



Assessment of factors associated with the uptake of Provider initiated HIV counselling and testing (PITC) among clients at Kenyatta National Hospital Accident and Emergency Department, Nairobi, Kenya.

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SUMMARY

HIV/AIDS has contributed to a high proportion of morbidity and mortality among people around the globe. Without proper care and treatment many more people will continue to perish, hence, to curb this, proper preventive measure needs to be put in place, for instance HIV testing and counseling. Despite the importance of this step, most HIV- infected patients are unaware of their HIV status. To improve the HIV status awareness, provider-initiated counseling and testing (PITC) was introduced. This study aimed to assess factors associated with PITC uptake. A cross sectional hospital-based survey of patients visiting Kenyatta National Hospital Accident and Emergency Department was carried out between August 2010 and November 2010. The survey comprised of 340 participants. A high proportion (96.2%) of the patients accepted to test for HIV. There was a significant association between PITC uptake and informal employment ($P = 0.006$), HIV risk behaviors ($p = 0.04$), decision to allow their children play with HIV positive children ($p = 0.018$), and fearing HIV test ($P < 0.001$). Having informal employment, HIV risk behaviours and not fearing to test for HIV was significantly associated with PITC uptake. More studies need to be carried out to identify barriers to PITC uptake.

Key words: PITC, risk behaviours, HIV/AIDS, Stigma, discrimination

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Introduction

HIV testing and counseling is the critical entry-point for engagement into treatment and care, as well as for primary and secondary prevention efforts (Becker et al, 2009). Despite the importance of this step, most HIV-infected patients globally, and particularly in resource-poor settings, are unaware of their HIV status (Franco-Paredes *et al*, 2006). Other evidence from both industrialized and resource-constrained settings

suggests that many opportunities to diagnose and counsel individuals at health facilities are being missed (Gruskin *et al*, 2009).

Globally, the proportion of the population who know their HIV status is generally low. In 23 countries that conducted Demographic and Health Surveys between 2005 and 2007, the proportion of adult women who reported having ever been tested and received their results ranged from a low of 2% in Niger to a high of



45% in Ukraine; the median was about 11% for women and 10% for men, and the figures were slightly lower for countries of sub-Saharan Africa (9% of women and 8% of men) (WHO, 2010). Studies from various settings in South Africa and Côte d'Ivoire have identified factors including 'fear of a positive HIV test', low levels of education and poor housing as associated with low uptake rates (Ivers *et al*, 2007). In nearly 40 percent of persons who receive a diagnosis of HIV infection, they had been infected with HIV for about a decade and health care and other institutions missed many opportunities to diagnose their infection (Frieden *et al*, 2005). In Australia, a review of records at a Canberra sexual health centre showed that more than half of HIV-positive patients with delayed diagnosis had earlier been in touch with health services, and almost all of them had at least one factor that should have prompted health care providers to consider the need for HIV testing and counseling (Riess *et al*, 2001). Such low utilization of testing and counseling is due to the constraints affecting the service (Joseph *et al*, 2009). Historically most HIV testing has been client-initiated, or opt in, in which individuals actively seek HIV testing at a facility offering HIV testing. Client-initiated HIV testing, which is generally known as voluntary counseling and testing (VCT), has been the primary model for providing HIV testing (Kiene *et al*, 2009). In this model, clients may seek HIV test and counseling services to guide personal life decision making, plan for one's future or the future of their family, and understand symptoms one is experiencing, or support personal HIV prevention efforts (NASCO, 2010). But uptake of this model of testing has been limited by low coverage of services, fear of stigma and discrimination, and the perception by many people, even those in high

prevalence areas is that they are not at risk (WHO, 2010).

Developments have been seen in recent years in global efforts to address the AIDS epidemic (Heidi van et al, 2009). To improve the slow uptake of VCT services, different alternatives have been proposed. Provider-initiated HIV counseling and testing is one of such initiatives (Girma and Enquesselassie, 2009).

Materials and Methods

The study was a hospital – based descriptive cross-sectional study carried out at Kenyatta National Hospital Accident and Emergency Department over a period of 2 months from August 2010 and November 2010 and the sample size was 340 individuals. The study population consisted of patients above 18 years old with clinical symptoms of HIV Infection at Kenyatta National Hospital Accident and Emergency (A&E) Department. Participants were selected in a systematic random sampling. A sampling frame was developed and divided the target population list of 126,000 into twelve months to get 10500 which was then divided with 30 days to get 350 patients per day. Every sixtieth patient was recruited out of the 350 patients per day by randomizing the first one. Patients who presented themselves into the Accident and Emergency Department were seen in the triage. Previous patients' records were then reviewed to determine the investigations or procedures carried out and the treatment given in the previous visits. The patients were then clerked and clinically examined as part of diagnosis process in order to provide standard medical care. Patients with possible clinical signs of HIV based on the WHO clinical staging of HIV/AIDS for adults and adolescents were advised for HIV counselling and



testing. Informed consent form was used to obtain consent from the clients. Patients who gave informed consent were interviewed using structured questionnaire. The questionnaire was divided into five main sections to ease administration. Section one had questions on socio-economic and demographic characteristics (age, sex, marital status, occupation, education level) while section two had questions on HIV risk behaviour where the clients were administered a 5-item questions on HIV risk behaviors with options of 'Yes' and 'No' choices. The indicator of the risk behavior consisted of the client's score on five questions (i.e. the number questions answered 'Yes' or 'No' with a possible range of 0–5.). Clients who scored 'No' for the 5 questions were labeled to have no risk behaviors while those who scored 'Yes' for even one questions was labeled to have HIV risk behavior. Items covered included using alcohol, using drugs like marijuana, having sex with non spousal partner in the last one year and having sex with non spousal partner in the last one year without condom.

Section three had questions on knowledge level of HIV whereby the clients were administered a 4-item test of knowledge about HIV. The indicator of HIV knowledge consisted of the client's score on four questions (i.e. the number of questions answered correctly with a possible range of 0–4.). Clients who score 3 and above were labeled to have good HIV knowledge level and those who scored below 2 were labeled to have poor HIV knowledge level. Items covered included knowledge of and misconceptions about HIV including transmission routes, for example, 'A person will get HIV virus infection through kissing or unprotected sexual intercourse; 'A person is protected from getting HIV through abstinence, being faithful or using condom;

'The only way to stop spread of HIV is through prevention, isolation, or avoiding direct contact with people infected with HIV.

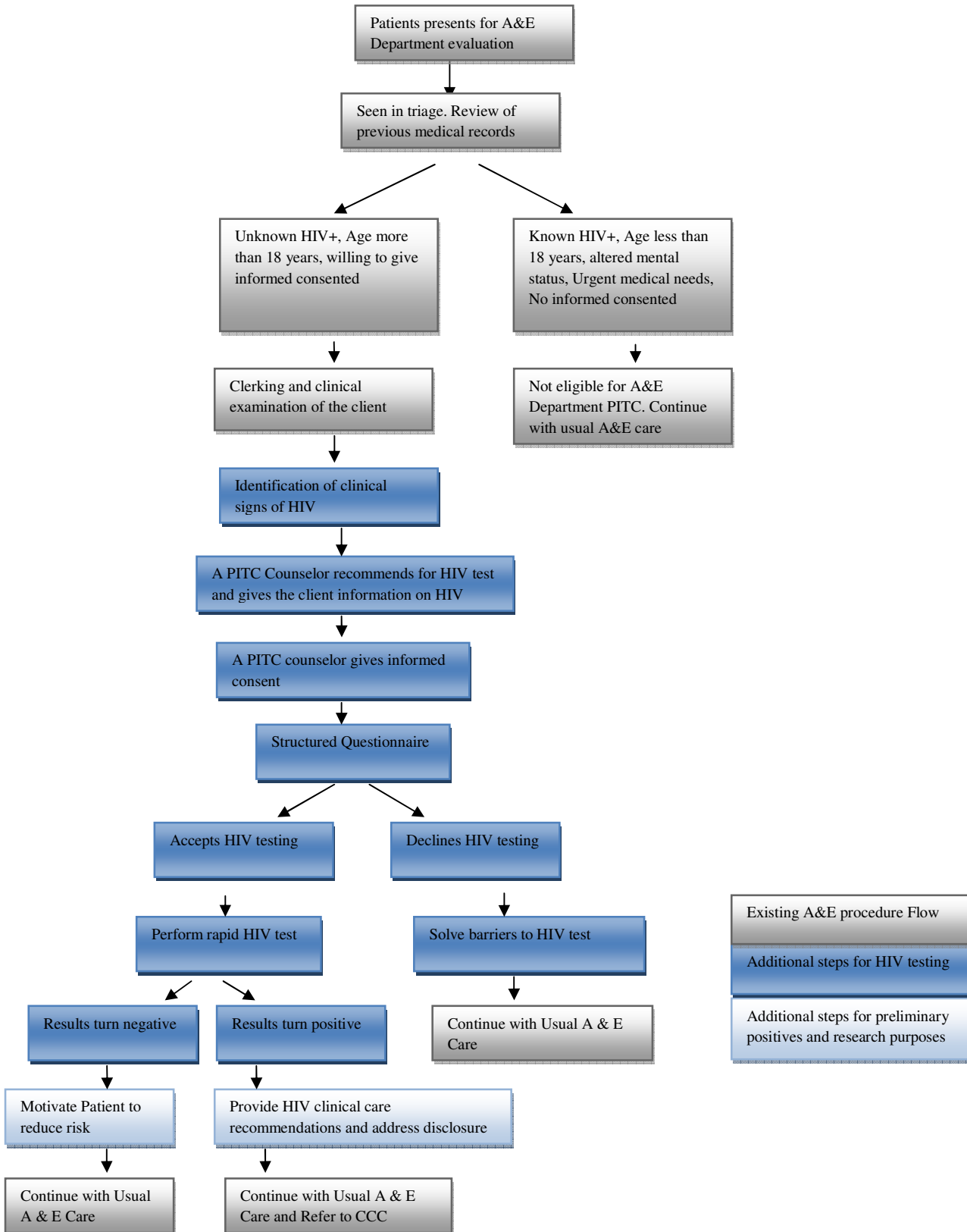
Section Four had three questions on access to quality care which included indicating access in terms of (1) distance between home and Kenyatta National Hospital, (2) comfort at PITC site and employment status. Section five had questions on stigma and discrimination. Data generated was verified and entered into Microsoft Excel spreadsheet then transferred to SPSS spreadsheet. It was then analyzed using Statistical Package of Social Science (SPSS) Version 13.0 for windows and Epi Info version 3.5.2. Each questionnaire was coded for purpose of validation. Descriptive statistics including mean, standard deviation, frequency distribution and proportions were done for variables (age, sex, and marital status, level of education, occupation and religion) by running the frequencies in SPSS. The odds ratio, chi square, 95% confidence limits and p-Value was used to assess the association between uptake of provider initiated HIV testing and counseling and socio-demographic, attitude and behavioral characteristics. A p-Value of 0.05 or less was taken to be statistically significant. Variables which were statistically significant were then subjected to multivariable analysis for adjustment through logistic regression to obtain the predictive effect of various significant independent variables. Ethical approval was sought from KEMRI Ethical Review Committee and Kenyatta National Hospital/University of Nairobi Ethical Review Committee before the commencement of the study. Consent for carrying out an HIV test was also sought and rapid HIV test was done to those clients who accepted while clients who declined or deferred test were assisted to solve barriers to testing and a



plan to seek HIV test was developed. Data collection

procedure is summarized in figure 1.

Figure 1: Algorithm of procedures of A & E





Results

Distribution of the respondents according to age and sex

A total of 340 participants were interviewed during the two months study at KNH Accident and Emergency Department. The clients' mean age was 32.8 years

ranging between 31.4 and 34.7. Males whose mean age was 34.7 years were significantly older than females whose mean age was 31.4 years (P= 0.009). (Table 1).

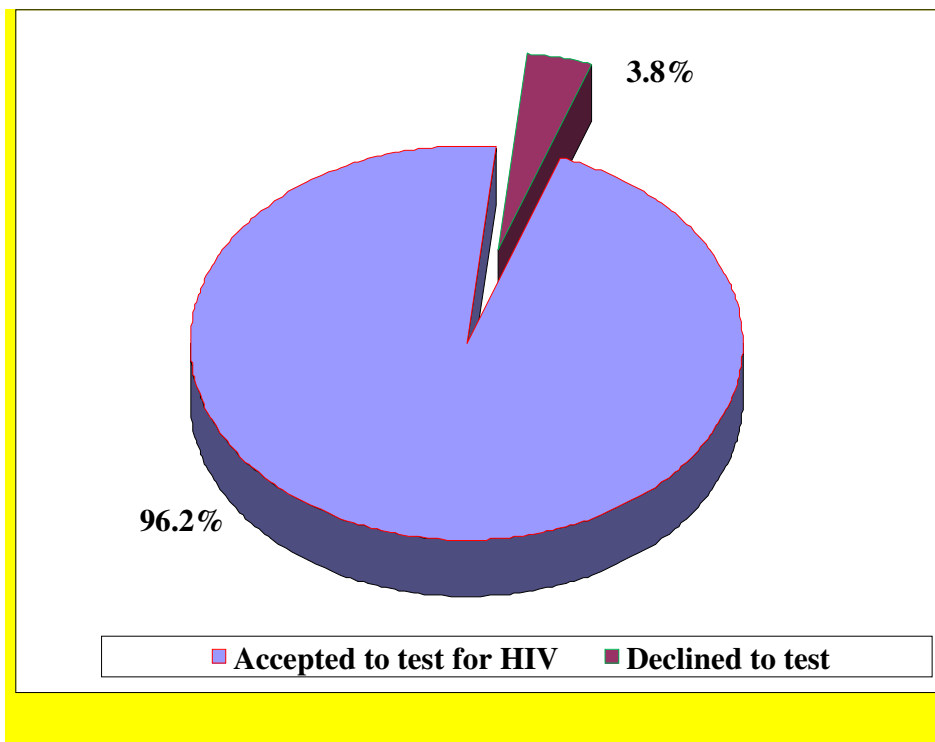
Table 1: Distribution of the respondents according to age and sex

Gender	N	Mean age in Years \pm SD	95% C. I. of the mean	
			Lower	Upper
Male	139	34.7 \pm 12.03	32.7	36.7
Female	201	31.4 \pm 10.39	30.0	32.9
Total	340	32.8 \pm 11.19	31.4	34.8

Prevalence of PITC uptake among the respondents

The prevalence of uptake of provider initiated HIV testing and counseling (PITC) was 96.2% as shown in Figure 2.

Figure 2: Prevalence of PITC uptake among the respondents





Bivariate analysis of acceptance to take HIV test in relation to HIV Risk Behaviors

Computing the specific HIV risk behaviors by PITC shows that having sex with non spousal partner in the

past one year was significantly associated with acceptance to take an HIV test (P=0.038). Table 1 shows PITC uptake in relation to other specific HIV risk behaviors among clients. Table 3.

Table 3: Uptake of Provider Initiated HIV testing and counseling in relation to behavioral characteristics

Variables	Accepted HIV test (N=327)		Declined HIV test (N=13)		P value	OR(95%CI)
	N	(%)	N	(%)		
Used alcohol						
Yes	84	(98.8)	1	(1.2)	0.198	4.2 (0.6–86.7)
No	243	(95.3)	12	(4.7)		
Drug abuse						
Yes	5	(100.0)	0	(0.0)	0.653	ND
No	322	(96.1)	13	(3.9)		
Ever had sex with non-spousal partner						
Yes	82	(100.0)	0	(0.0)	0.038	ND
No	245	(95)	13	(5)		
Ever had sex with non-spousal partner without condom						
Yes	39	(100)	0	(0.0)	0.186	ND
No	288	(95.7)	13	(4.3)		
Ever received or given money for sex						
Yes	11	(100)	0	(0.0)	0.501	ND
No	316	(96.0)	13	(4.0)		

OR, odds ratio; CI, confidence interval; ND, Non-definitive

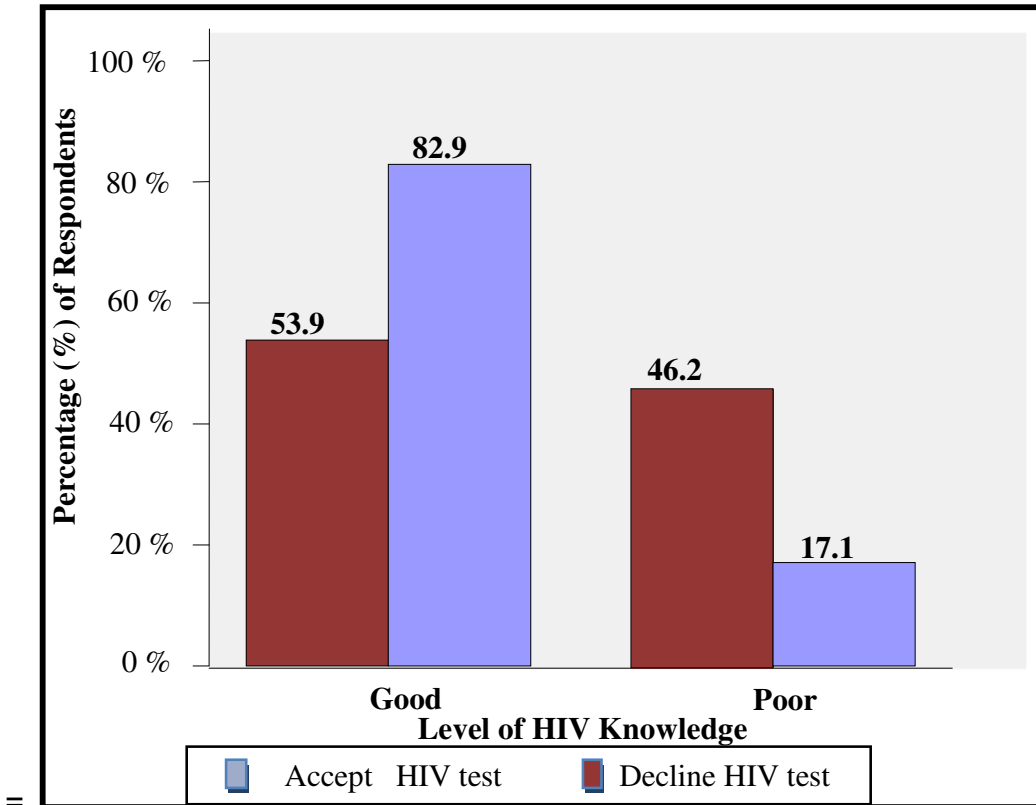
Acceptance to take HIV test in relation to Knowledge Level of HIV

A significantly higher proportion of respondents who had good knowledge level accepted to test for HIV through provider initiated HIV testing and counseling

more than those respondents who had poor knowledge level. Distribution of uptake of Provider Initiated HIV testing and counseling by HIV-Knowledge level of clients is shown in Figure 3.



Figure 3: Uptake of Provider Initiated HIV testing and counseling HIV–Knowledge level of clients



Bivariate analysis of acceptance to take HIV test in relation to HIV–Related stigma, Discrimination and Disclosure

There was no significant association between the uptake of PITC and fear of having a casual contact with a person infected with HIV, willingness to test for HIV with a partner, disclosure of HIV test results to a partner, fear of divorce or separation from a spouse in case the results turns positive and perception of PLWHA ($P > 0.05$). Significant association was seen between uptake of PITC and acceptance to allow their

children to play with children who are HIV Positive ($P < 0.001$), and fear of taking an HIV test ($P < 0.001$). A significantly higher proportion of respondents who could allow their children to play with other children who are infected with HIV had less stigma and accepted to test for HIV more than those who could not allow their children play. Similarly, a higher proportion of respondents who did not fear to take an HIV test accepted to test for HIV more than those who feared. This is shown in Table 4.



Table 4: Uptake of Provider Initiated HIV testing and counseling in relation to attitude towards PLWHA

Variable	Accepted HIV test (N=327)		Declined HIV test (N=13)		P value	OR (95% CI)
	N	(%)	N	(%)		
Fear of having a casual contact with a person infected with HIV						
Yes	73	(94.8)	4	(5.2)	0.501	0.7 (0.2–2.6)
No	254	(96.6)	9	(4.3)		Reference
Acceptance to allow ones child play with children who are HIV positive						
Yes	279	(98.2)	5	(1.8)	<0.001	9.3 (2.6–34.4)
No	48	(85.7)	8	(14.3)		Reference
Fear to take an HIV test						
No Fear	298	(98.0)	6	(2.0)	<0.001	9.15 (2.9 – 29.1)
Fear	29	(82.9)	7	(17.1)		Reference
Willing to test for HIV with your partner						
Yes	319	(96.4)	12	(3.6)	0.299	3.3 (0.4–28.7)
No	8	(88.9)	1	(11.1)		Reference
Would disclose the HIV test results to you partner						
Yes	318	(96.4)	12	(3.6)	0.326	2.9 (0.3–25.1)
No	9	(90.0)	1	(10.0)		Reference
Fear of divorce or separation from your spouse in case the results turns positive						
Yes	33	(91.7)	3	(8.3)	0.148	0.4 (0.1–1.8)
No	294	(96.7)	10	(3.3)		Reference
Perception of PLWHA						
Positive	315	(96.3)	12	(3.7)	0.403	2.2 (0.3–18.2)
Negative	12	(92.3)	1	(7.67)		Reference

OR, odds ratio; CI, confidence interval

Factors predictive of PITC uptake among clients seeking health care services at Kenyatta National Hospital, Accident and Emergency Department in 2010

In multivariable analysis (Table 5), employment status, HIV risky behavior, acceptance to allow ones child to play with children who are HIV positive and fear to

take an HIV test were found to be predictive of the outcome of PITC. A client in informal employment was 6.2 [95% CI= 1.7 – 22.6] times more likely to accept taking an HIV test compared to one in formal employment.

HIV Risky behavior was significantly associated with acceptance to take an HIV test. A respondent who



admitted to be engaging in risky sexual behavior was 7.8 [95%CI= 0.9 – 72.1] times more likely to accept taking an HIV test compared to one without.

Acceptance to allow ones child to play with children who are HIV positive was significantly associated with acceptance to take an HIV test. A client who indicated that he/she would allow his/her child to play with children who are HIV positive was 4.8 [95% CI= 1.3 –

17.7] times more likely to accept taking an HIV test compared to one that would refuse.

Having no fear to take an HIV test was also significantly associated with acceptance to take an HIV test. A client showing no fear to take an HIV test was 11.1 [95% CI= 3.0 – 50.0] times more likely to accept taking an HIV test compared to one that was fearful.

Table 4: Multivariable analysis of predictors of PITC uptake among clients seeking health care services at Kenyatta National Hospital, Accident and Emergency Department.

Predictor variables	β	s.e. (β)	df	AOR	95.0% CI		P value
					Lower	Upper	
Employment status							
Informal	1.82	0.66	1	6.2	1.7	22.6	0.006
Formal	Reference						
HIV risk behavior							
Yes	2.06	1.13	1	8.5	1.1	66.5	0.04
No	Reference						
Acceptance to allow ones child play with children who are HIV positive							
Yes	1.57	0.66	1	4.8	1.3	17.7	0.018
No	Reference						
Fear to take an HIV test							
Not fearful	2.41	0.67	1	10.0	3.0	50.0	<0.001
Fearful	Reference						

OR, odds ratio; CI, confidence interval

Discussion

Socio-economic and Demographic Characteristics

During the study to assess factors associated with the uptake of provider initiated HIV testing and counseling among clients visiting Kenyatta National Hospital Accident and Emergency Department, a total of 340 participants were interviewed. The clients' mean age

was 32.8 years ranging between 31.4 and 34.7. Males whose mean age was 34.7 years were significantly older than females whose mean age was 31.4 years (P= 0.009).



HIV–Risk Behaviors

In this study a higher proportion of the respondents did not practice any HIV related – risk behaviors. Having no HIV risky behaviour seems to encourage participants to accept provider initiated HIV testing and counseling more easily than individuals who practice risk behaviors. This variable was significant in testing for HIV since more participants who did not practice risky behaviors accepted to be tested than those who practiced HIV risky behaviors.

In Kenya, Huchko *et al*, (2009) reported higher rates of HIV testing among people who did not practiced risky behaviors. Pulerwitz *et al*, (2008), in Brazil found that HIV testing was associated with having injected drugs and having a large number of sexual partners.

Knowledge – Level of HIV

Majority of the participants in this study had good level of HIV knowledge. Participants with good HIV– related knowledge accepted provider initiated HIV testing and counseling more easily than those with poor knowledge. The role of knowledge about HIV as a predictive of accepting HIV testing has been described previously in Africa (Kharsanya *et al*, 2010). In Ethiopia, Deribew *et al*, (2010) revealed that individuals with knowledge about HIV were 2.5 times more likely to be tested than individuals with poor knowledge.

HIV–related Stigma, Discrimination and Disclosure

A large proportion of the respondents were willing to test and disclose the HIV results to their partners. This was also seen in South Africa by Karim *et al*, (2008) where majority of the respondents indicated a willingness to disclose their HIV status should they become HIV–infected. Only a small number said that they would not. In Brazil, Pulerwitz *et al*, (2010) found in a study carried out on HIV–related stigma, service

utilization, and status disclosure among truck drivers that the proportion of clients willing to disclose HIV test results to someone was quite high. The findings of the current study concerning willingness to disclose HIV test results to their partners was very consistent with findings from studies mentioned above. This could be because the study participants were blacks both in Kenya and KwaZulu–Natal in South Africa.

In this study, a significant majority of the respondents did not fear to take an HIV test and had high uptake of PITC. Having no fear to take an HIV test was significantly associated with acceptance to take the test. In regards to whether it is safe for the respondents to allow their children play with children infected with HIV, most of the respondents reported that they will allow while few could not agree. In Botswana, Weiser *et al*, (2004) revealed that people with stigmatizing attitudes toward people living with HIV had lower odds of testing. Looking at Stigma items and participant responses, Pulerwitz *et al*, (2010) in Brazil still found out in his study that among the participants who were asked whether it was safe to let their children play with children who have HIV/AIDS nearly half of them agreed while the others could not agree. The difference in these findings could have occurred due the difference in geographical settings

Prevalence of Provider Initiated HIV testing and counseling

In this study, provider initiated HIV testing and counseling (PITC) strategy in Kenyatta National Hospital Accident and Emergency Department had remarkably a high (96.2%) acceptance rate. This could be a positive indicator that patients who visit accident and emergency department have a higher chance of accepting to be tested for HIV infection. In western



Kenya, Becker *et al*, (2009) mentioned that an emergency department-based routine PITC program demonstrated a 97% testing acceptance rate. Ferrand *et al*, (2009) found out in a study carried out to assess the uptake of PITC that the results showed was 99%.

In Ethiopia, Girma and Enquselassie, (2009) revealed that the pre-test and post-test acceptability rates among those who showed willingness to PICT, were 98% and 96% respectively where as the overall acceptability rate of all study participants was 67%. Kharsanya *et al*, (2010) reports that data from studies done in various countries in Sub – Saharan Africa suggests that testing is highly acceptable in some settings and has led to 99.9%, 95%, and 74.6% testing coverage in Zimbabwe, Botswana and South Africa respectively. Report from CDC (2007) indicates that the proportion of patients actually tested during the emergency department visit among those who agreed to testing also varied by site: 99.8% in Los Angeles, 99.4% in New York, and 38.5% in Oakland.

In United States, Brown *et al*, (2007) revealed that a large number of patients are willing to be screened for HIV infection while in the emergency department. The findings in the current study are consistent with the results of the mentioned studies above. The high uptake or rather acceptance rate of provider initiated HIV testing and counseling among clients at Kenyatta National Hospital, Accident and Emergency Department may have been because it was a free service as per the KNH VCT policy. In an assessment carried out at Mulago hospital in Uganda, it was found that the most common reason for not undergoing testing during hospital visit was a lack of money (Wanyenze *et al* 2008).

Limitations to this current study include the use of a cross-sectional. Also, data on those who tested HIV positive is not available.

Conclusions

The results from this study show that most of the clients were young with a mean age of 32.8 years.

Provider initiated HIV testing and counseling (PITC) was highly acceptable among clients at Kenyatta National Hospital Accident and Emergency Department.

The findings from the current study also showed that factors predictive of PITC uptake among clients seeking health care services at Kenyatta National Hospital, Accident and Emergency Department were employment status, HIV risk behaviors, Accepting to allow ones child play with children who are HIV positive , and having no fear to take an HIV test.

Recommendations

There is a need to create awareness on provider initiated HIV testing and counseling among older people.

The Ministries of Medical Services and Public Health and Sanitation need to come up with ways of expanding the coverage of provider initiated HIV testing and counseling (PITC) services to other health facilities as this study has shown that the uptake is relatively high.

More studies need to be carried out to identify barriers to provider initiated HIV testing and counseling especially among clients who declined in this study.

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