International STD Research & Reviews

Volume 13, Issue 2, Page 41-49, 2024; Article no.ISRR.123651
ISSN: 2347-5196, NLM ID: 101666147

Uptake of HIV Testing Services among Refugee Men in Kiryandongo Refugee Settlement Camp, Mid-western Uganda

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Authors' contributions

This work was carried out in collaboration between both authors. Author RM collected, processed, analyzed data and also wrote the first draft of manuscript. Author BJB participated in data analysis, edited the first draft prepared and submitted the final manuscript. Both authors read and approved the final manuscript.

Article Information

DOI: https://doi.org/10.9734/ISRR/2024/v13i2178

Open Peer Review History:
This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: https://www.sdiarticle5.com/review-history/123651

Original Research Article

Received: 16/07/2024
Accepted: 20/09/2024
Published: 25/09/2024

ABSTRACT

Aims: HIV testing is a critical checkpoint to late diagnosis and delayed treatment. However, utilization of HIV testing services has not yet reached the desired target, especially for men. This study aimed to determine the level of uptake of HIV testing services and the associated factors among refugee men in the Kiryandongo Refuge Settlement Camp.
Study Design: Cross-sectional by mixed methods.
Methodology: The study was conducted by mixed methods. A total of 422 men >18 years were selected using systematic random sampling. Interview administered semi-structured - questionnaires and informant interview guides were used to collect quantitative and qualitative data respectively.

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Cite as: *Mirembe, Racheal, and Banson John Barugahare. 2024. "Uptake of HIV Testing Services Among Refugee Men in Kiryandongo Refugee Settlement Camp, Mid-Western Uganda". International STD Research & Reviews 13 (2):41-49. https://doi.org/10.9734/ISRR/2024/v13i2178.*

Results: The level of uptake of HIV testing services was 32%. Key factors negatively associated with the testing included social-cultural status (***P***=0.006, AOR=3.80) disclosure of positive results and awareness (***P***=0.002, AOR=0.14 and ***P***=0.000, AOD=0.08) respectively, unemployment (***P***=0.015, AOR=0.17), religion (***P***=0.043, AOD=0.37) and multiple sexual partners (***P***=0.033, AOR=0.23).

Conclusion: The level of uptake of HIV testing services among refugee men in the Kiryandongo refugee settlement camp is significantly lower than the national mark. Targeted testing strategies and sensitization are critical to address the negatively associated factors and inform public health policies.

Keywords: HIV testing services; Kiryandongo settlement camp; refuge men uptake.

1. INTRODUCTION

By the end of 2023, over 39 million people were living with HIV globally, 65% of whom are in the WHO African Region [https://www.who.int/news-room/fact-sheets/detail/hiv-aids], and of these, over 80% of the men had tested. In Uganda, over 1.4 million people are living with HIV, and of these, (1,289,028, 92%) know their status [1].

Three-quarters of the world's refugees are in low- and middle-income countries. [https://www.unhcr.org/refugee-statistics/]. Currently, the number of refugees in Uganda are 1,673,811, and of these, (119,219, 6.9%) are hosted in the Kiryandongo settlement camp [https://data.unhcr.org/en/ country/uga]. Vulnerable populations like the refugees face both the risk of HIV infection and barriers to HIV testing and as such, only 1.1% of the refugees in Uganda are men living with HIV [2]. Men have a lower tendency to take HIV testing services as compared to women [3,4]. In as much, inhabitants of refugee camps have peculiar challenges and barriers to HIV testing [5]. While limited data is available on refugee men-specific barriers to HIV testing, the existing literature mentions challenges including refugees tending to prioritize day-to-day survival matters such as food, safety, and shelter over their future health [5]. Therefore, understanding what makes HIV testing possible and impossible can inform interventions to increase HIV testing among refugee men. This study, thus, aimed to establish the level of uptake of HIV testing and the factors associated with HIV testing among refugee men in the Kiryandongo refugee settlement camp to inform targeted interventions and policies to improve HIV testing among the men in such settlements.

2. METHODOLOGY

2.1 Study Area

Kiryandongo refugee camp is located in Bweyale town council, Kibanda Health Sub-District in Kiryandongo District, Mid-western Uganda with a population of 119,219. The settlement is divided into 19 clusters; A, B, C, D, E, F, K, T, S, M, R, I, O, Q, L, N, J, H, and G. The camp has three health facilities; Panyadoli health Centre III, Panyadoli hills health Centre II and Nyakadoti health centre II. (https://data.unhcr.org/en/ country/uga).

2.1.1 Study design

This was a cross-sectional study of mixed methods.

Study population: This study focused on refugee men >18 years old, living and receiving care at the health facilities in Kiryandongo Refugee Settlement Camp.

Sampling technique: The eligible participants were enrolled using a systematic random sampling method.

3. RESULTS AND DISCUSSION

3.1 The Level of Uptake of HIV Testing Services

Fig. 1 shows that uptake of HIV testing services was almost one-third (32%, n=422).

3.1.1 Factors associated with the uptake of HIV testing services at bivariate analysis

Socio-demographic factors: At bivariate binary logistic analysis, the age, occupation, religion, sexual partners, and distance from the health facility were significantly associated with the uptake of HIV testing services as shown in Table 1, below. Men who were aged 31-45 (***P***=0.01, COR=0.55 (0.34-0.89), CI =95%), 46-60 (***P***=0.000, COR=0.15 (0.07-0.34), CI = 95%), and 61-75 (***P***=0.009, COD=0.07 (0.01-0.51), CI=95%) were less likely to uptake the HIV

testing services. Men who were Pentecostal (***P***=0.001, COR=4.03 (1.86-9.94), CI=95%) were 4.03 times more likely to uptake HIV testing services. However, men who were Anglican (***P***=0.03, COR=0.58 (0.36-0.95), CI=95%) and those who were SDA (**P**=0.028, COR= 0.41 (0.19-0.91), CI=95%) were 0.58 time and 0.41 times respectively less like to uptake the HIV testing services than any other man in the reference category. Men who had 4-6 sexual partners (***P***=0.000, COR=0.10 (0.05-0.22), CI=95%) were 0.1 times less likely to uptake the HIV testing services than any other man in the reference category. Men who lived at a distance of more than 5km from the health facility (***P***=0.000, COR= 0.03 (0.01-0.07), CI=95%) were 0.03 times less likely to uptake the HIV testing services than any other man in the reference category.

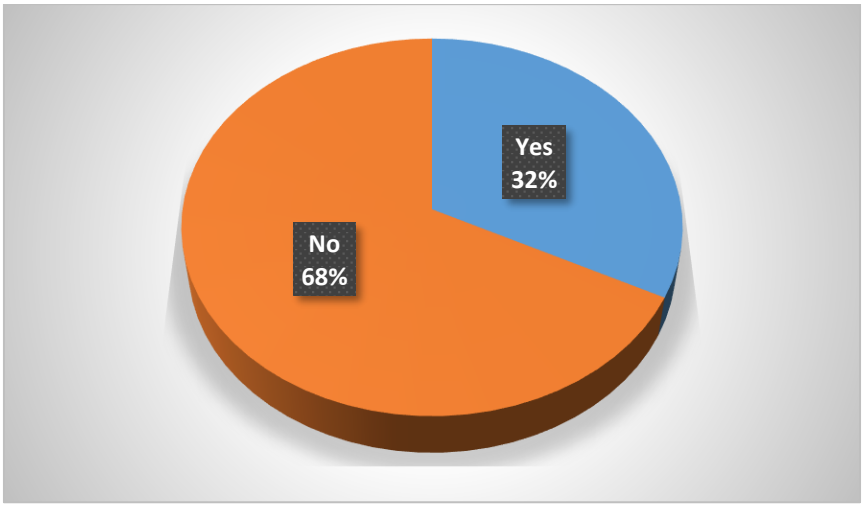

Fig. 1. Level of uptake of HIV testing services

Table 1. Socio-demographic factors associated with the uptake of the HIV testing service

Factors	Uptake of HIV testing				Crude Odds Ratios (COR) at 95% Confidence Interval (CI)	*P*-values
	Yes (137)		No (285)			
	F	%	F	%		
Age group						
18-30	89	64.87	113	39.65		
31-45	40	29.20	93	32.63	0.55 (0.34-0.89)	**0.010***
46-60	7	5.11	60	21.05	0.15 (0.07-0.34)	**0.000***
61-75	1	0.73	19	6.67	0.07 (0.01-0.51)	**0.009***
Occupation						
Formal	24	17.52	29	10.18		
Informal	87	63.50	176	61.75	0.59 (0.33-1.09)	0.092
Unemployed	26	18.98	80	28.07	0.39 (0.20-0.79)	**0.009***
Marital status						
Single	29	21.71	58	20.35		
Married	96	70.07	216	75.79	0.89 (0.54-1.48)	0.649
Separated/divorced	2	1.46	8	2.81	0.50 (0.10-2.51)	0.399
Widowed	10	3.70	3	1.05	6.67 (0.170-26.11)	0.006
Level of education						
Never educated	22	16.06	45	15.79		
Primary	45	32.85	127	44.56	0.72 (0.39-1.34)	0.303
Secondary	54	39.42	98	34.39	1.13 (0.61-2.07)	0.700
Tertiary	16	11.65	15	5.26	2.81 (0.91-5.21)	0.079

Factors	Uptake of HIV testing				Crude Odds Ratios (COR) at 95% Confidence Interval (CI)	*P*-values
	Yes (137)		No (285)			
	F	%	F	%		
Religion						
Catholic	64	46.72	118	41.40		
Anglican	34	24.82	108	37.89	0.58 (0.36-0.95)	**0.030***
Save/Pentecostal	21	15.33	9	3.16	4.03 (1.86-9.94)	**0.001***
Muslim	9	6.57	10	3.51	1.65 (0.64-4.29)	0.296
SDA	9	6.57	40	14.04	0.41 (0.19-0.91)	**0.028***
Sexual partners						
0-3	120	87.59	159	55.79		
4-6	8	5.84	105	36.84	0.10 (0.05-0.22)	**0.000***
7-9	9	6.57	21	7.37	0.57 (0.25-1.28)	0.174
Distance from the health facility						
Less a kilometer	57	41.61	63	22.11		
More than 1km but less than 5km	74	55.47	75	26.32	1.12 (0.69-1.81)	0.643
More than 5km	4	2.92	147	51.58	0.03 (0.01-0.07)	**0.000***

Table 2. Socio-cultural factors associated with the uptake of the HIV testing services

Variable	Uptake of HIV testing				Crude Odds Ratios (COR) at 95% Confidence Interval (CI)	*P*-values
	Yes (137)		No (285)			
	F	%	F	%		
Respondent able to disclose HIV status in case it is negative						
Yes	112	81.25	42	14.74		
No	25	18.25	243	85.26	0.04 (0.02-0.067)	**0.000***
In your culture, a man is always;						
Right	43	31.39	212	74.39		
Wrong/somehow right	94	68.61	73	25.65	6.34 (4.06-9.94)	**0.000***
A person to come in if the respondent is unable to pay bills						
Parents	60	43.80	74	25.96		
Brother	18	13.14	91	31.93	0.24 (0.13-0.45)	**0.000***
Sister	11	8.03	13	4.56	1.04 (0.44-2.60)	0.924
Wife	22	16.06	34	11.93	0.80 (0.42-1.51)	0.486
Friends	5	3.65	52	18.25	0.12 (0.04-0.32)	**0.000***
None	4	2.92	6	2.11	0.82 (0.22-3.05)	0.770
Others*6	17	12.41	15	5.26	1.40 (0.64-3.02)	0.396
Use of substance						
Yes	58	42.34	243	85.26		
No	79	57.66	42	14.74	7.88 (4.92-12.63)	**0.000***

Socio-cultural factors: Table 2 shows that the respondent's ability to disclose positive HIV status and negative HIV status, whether a man is wrong or not, a person to pay bills when the respondent is unable to, and the substance taken by the respondents were significantly associated with the uptake of the HIV testing services.

Knowledge and attitude towards the uptake of HIV testing services: Table 3 indicates that awareness about HIV testing services, being educated on HIV/AIDs, a place to go for HIV tests, and having a thought that HIV testing is important are significantly associated with the uptake of HIV testing services among men.

Table 3. Association between uptake of HIV testing and knowledge and attitude towards HIV testing

Factor	Uptake of HIV testing				Crude Odds Ratios (COR) at 95% Confidence Interval (CI)	*P*-values
	Yes (137)		No (285)			
	F	%	F	%		
Awareness of the respondent about HIV testing services in the health facilities in the settlement camp						
Yes	130	94.89	99	34.74		
No	7	5.11	186	65.25	0.03 (0.01-0.06)	**0.000***
The respondent has never been educated on HIV/AIDs.						
Yes	124	90.51	85	29.82		
No	13	9.49	200	70.18	0.04 (0.02-0.08)	**0.000***
A place to go when the respondent wants to test for HIV/AIDs						
Health facility	119	86.86	89	31.23		
Don't know	8	5.84	189	66.32	0.03 (0.01-0.07)	**0.000***
Wait for mass testing to take place	7	5.11	4	1.04	1.30 (0.37-4.68)	0.675
Others*2	3	2.19	3	1.05	0.74 (0.37-3.79)	0.726
Do you think HIV testing is Important?						
Yes	127	92.70	41	14.39		
No	10	7.30	244	85.61	0.01 (0.01-0.03)	**0.000***

Table 4. Factors associated with the uptake of HIV testing services at multivariate analysis

Factors	Uptake of HIV testing				Adjusted Odds Ratios (COR) at 95% Confidence Interval (CI)	*P*-values
	Yes (137)		No (285)			
	F	%	F	%		
Age group						
18-30	89	64.87	113	39.65		
31-45	40	29.20	93	32.63	0.86 (0.29-2.54)	0.779
46-60	7	5.11	60	21.05	0.97 (0.20-4.76)	0.966
61-75	1	0.73	19	6.67	0.36 (0.01-10.00)	0.549
Occupation						
Formal	24	17.52	29	10.18		
Informal	87	63.50	176	61.75	0.60 (0.17-2.15)	0.433
Unemployed	26	18.98	80	28.07	0.17 (0.04-0.71)	**0.015***
Religion						
Catholic	64	46.72	118	41.40		
Anglican	34	24.82	108	37.89	0.37 (0.14-0.97)	**0.043***
Save/Pentecostal	21	15.33	9	3.16	0.39 (0.09-1.69)	0.208
Muslim	9	6.57	10	3.51	4.88 (4.81-49.53)	0.180
SDA	9	6.57	40	14.04	0.41 (0.10-1.76)	0.233
Sexual partners						
0-3	120	87.59	159	55.79		
4-6	8	5.84	105	36.84	0.23 (0.06-0.89)	**0.033***
7-9	9	6.57	21	7.37	4.14 (0.67-25.44)	0.126

Factors	Uptake of HIV testing				Adjusted Odds Ratios (COR) at 95% Confidence Interval (CI)	*P*-values
	Yes (137)		No (285)			
	F	%	F	%		
Distance from the health facility						
Less a kilometer	57	41.61	63	22.11		
More than 1km but less than 5km	74	55.47	75	26.32	1.07 (0.45-2.57)	0.874
More than 5km	4	2.92	147	51.58	0.21 (0.04-1.08)	0.062
Ability to disclose status in case it is positive						
Yes	105	75.64	20	7.02		
No	32	23.36	265	92.98	0.29 (0.12-0.69)	**0.006***
In your culture, a man is always;						
Right	43	31.39	212	74.39		
Wrong/somehow right	94	68.61	73	25.65	3.80 (1.46-9.88)	**0.006***
A person to come in if the respondent is unable to pay bills						
Parents	60	43.80	74	25.96		
Brother	18	13.14	91	31.93	0.33 (0.10-1.06)	0.063
Sister	11	8.03	13	4.56	0.97 (0.16-6.03)	0.973
Wife	22	16.06	34	11.93	1.18 (0.30-4.61)	0.813
Friends	5	3.65	52	18.25	0.19 (0.03-1.26)	0.085
None	4	2.92	6	2.11	4.88 (0.27-89.72)	0.286
Others*6	17	12.41	15	5.26	1.27 (0.24-6.59)	0.777
Use of substance						
Yes	58	42.34	243	85.26		
No	79	57.66	42	14.74	1.03 (0.40-2.68)	0.944
Awareness of HIV testing services						
Yes	130	94.89	99	34.74		
No	7	5.11	186	65.25	0.93 (0.18-4.82)	0.929
Educated about HIV/AIDS						
Yes	124	90.51	85	29.82		
No	13	9.49	200	70.18	0.14 (0.04-0.49)	**0.002***
A place to go when the respondent wants to test for HIV/AIDs						
Health facility	119	86.86	89	31.23		
Don't know	8	5.84	189	66.32	1.48 (0.31-7.09)	0.625
Wait for mass testing to take place	7	5.11	4	1.04	0.72 (0.10-5.29)	0.749
Others*2	3	2.19	3	1.05	0.88 (0.07-10.64)	0.921
Do you think HIV testing is Important?						
Yes	127	92.70	41	14.39		
No	10	7.30	244	85.61	0.08 (0.02-0.21)	**0.000***

Factors associated with the uptake of HIV testing services at multivariate analysis: After adjusting for the confounding factors at multilevel binary logistic regression analysis, occupation, religion, sexual partners, ability to disclose positive HIV status, a man being right or not, education on HIV/AIDs, and thought whether HIV testing is important maintained their statistical significance as shown in Table 4. Unemployed men (***P***=0.015, AOR=0.17 (0.04-0.71), CI=95%) were 0.17 times less likely to uptake the HIV testing services. Men who were Anglican (***P***=0.043, AOD=0.37 (0.14-0.97), CI=95%) were 0.37 times less likely to uptake HIV testing services compared to men from any other religion. Men who had 4-6 sexual partners (***P***=0.033, AOR=0.23 (0.06-0.89), CI=95%) were 0.23 times less likely to uptake HIV testing than any other men in the reference category. Men who were unable to disclose their HIV status when positive (***P***=0.006, AOR=0.29 (0.12-0.69), CI=95%) were 0.29 times less likely to uptake the HIV testing services compared to men who were able to disclose their HIV status. Men who thought that the man was always wrong (***P***=0.006, AOR=3.80 (1.46-9.88), CI=95%) were 3.80 times less likely to uptake HIV testing services than men who thought that a man is always right. Men who had never been educated on HIV/AIDs (***P***=0.002, AOR=0.14 (0.04-0.49), CI=95%) were 0.14 less likely to uptake HIV testing services than men who had ever been educated on HIV/AIDs.

Men who never thought that HIV testing was important (***P***=0.000, AOD=0.08 (0.02-0.21), CI=95%) were 0.08 times less likely to uptake HIV services compared to those who thought that HIV testing was important.

4. DISCUSSION

In this study, the level of uptake of HIV testing services among the men was 32% which is far lower than the national standard of 92% [1]. This result is even lower than (84%) of a similar study conducted in central Uganda [6]. This discrepancy could be due to unique study settings. The lowest level of uptake of the HIV testing services (32%) we report, is indeed a public health concern and a challenge to the UNAID fast-track target [7]. It is important to note, nonetheless, that restricted populations such as refugee camps are not defined as key populations in Uganda.

Our results show that unemployed men (***P***=0.015, AOR=0.17 (0.04-0.71), CI=95%) were 0.17 times less likely to uptake HIV testing services. This finding is similar to previous reports from in other African countries [8,9]. Unemployment is a potential risk for HIV infection for, most people in that status are vulnerable to and tend to engage in risky behaviors either for survival or consolation and comfort.

A previous study in central Uganda indicated that Catholics were more likely to have ever tested for HIV in their lifetime [6]. We report that Anglican Christians were less likely to accept HIV testing compared to their counterparts. Our finding is in phase with the previous reports highlighted above. Different religions differ in doctrines which influence the practices and life choices of the respective members.

Our results show that men who had 4-6 sexual partners (***P***=0.033, AOR=0.23 (0.06-0.89), CI=95%) were 0.23 times less likely to uptake HIV testing than their counterparts. Having multiple sexual partners has been considered as a characteristic of risky sexual behavior which puts people at risk of contracting sexually transmitted diseases. Previous related studies reported that men who exhibit risky sexual behavior were more likely to get tested for HIV [10,11]. This was probably because men who have risky sexual behavior are apprehensive about their HIV test results and are more curious to know their HIV status compared to men without sexual risky behavior. However, this was not the case with the current study probably because the setting has restricted movements in and out of the camp, and most of the men in the camp perceived having multiple sexual partners as normal.

Men who were unable to disclose their HIV status when positive (***P***=0.006, AOR=0.29 (0.12-0.69), CI=95%) were 0.29 times less likely to uptake the HIV testing services. Our finding agrees with previous reports [9] It is established that fear of HIV-related stigma is a critical barrier to HIV testing. Evidence has shown that there is a need to set up strategies that enhance the disclosure of HIV status to partners at both the individual level and facility level [8].

This study reports that men who thought that the man is always wrong (***P***=0.006, AOR=0.29 (0.12-0.69), CI=95%) were 3.80 times more likely to uptake HIV testing services than men who thought that a man is always right. Men who perceived that they were not always right perhaps easily accepted the advice from the

health workers which increased their likelihood of up taking HIV testing services. This is reported for the first time.

We report that men who had never been educated on HIV (***P***=0.002, AOR=0.14 (0.04-0.49), CI=95%) were 0.14 less likely to uptake HIV testing services. Previous studies among youths in Sub-Saharan Africa reported that those with comprehensive knowledge of HIV were more likely to be tested for HIV [10,11]. Being knowledgeable and knowing the benefits of treatment enhances the uptake of HIV testing services. In addition, it minimizes misconceptions about HIV which has been reported to be possibly hurting HIV testing and counseling.

Men who never thought that HIV testing was important (***P***=0.000, AOD=0.08 (0.02-0.21), CI=95%) were 0.08 times less likely to uptake HIV services. This finding is in phase with previous reports [10,11]. This could be linked to the low perception of risk as most of the respondents perceived that HIV infection is basically for Ugandans and therefore, they were at no risk of infection. It is, therefore, important to put more emphasis on the communication of the risk of HIV infection, consequently improving the uptake of HIV testing services among men in the settlement.

5. CONCLUSION

The level of uptake of HIV testing services among refugee men in the Kiryandongo refugee settlement camp is significantly lower than the national mark ever recorded in Uganda. Social–demographic and cultural as well awareness factors are attributed to the level of uptake. Targeted testing strategies and sensitization are critical to address the negatively associated factors and inform public health policies.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Authors hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

CONSENT

Participants' written consent was approved and obtained by the authors.

ETHICAL APPROVAL

The study was reviewed and approved by the Uganda Christian University Research Ethics Committee, REC Number: UG-REC-026.

ACKNOWLEDGEMENTS

We acknowledge the support of all study participants, administrators at the Kiryandongo Refugee Settlement Camp, the staff of the Department of Public Health - Uganda Christian University, and friends who read through the versions of the manuscripts.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
https://www.sdiarticle5.com/review-history/123651