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Determinants of provider-initiated HIV testing and counselling uptake at Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu, Kenya

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BACKGROUND

The HIV/AIDS burden persists in sub-Saharan Africa despite preventive efforts. In Kenya, the HIV prevalence in Kisumu county (19.9%) is triple the national rate (5.9%). Provider-initiated testing and counselling (PITC) is among the best strategies for HIV prevention. The model entails HIV testing of individuals presenting themselves to health facilities for routine medical services. Though introduced in most healthcare facilities in Kenya, the uptake of PITC and determinants of uptake have not been established. The main objective of this study was to establish the determinants of PITC uptake by patients seeking healthcare services at the Jaramogi Oginga Teaching and Referral Hospital.

METHODS

This was a cross-sectional study involving a systematic random sample of patients seeking services at the hospital.

RESULTS

Of 291 participants, 53% were females and 70% were aged between 18 and 35 years. Participants aged 36-45 years were less likely to accept PITC services than those aged 18-25 years (unadjusted odds ratio (uOR)=0.28, 95% CI [0.14-0.59]). Employment (uOR=1.81, 95% CI [1.09-3.01]) and having a friendly relationship with the provider (uOR=3.35, 95% CI [1.41-7.92]) were significantly associated with PITC uptake. Patients who reported having a friendly relationship with the staff were more likely to report PITC uptake (adjusted odds ratio (aOR) = 4.75, 95% CI [1.58-14.31]).

CONCLUSION

Interventions should encourage facilities to improve staff-patient relationships to increase uptake of PITC services.

Key words: *HIV, Engagement in care and prevention, HIV diagnosis, ART*

BACKGROUND

Sub-Saharan Africa remains the region in the world most affected by HIV, with an estimated 25.6 million people living with the HIV (PLHIV) (UNAIDS, 2018). By 2020, the 90–90–90 target set by the Joint United Nations Programme on HIV/AIDS (UNAIDS) intends to get 90% of all people living with HIV to know their HIV status; 90% of all people with diagnosed HIV infection to receive sustained antiretroviral therapy; and 90% of all people receiving antiretroviral therapy to have viral suppression (Suthar, et al., 2013). Despite significant efforts to achieve the 90–90–90 treatment target, close to half of the PLHIV remain unaware of their status.

HIV testing and counselling (HTC) is the primary entry point to HIV prevention, care, and treatment services (Oluoch, et al., 2017), and provider-initiated testing and

counselling (PITC) was introduced to complement the traditional client-initiated testing and counselling model (UNAIDS, 2007). With the increasing accessibility of effective interventions such as prevention of mother-to-child transmission (PMTCT) and antiretroviral therapy (ART), PITC has been promoted as a way of increasing testing coverage globally, including in Kenya, which published its first guidelines in 2008 (NASCOP, 2008). PITC can be initiated at any service delivery point in the hospital setting. In this model, individuals presenting to a health facility are encouraged to be tested for HIV as part of the routine medical services, but are free to opt-out (WHO and UNAIDS, 2007). PITC has successfully been implemented in antenatal and tuberculosis clinics in sub-Saharan Africa (Ujiji, et al., 2011; MoH Rwanda, 2012). Studies from Ethiopia, Uganda and Rwanda have reported high PITC acceptability, testing and linkage rates (Kayigamba, et al., 2016; Girma & Enquselassie, 2009).

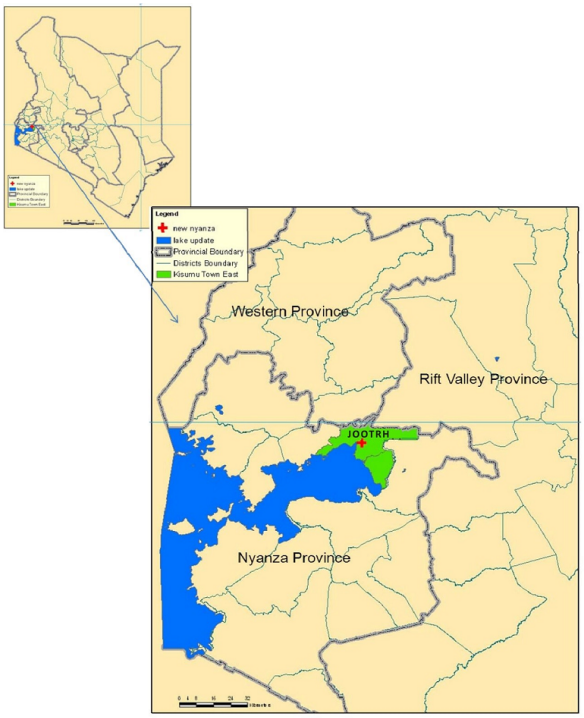
Kenya has a high HIV prevalence of 5.9%, and Kisumu County, located in Nyanza region, is among the counties with high HIV prevalence (19.9%). Kenya is among the countries in sub-Saharan Africa with relatively high coverage of HTC; approximately 72% of adults aged 15-64 years reported having ever been tested for HIV (NASCOP, 2012). This can be attributed to the rapid expansion of HTC services in Kenya since 2010 (NASCOP, 2010), including voluntary testing and counselling, PITC, and home-based counselling and testing (Oluoch, et al., 2017; NASCOP, 2012). Despite the increase of testing coverage over the years, universal access to HIV testing has not been attained (Oluoch, et al., 2017). To improve HTC uptake, various approaches have been employed, including targeting health facility patients and clients via PITC.

The study was conducted in Jaramogi Oginga Odinga Teaching and Referral Hospital (JOOTRH) in Kisumu County, the largest referral hospital in western Kenya. Since PITC inception and subsequent roll-out in JOOTRH, the uptake has generally remained below the universal target (Burmen & Mutai, 2016). To date, there are no published data examining the determinants of PITC uptake at JOOTRH. This study was conducted to establish the determinants of PITC uptake in order to inform the development and implementation of strategies to improve HTC and PITC uptake.

METHODS

This was a cross-sectional study conducted in 2014 at JOOTRH, Kisumu County, Kenya (Figure 1). JOOTRH is a 467-bed referral facility that serves more than 5 million people within the western region, with an average occupancy of approximately 95%. Out-patient visits average 250,511 annually, while inpatient admissions average about 21,000. The hospital serves an area with some of the worst health indicators in the country, including an HIV prevalence (19.9%) that is more than twice the national HIV prevalence (5.9%) (Ministry of Health, 2016.) The facility has PITC counsellors who offer HTC to patients seeking healthcare services not only related to HIV/AIDS. The hospital also has a well-established HIV/AIDS treatment centre which had enrolled more than 34,364 patients as of 2016, with 15,514 on ART.

Figure 1. Map of study area



The study sample size was calculated based on Fisher's formula accounting for the prevalence rate of HIV within Kisumu. Finite population correction and attrition rate of 10% was then used to adjust the study sample size. The study participants were selected from patients and clients aged 18-64 years seeking healthcare services within the facility. A systematic random sampling technique was used in recruiting participants from the target population as they exited the facility. The facility has an average of 686 patients visiting per day, and the study had a time frame of 30 days for data collection.The study required a sample size of 290 patients for a period of 30 days which translated to approximately 10 participants being interviewed per day. Therefore, the average of 686 patients visiting the facility per day was divided by 10 giving an approximate interval of 69 individuals. This informed the use of systematic sampling where we interviewed every 69th patient exiting the facility.

A structured questionnaire was used to collect data in October 2014. The questionnaire included sociodemographic characteristics, including gender, age, education, employment and marital status. The questionnaire also included facility factors, including whether benefits of PITC were discussed, the waiting room condition, time to get served, staff-patient relationship and satisfaction with service. In measuring the staff-patient relationship, pa-

tients were asked whether their experience with the staff was friendly or not. The primary outcome variable (PITC uptake) was based on patients' records. This data was entered into an electronic database by research assistants trained in interviewing methods and research ethics.

Participants' socio-demographic characteristics, overall and by PITC uptake, were described using percentages and frequencies for categorical data. Bivariate logistic regression was used to assess the potential factors associated with the uptake of PITC services. Variables that had a p-value of less than 0.2 were fit in the multivariate analysis. Associations were reported by use of odds ratios with their 95% confidence intervals (CI). Statistical significance was considered at $p < 0.05$. Data analysis was done using SAS for Windows version 9.2.

RESULTS

Table 1. Socio-demographic characteristics of participants

Characteristics	n=291	%
Gender		
Male	136	46.7
Female	155	53.3
Age in years		
18-25 years	97	35.8
26-35 years	91	33.6
36-45 years	51	18.9
46-55 years	16	5.9
56 years and above	16	5.9
Marital status		
Single	131	45.0
Married	123	42.3
Widowed	24	8.3
Divorced/separated	13	4.5
Religion		
Christian	257	88.6
Muslim	29	10.0
Other	4	1.4
Level of Education		
None	42	15.2
Primary	110	39.9
Secondary & Post-Secondary	124	44.9
Occupation		
Small business/self-employed	66	23.1
Formal employment	91	31.9
Unemployed	80	28.0
Student	43	15.0
Other	6	2.1
Visit Type		
Patient	132	46.6
Client	151	53.4

The study included 291 respondents, 53% of whom were female (Table 1). More than a third of the respondents (36%) were aged 18-25 years and 34% were aged 26-35 years. Almost half (45%) reported being single while 42% reported being married. The majority of respondents were Christians (89%). More than half (55%) of the study participants had an education level of primary and below. Nearly one-third (32%) of participants were formally employed, while 23% were self-employed and 28% were unemployed. Lastly, 53% of the study participants were clients while 47% were patients. For this study, patients were regarded as 'individuals who suffer' (from ailments) while clients were categorized as individuals who were recipients of a professional service.

Close to a third, 179 (61.5%), of participants seeking services at JOOTRH reported uptake of PITC (Table 2). A majority of the participants aged between 18-25 years,

Table 2. Correlates of socio-demographic factors and PITC uptake

Variable	PITC Uptake Rate	Bivariate		Multivariate Regression	
Overall	**n%**	**uOR [95% CI]**	**p-value**	**aOR [95%]**	**p-value**
Gender			0.674		
Females	97 (67.0)	1.11 [0.68-1.82]			
Males	82 (63.7)	*ref.*			
Age			0.003		0.255
18-25	67 (71.3)	*ref.*			
26-35	63 (71.6)	1.02 [0.53 - 1.93]	0.963	0.72 [0.28-1.87]	
36-45	19 (41.3)	0.28 [0.14-0.59]	0.001	0.35 [0.10-1.21]	
46-55	11 (78.6)	1.48 [0.38-5.71]	0.572	2.39 [0.24-23.70]	
56+	8 (53.3)	0.46 [0.15-1.40]	0.170	1.27 [0.19-8.55]	
Education			0.448		
Primary and below	34 (68.0)	1.39 [0.69-2.79]	0.359		
Secondary	72 (67.9)	1.38 [0.80-2.40]	0.248		
Post-Secondary	72 (60.5)	*ref*			
Currently employed			0.022		0.851
Yes	88 (58.7)	1.81 [1.9-3.01]		0.93 [0.42-2.05]	
No	90 (72.0)	*ref*			
Marital status			0.146		0.410
Single	86 (68.3)	*ref*			
Married	76 (65.5)	0.88 [0.52-1.51]	0.651	1.12 [0.45-2.77]	
Divorced	17 (50.0)	0.47 [0.22-1.00]	0.051	0.53 [0.15-1.90]	

26-35 years and 46-55 years had high rates of PITC uptake (71.3%, 71.6% and 78.6%, respectively). PITC uptake was similar among all three education levels (68.0% for those with primary and below, 67.9% for those with secondary, and 60.5% for those with post-secondary education). High PITC uptake was also reported among patients who were not currently employed (72.0%), single (68.3%) and married (65.5%).

Several variables were found to be associated with PITC uptake in the bivariate analysis. Participants who were aged 36-45 years were less likely to uptake PITC compared to participants aged 18-25 years (unadjusted odds ratio (uOR) = 0.28, 95% CI [0.14-0.59]). Employment was found to be positively associated with PITC uptake compared to being unemployed (uOR=1.81, 95% CI [1.09-3.01]). The study also found that participants who were divorced/widowed/separated were less likely to report uptake of PITC compared to participants who were single (uOR =0.47, 95% CI [0.22-1.00]).

Table 3. Association of facility factors and PITC uptake

Variable	**PITC Uptake Rate**	**Bivariate**		Multivariate Regression	
Overall	**n%**	**uOR [95% CI]**	**p-value**	**aOR [95%]**	**p-value**
Discussed benefits of PITC			0.098		
No	95 (70.9)	*ref*			
Yes	75 (80.7)	1.71 [0.91-3.23]			
Waiting Room			0.153		0.224
Public room	17 (89.5)	*ref.*			
Private room	154 (74.0)	2.98 [0.67 - 13.32]		2.68 [0.55-13.12]	
Time to get served			0.209		
0-25 minutes	75 (81.5)	*ref*			
26-45 minutes	63 (71.6)	0.57 [0.28-1.15]	0.118		
46 and above minutes	15 (68.2)	0.49 [0.17-1.37]	0.174		
Staff-patient/Client Relationship			0.006		0.006
Friendly	164 (77.0)	3.35 [1.41-7.92]		4.75 [1.58-14.31]	
Not Friendly	12 (50.0)	*ref*			
Satisfied by service			0.079		0.410
Satisfied	156 (75.4)	1.99 [0.92-4.28]			
Not satisfied	20 (60.6)	*ref*			

The analysis of facility factors and PITC uptake showed that high uptake was reported if the counsellors discussed the benefits of PITC (80.7% versus 70.9% if counselors did not discuss the benefits of PITC) (Table 3). Participants who were served in less than 25 minutes had high rates of PITC uptake (81.5%) compared to those who were served within 26-45 minutes (71.6%) or more than 45 minutes (68.2%). Participants who reported a friendly staff-patient/client relationship reported higher rates of PITC uptake (77.0%) compared to those who did not (60.6%). Lastly, participants who reported that they were satisfied by the service offered by the facility had higher rates of PITC uptake (75.4%) than those who were not (60.6%). In the bivariate analysis, participants who had a friendly relationship with the provider were more likely to accept PITC services than those who did not (uOR=3.35, 95% CI [1.41-7.92]).

The variables that were fit in the multivariate regression model included age, employment status, marital status, waiting room (public or private) and staff-patient/client relationship. The staff-patient/client relationship was the only independent determinant of PITC uptake. Patients who reported having a friendly relationship with the staff were more likely to report PITC uptake than those who did not (adjusted odds ratio (aOR) = 4.75, 95% CI [1.58-14.31]) (Table 3).

DISCUSSION

This study found that close to two-thirds of the patients in a referral hospital in Kenya reported uptake of PITC. The patient/client relationship with the staff was a significant determinant of PITC uptake, in that participants who felt that they had a friendly relationship with the staff were more likely to uptake PITC services. Evidence from both low- and high-income countries indicates that the direct offer of HIV testing by health providers can result in significant improvements in test uptake and that the intervention is acceptable to patients and providers (Hensen et al., 2012).

The current study had a higher proportion of female participants than males. However, the PITC uptake was slightly higher in females, corresponding to PITC uptake rates of studies done in Africa (Ruria, et al., 2017; Oluoch, et al., 2017). Several interventions have already been done in this region, particularly targeting the male population, so as to increase uptake (KNBS, 2014). Furthermore, this study found that those aged between 36 to 45 years and those above 56 years of age were less likely to uptake PITC services than individuals between the ages of 18 to 35 years. Similar findings of association between an increase in age and HIV testing uptake were observed in studies done in Zimbabwe and Tanzania (Sherr et al. 2007; Sanga et al. 2015).

The study findings on marital status and PITC uptake were different than what was found in other studies (Ab-

durahman, et al., 2015; Church, et al., 2017). A study by Burmen and Mutai (2016) conducted in Eastern Ethiopia found out that participants who were married were more likely to uptake (Burmen and Mutai 2016) PITC services compared to those who were single, possibly due to the fact that marriage in sub-Saharan Africa is a known risk factor for HIV infection (Abdurahman, et al., 2015). Similarly, those who were divorced, separated or widowed were more likely to uptake PITC services, contrary to our study findings. The dissimilarities in study results may be attributed to awareness programmes in Kenya that encourage unmarried individuals to undertake the PITC services ((Ruria, et al., 2017).

A majority of the healthcare facilities in sub-Saharan Africa are delivered through vertical systems (Lawn, et al., 2008; Doherty, et al., 2010). This fragmentation of service delivery has been heightened in countries that have recently experienced rapid scale-up of ART programmes (Ferradini, et al., 2006; Rosen, et al., 2007). The current study found that respondents who were served in a lesser time were more likely to uptake PITC services than those who were served after a longer time. This may be an essential contributor to encouraging positive staff-patient relationships, as less time spent waiting signifies operational efficiency. These findings are in line with several studies that show that longer waiting times adversely affected patients' health-seeking behavior (Meremo, et al., 2015). Hence, increased waiting times were perceived to be a barrier to PITC uptake.

CONCLUSION

Understanding the uptake of PITC and associated factors is key in developing strategies that will help identify the gaps and advise on who and what to target for services in sub-Saharan Africa. The current study found high PITC uptake among patients who reported that the facility staff had a friendly patient-client relationship. Facility staff need to be trained on the importance of having a friendly patient-client relationship.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest related to this manuscript.

AUTHORS' CONTRIBUTIONS

EK authored the manuscript and provided data for Table 1, and FH did all the statistical analysis. Both authors reviewed the final manuscript.

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