor, fair, and good knowledge, respectively. Items on source of training, perceived benefits, and perceived limitations were analyzed descriptively and were not included in the composite knowledge score.

Perception of HIVST was assessed using six

positively worded Likert-scale items scored from 1 (strongly disagree) to 5 (strongly agree). Strongly agree and agree responses were categorized as positive perception, while neutral, disagree, and strongly disagree responses were categorized as negative perception. Items on counselling/support services, incorrect procedures, and training/resource needs were analyzed descriptively and were not included in the composite perception score. Associations between respondents' characteristics, knowledge, perceptions, and HIVST acceptability were examined using Chi-square or Fisher's exact tests, with statistical significance set at $p < 0.05$.

Ethical considerations

Ethical approval was obtained from the University of Calabar Public Health Ethics Committee (UC/CM/PUH/ETH/2451). Administrative permission was obtained from heads of selected facilities. Participation was voluntary, confidentiality and anonymity were maintained, and data were reported only in aggregate form.

Results

Socio-demographic and professional characteristics A total of 128 primary healthcare workers participated in the study. The largest age group was 31-40 years, 45 (35.2%). Most respondents were female (96, 75.0%) and married (95, 74.2%). More than half had a first degree, 69 (53.9%). Nurses, 32 (25.0%), and health officers, 31 (24.2%), formed the largest professional groups. Most respondents, 86 (67.2%), had 6-8 years of work experience, and Christianity was the most common religion, 96 (75.0%) (Table 1).

Respondents' knowledge of HIV self-testing

Table 2 presents respondents' factual knowledge of HIVST, together with descriptive information on sources of training or information, perceived benefits, and perceived limitations. The composite knowledge score was computed using only the nine core factual knowledge items. Most respondents, 85 (66.4%), were aware of HIVST services, and 122 (95.3%) had received training or information on HIVST. Regarding factual knowledge, 94 (73.4%) correctly identified HIVST as a do-it-yourself diagnostic method, and 107 (83.6%) knew that

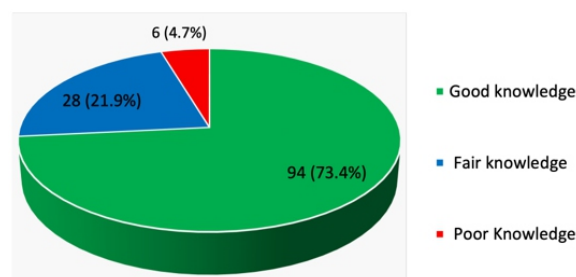
Table 1: Socio-demographic characteristics of respondents

Characteristics	Frequency (n=128)	Percentage (%)
Age (in years)		
20-30	28	21.9
31-40	45	35.2
41-50	28	21.9
>50	27	21.1
Sex		
Male	32	25.0
Female	96	75.0
Marital status		
Married	95	74.2
Single	14	10.9
Divorced	6	4.7
Widow	13	10.2
Educational level		
Certificate	15	11.7
Diploma	25	19.5
First degree	69	53.9
Master's degree	10	7.8
Specialist course	9	7.0
Type of Profession		
CHEW	23	18.0
Nurse	32	25.0
Laboratory Technicians	23	18.0
Health Officer	31	24.2
Midwife	19	14.8
Work experience		
6month-2 years	9	7.0
3-5 years	17	13.3
6-8 years	86	67.2
>8 years	16	12.5
Religion		
Christianity	96	75.0
Muslim	15	11.7
Others	17	13.3

HIVST kits may not detect recent HIV infection occurring within the preceding three months. Knowledge of sample types was high, with 124 (96.9%) identifying blood and 123 (96.1%) identifying oral fluid. Most respondents knew that a positive oral-fluid HIVST result requires confirmatory testing at a health facility or approved testing site, 112 (87.5%), and that repeat testing after three months is required if the initial result is negative, 99 (77.3%). However, only 27 (21.1%) knew that a reactive HIVST result is not a definitive diagnosis of HIV infection. The most frequently identified benefit was increased access to testing, 79 (61.7%); the main perceived limitations were incorrect self-administration, 60 (46.9%), and lack of counselling and support, 53 (41.4%). The mean knowledge score was 2.69 ± 0.558 . Overall, 94 (73.4%) respondents had good knowledge, 28 (21.9%) had fair knowledge, and 6 (4.7%) had poor knowledge (Figure 1).

Table 2: Respondents' knowledge of HIV Self-testing services

Knowledge Variables	Frequency (n=128)	Percentages (%)
Awareness of HIV self-testing services		
Aware	85	66.4
Not aware	43	33.6
HIVST is a do-it-yourself diagnostic method		
Know	94	73.4
Do not know	34	26.6
HIVST kits do not detect recent HIV infections (<3 months)		
Know	107	83.6
Do not know	21	16.4
HIVST can be performed using blood samples		
Know	124	96.9
Do not know	4	3.1
HIVST can be performed using oral fluid		
Know	123	96.1
Do not know	5	3.9
A confirmatory test at a health facility or approved testing site is required if an oral fluid HIVST test is positive		
Know	112	87.5
Do not know	16	12.5
A reactive HIVST result is not a definitive diagnosis of HIV infection in oral samples.		
Know	27	21.1
Do not know	101	78.9
Repeat HIVST required after 3 months if a result is negative		
Know	99	77.3
Do not know	29	22.7
Proper procedures for conducting/interpreting HIVST results		
Know	107	83.6
Did not know	21	16.4
Previously received training/information on HIVST		
Trained	122	95.3
Not trained	6	4.7
Source of training		
Government health departments	49	38.3
International Health organizations	40	31.3
Professional health organizations	39	30.4
Potential benefits of HIV self-testing services		
Increase access to testing	79	61.7
Greater privacy and confidentiality	27	21.1
Reduced stigma and discrimination	15	11.7
Early diagnosis and treatment	7	5.5
Potential limitations of HIV Self-testing services		
Potential for incorrect self-administration	60	46.9
Lack of counselling and support	53	41.4
Delayed linkage to care and treatment	15	11.7

**FIG. 1: Respondents' composite mean knowledge score on HIV self-testing (n = 128)**

Respondents' perceptions of HIV self-testing

Table 3 presents respondents' perceptions of HIVST, together with descriptive findings on

counselling/support services, concern about incorrect procedures, and training/resource needs. The composite perception score was computed using only the six positively worded perception items. Most respondents had positive perceptions regarding privacy during HIVST, 112 (87.5%), and the role of HIVST in increasing access for individuals who may not otherwise get tested, 104 (81.3%). Positive perceptions were also reported for greater privacy and confidentiality than facility-based testing, 100 (78.1%), reduced fear or distress associated with facility-based testing, 92 (71.9%), helping more people know their HIV status, 91 (71.1%), and facilitating earlier access to antiretroviral therapy, 84 (65.6%). For the descriptive perception-related items, 108 (84.4%) respondents agreed that counselling and support services are essential in HIVST programmes, 78 (60.9%) expressed concern about incorrect HIVST procedures, and 109 (85.2%) agreed that additional training and resources are needed to support HIVST. The mean perception score was 12.30 ± 3.444 ; overall, 92 (71.9%) respondents had positive perceptions and 36 (28.1%) had negative perceptions (Figure 2).

Table 3: Respondents' perceptions of HIV self-testing services

Perception statements	Positive perception/Agreement n (%)	Negative perception/Neutral-disagreement n (%)
Privacy should be ensured during HIVST	112 (87.5)	16 (12.5)
HIVST can facilitate earlier access to antiretroviral therapy before illness progresses	84 (65.6)	44 (34.4)
HIVST helps more people know their HIV status	91 (71.1)	37 (28.9)
HIVST provides greater privacy and confidentiality than facility-based testing	100 (78.1)	28 (21.9)
HIVST increases access for individuals who may not otherwise get tested	104 (81.3)	24 (18.8)
HIVST reduces fear, anxiety, or distress associated with facility-based testing	92 (71.9)	36 (28.1)
Descriptive perception-related items		
Counselling/support services are essential in HIVST programmes	108 (84.4)	20 (15.6)
Concern about incorrect HIVST procedures	78 (60.9)	50 (39.1)
Additional training/resources are needed for healthcare workers to support HIVST	109 (85.2)	19 (14.8)

Note: For the six composite perception items, positive perception represents strongly agree and agree responses, while negative perception represents neutral, disagree, and strongly disagree responses. The last three items were reported descriptively and were not used to compute the composite perception score.

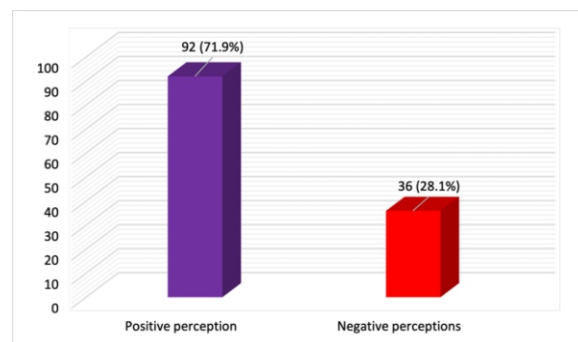


FIG. 2: Respondents' composite perception score on HIV Self-testing (n=128)

Respondents' acceptability of HIV self-testing

Table 4 presents respondents' acceptability of HIVST. Most respondents, 113 (88.3%), were willing to use HIVST personally, and the same proportion accepted HIVST if incorporated into routine healthcare services. Similarly, 109 (85.2%) accepted HIVST as a strategy for increasing HIV testing uptake. Respondents also accepted HIVST as a convenient and confidential testing method, 102 (79.7%), and as a complementary option alongside traditional testing methods, 105 (82.0%). The same proportion, 105 (82.0%), were willing to provide guidance and support to clients who accept HIVST. In addition, 119 (93.0%) accepted HIVST as a strategy for increasing testing frequency. The mean acceptability score was 6.73 ± 2.471 ; overall, 110 (85.9%) respondents had high acceptability and 18 (14.1%) had low acceptability (Figure 3).

Table 4: Acceptability of HIV self-testing services among respondents

Acceptability variables	Frequency (n=128)	Percentage (%)
Willingness to practice HIVST personally	113	88.3
Not willing	15	11.7
Acceptance of HIVST as a strategy for increasing HIV testing uptake.	109	85.2
Not accept	19	14.8
Acceptance of HIVST if incorporated into routine healthcare	113	88.3
Not accept	15	11.7
Acceptance of HIVST as a convenient and confidential method of HIV testing	102	79.7
Not accept	26	20.3
Acceptance of HIVST as a complementary option alongside traditional testing methods	105	82.0
Not accept	23	18.0
Willingness to provide guidance and support to clients who accept HIVST	105	82.0
Not willing	23	18.0
Acceptance of HIVST as a strategy for improving early detection of HIV	95	74.2
Not accept	33	25.8
Acceptance of HIVST as a strategy for increasing the frequency of HIV testing	119	93.0
Not accept	9	7.0

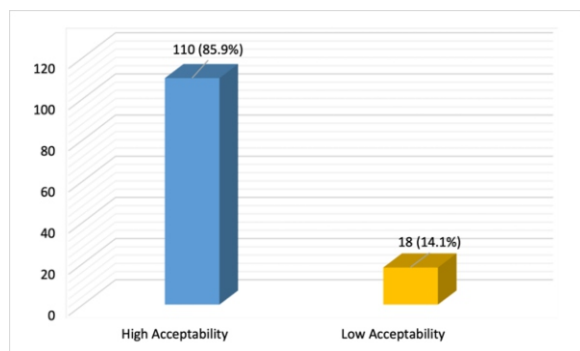


FIG. 3: Respondents' composite acceptability score on HIV Self-testing (n=128)

Perceived barriers to HIVST acceptability

Table 5 presents perceived barriers to HIVST acceptability. Items were phrased as potential barriers, and responses indicate whether respondents agreed that each item could affect acceptability. The most commonly reported barriers were cost and affordability of HIVST kits, 99 (77.3%); poor accessibility and availability of kits, 89 (69.5%); low perceived personal risk and vulnerability, 89 (69.5%), fear of a positive result, 86 (67.2%); and stigma associated with being labelled HIV positive, 84 (65.6%). Non-availability of counselling services was reported by 68 (53.1%) respondents. The least reported barriers were lack of knowledge on how to use HIVST kits, 40 (31.2%), and inadequate training and continuing education for healthcare workers, 22 (17.2%).

Table 5: Perceived barriers to HIVST acceptability among primary healthcare workers

HIVST acceptability barriers	Agreed n(%)	Did not agree/ neutral n (%)
Lack of knowledge on how to use HIVST kits	40(31.2)	88(68.8)
Poor accessibility and availability of HIVST kits	89(69.5)	39(30.5)
Cost and affordability of HIVST kits	99(77.3)	29(22.7)
Concerns about accuracy and reliability of test results	49(38.3)	79(61.7)
Stigma associated with being labelled HIV positive	84(65.6)	44(34.4)
Fear of a positive HIV test result and consequences	86(67.2)	42(32.8)
Low perceived personal risk and vulnerability	89(69.5)	39(30.5)
Lack of trust in the healthcare system	53(41.4)	75(58.6)
Inadequate training and continuing education for healthcare workers	22(17.2)	106(82.8)
Non-availability of counselling services before and after HIVST	68(53.1)	60(46.9)
Non-integration of HIVST into routine healthcare services	58(45.3)	70(54.7)
Preference for blood sample test kits over oral test kits	62(48.4)	66(51.6)

Note: Percentages were calculated using the total sample size of 128.

Factors associated with HIVST acceptability

Table 6 presents associations between respondents' socio-demographic/professional characteristics and HIVST acceptability. Overall, most respondents, 110 (85.9%), had high acceptability of HIVST, while 18 (14.6%) had low acceptability. Marital status (0.0003), educational level (0.0032), work experience (<0.001), and religion (0.0421) were significantly associated with HIVST acceptability, while age, sex, and type of profession were not significantly associated.

Table 6: Association between respondents' characteristics and HIVST acceptability

Variables	High acceptability n (%)	Low acceptability n (%)	Fisher's exact p-values
Age (years)			
20-30	23 (82.1)	5 (17.9)	0.8685
31-40	40 (88.9)	5 (11.1)	
41-50	24 (85.7)	4 (14.3)	
>50	23 (85.2)	4 (14.8)	
Sex			
Male	24 (75.0)	8 (25.0)	0.0735
Female	86 (89.6)	10 (10.4)	
Marital status			
Married	89 (93.7)	6 (6.3)	0.0003*
Single	9 (64.3)	5 (35.7)	
Divorced	4 (66.7)	2 (33.3)	
Widow	8 (61.5)	5 (38.5)	
Educational level			
Certificate	10 (66.7)	5 (33.3)	0.0032*
Diploma	22 (88.0)	3 (12.0)	
Specialist course	7 (77.8)	2 (22.2)	
First degree	65 (94.2)	4 (5.8)	
Master's degree	6 (60.0)	4 (40.0)	
Type of profession			
CHEW	19 (82.6)	4 (17.4)	0.8903
Nurse	28 (87.5)	4 (12.5)	
Laboratory technician	19 (82.6)	4 (17.4)	
Health officer	28 (90.3)	3 (9.7)	
Midwife	16 (84.2)	3 (15.8)	
Work experience			
6 months-2 years	5 (55.6)	4 (44.4)	<0.001*
3-5 years	13 (76.5)	4 (23.5)	
6-8 years	82 (95.3)	4 (4.7)	
>8 years	10 (62.5)	6 (37.5)	
Religion			
Christianity	86 (89.6)	10 (10.4)	0.0421*
Islam	10 (66.7)	5 (33.3)	
Others	14 (82.4)	3 (17.6)	

Note: *Statistically significant at $p < 0.05$.

Associations between knowledge, perceptions, and acceptability of HIVST

Table 7 presents the associations between HIVST knowledge, perceptions, and acceptability. Knowledge of HIVST was significantly associated with acceptability ($p = 0.0001$). High acceptability was higher among respondents with good knowledge, 86 (91.5%), and fair knowledge, 22 (78.6%), than among those with poor knowledge, 2 (33.3%). Perception of HIVST was also significantly associated with acceptability ($p = 0.0007$). High acceptability was reported by 85

(92.4%) respondents with positive perceptions, compared with 25 (69.4%) respondents with negative perceptions.

Table 7: Associations between respondents' knowledge, perceptions, and acceptability of

Variables	High acceptability n (%)	Low acceptability n (%)	Fisher's exact p-value
Knowledge of HIVST			0.0001*
Good knowledge	86 (91.5)	8 (8.5)	
Fair knowledge	22 (78.6)	6 (21.4)	
Poor knowledge	2 (33.3)	4 (66.7)	
Perceptions of HIVST			0.0007*
Positive perception	85 (92.4)	7 (7.6)	
Negative perception	25 (69.4)	11 (30.6)	

Note: *Statistically significant at $p < 0.05$.

Discussion

Overview of key findings

This study found high acceptability of HIV self-testing (HIVST) among primary healthcare workers in Calabar, with good knowledge and generally positive perceptions. This is an important finding because primary healthcare workers are both potential users of HIVST and frontline providers who may influence clients' awareness, confidence, uptake, and linkage to confirmatory testing and care. The finding is consistent with previous evidence that HIVST is acceptable when it is perceived as private, convenient, confidential, and useful for expanding access to HIV testing.^{4-8,28-29}

Knowledge, perceptions, and acceptability of HIVST

Knowledge of HIVST was significantly associated with acceptability. Respondents with good or fair knowledge were more likely to report high acceptability than those with poor knowledge. This may be because adequate knowledge improves understanding of HIVST procedures, interpretation of results, the window period, and the need for confirmatory testing after a reactive result. Among healthcare workers, this knowledge is important because it can influence personal willingness to use HIVST and confidence in explaining or recommending it to clients. This supports WHO guidance that HIVST should be implemented with clear instructions, counselling, confirmatory testing, and linkage to prevention and treatment services.² It also agrees with studies showing that

training, exposure to HIVST information, and implementation support improve healthcare workers' confidence and readiness to support self-testing.^{6,29}

Perceptions of HIVST were also significantly associated with acceptability. Respondents with positive perceptions were more likely to report high acceptability, suggesting that views about privacy, confidentiality, convenience, access, and usefulness may shape willingness to accept HIVST. This aligns with the Technology Acceptance Model, which emphasizes perceived usefulness and ease of use as important drivers of technology acceptance.²² However, respondents' concerns about incorrect HIVST procedures and the need for counselling, training, and resources show that favourable perceptions must be supported by structured implementation systems.

Factors associated with HIVST acceptability

Marital status, educational level, work experience, and religion were significantly associated with HIVST acceptability. Higher acceptability among married respondents may reflect the perceived value of privacy and convenience in relationship-related HIV testing decisions. The higher acceptability among respondents with first degrees and diplomas may be related to professional training and confidence in testing procedures, interpretation of results, and linkage requirements. Work experience was also important, with the highest acceptability among respondents with 6–8 years of experience, possibly reflecting greater service exposure and openness to newer testing approaches.

Age, sex, and professional cadre were not significantly associated with acceptability. This suggests that HIVST was broadly acceptable across different demographic and professional groups. The absence of a significant difference by professional cadre is useful for primary healthcare implementation, since HIVST delivery may require the involvement of nurses, midwives, community health extension workers, health officers, and laboratory personnel.

Barriers to HIVST acceptability

Although acceptability was high, respondents identified barriers that could affect implementation. The leading barriers were cost, poor accessibility

and availability of kits, low perceived personal risk, fear of a positive result, stigma, and limited counselling support. These barriers are consistent with African HIVST studies and reviews, where affordability, access, privacy, stigma, trust, and linkage support remain important to uptake.^{1,8,28,31} These findings show that willingness to accept HIVST may not translate into use unless kits are affordable, consistently available, and supported by counselling and clear referral pathways.

Strengths and limitations

A strength of this study is its focus on primary healthcare workers, who are central to HIV testing, counselling, referral, and community-level health education. The study also assessed knowledge, perceptions, acceptability, and barriers together, providing useful evidence for HIVST implementation in primary healthcare settings.

The study has some limitations. Its cross-sectional design does not allow causal inference from the observed associations. The study was conducted among primary healthcare workers in Calabar Metropolis, which may limit generalizability to other settings. In addition, responses were self-reported and may be affected by social desirability bias. Nevertheless, the findings provide context-specific evidence for strengthening HIVST delivery through primary healthcare services.

Implications for public health practice

The findings support the integration of HIVST into routine primary healthcare services in Calabar, particularly as primary healthcare workers are well positioned to promote client confidence, correct use, and linkage after self-testing. However, the reported barriers indicate that acceptability alone is insufficient for effective implementation. Public health programmes should therefore prioritize affordable and consistently available HIVST kits, practical training for healthcare workers, and simple service pathways that connect self-testing users to counselling, confirmatory testing, prevention, and treatment services. Addressing stigma, fear of positive results, and low perceived risk through client education may also improve uptake and safer use of HIVST.

Conclusion

HIVST was highly acceptable among primary healthcare workers in Calabar. Acceptability was associated with knowledge, perceptions, marital status, educational level, work experience, and religion. These findings indicate that HIVST can be integrated into primary healthcare services, provided implementation is supported by trained healthcare workers, reliable supply of test kits, and clear linkage systems for confirmatory testing and care.

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