

Acceptance of Human Immunodeficiency Virus Testing among Caregivers of Children using Provider-Initiated Testing and Counselling Strategy in Ido-ekiti, Nigeria: A Cross-sectional Study

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ABSTRACT

Introduction: Missed opportunities exist for early detection of HIV infection in children visiting healthcare institutions. Provider Initiated Testing and Counselling (PITC) Strategy is a means for reducing missed opportunities for children who are HIV exposed or infected. It enhances the access of such children to HIV preventive measures, care interventions and treatment. There is a gap in knowledge concerning the acceptability of the PITC strategy in detection of HIV infected or exposed Nigerian children, most especially Children from Ekiti state.

Aim: To determine the acceptability of PITC Strategy for HIV testing among caregivers of children seen at the Paediatric Emergency Unit of FMC, Ido-Ekiti, Ekiti State and the factors that influenced acceptability.

Materials and Methods: This was a prospective, hospital-based cross-sectional study on acceptability of HIV testing using PITC model. Consecutive caregivers of patients attending the PEU for the first time aged 6 weeks to 15 years were offered HIV testing using WHO guideline on PITC. Pre-test and post-

test information were provided in individual sessions. Those whose HIV status was already known were excluded from the study. Data were analysed using Statistical Package for Social Sciences (SPSS), version 15.0.

Results: A total of 530 (97.6%) out of 543 caregivers counselled for HIV testing gave consent for the test. The age range of the caregivers was 19-56 years with a mean of 30.2 (± 6.8) years. The predominant group of caregivers in attendance were mothers only accounting for 504 (92.8%) of the total 530 caregivers studied. Acceptability rate was inversely associated with the level of education and social class of the caregivers. A total of 348 (99.4%) out of 350 caregivers whose wards required admission accepted testing, while 182 (94.3%) out of 193 caregivers whose wards did not require admission accepted testing. This difference was statistically significant ($p=0.001$).

Conclusion: Acceptability rate for HIV testing, using PITC Strategy was high in all the age-groups of the caregivers; acceptability rate was however inversely related to the level of education and social class.

Keywords: Custodians, Evaluation, Methods, Parents

INTRODUCTION

Human Immunodeficiency Virus (HIV) infection in children is a major public health problem [1]. In the absence of antiretroviral therapy, children with infection rapidly progress to Acquired Immune Deficiency Syndrome (AIDS) with high mortality rate [1,2]. Although research has shown that early initiation of antiretroviral therapy improves the health of children with HIV infection, only a few of the children with HIV infection are on antiretroviral drugs because the HIV status of most children with HIV is not known [2,3]. More than 80% of the individuals with HIV infection in Sub-Saharan Africa, including children, do not know their HIV status [1,4-6]. Testing for HIV infection is the key to early diagnosis, treatment and prevention. It enables people with the infection to be detected and linked to treatment care and support services. In children, testing for HIV infection is usually prompted by ill-health; usually in circumstances where immune-suppression is suspected, presence of HIV infection in the parent or sexual abuse. Hence, HIV infection continues to spread in the non-targeted populations [7]. Therefore, most of the children with HIV infection present in advanced stages of the disease with attendant high mortality rate [8].

Though people with HIV infection visit healthcare institutions for various reasons, yet they are not tested [9]. Such visits constitute missed opportunities for early diagnosis [6,9]. As part

of the response to the problem, the World Health Organisation (WHO) and Centre for Disease Control and Prevention (CDC) issued guidelines for increased screening for HIV infection using PITC Strategy [10]. This is a priority strategy for increasing the access of HIV-exposed children and children with HIV infection for treatment and care interventions, and HIV preventive care [11]. The strategy also has the potential of linking parents of these children to HIV care and prevention because 90% of HIV infections in children are acquired via Mother-to-Child Transmission (MTCT) [3]. This strategy will afford many more people the opportunity to know their HIV status. In countries with HIV generalised epidemics like Nigeria, it is recommended that all children are offered HIV testing using rapid tests in order to increase utilisation of available treatment services and preventive strategies [11].

The PITC Strategy has been studied and found to be feasible and acceptable both in developed and developing countries, mostly in antenatal care settings. As far as, to the authors' knowledge Studies using the PITC Strategy in Nigerian children were less in number [12]. The present study, therefore, set out to determine the acceptability of PITC Strategy for HIV testing and the factors that influence the acceptability among caregivers of children seen at Paediatric Emergency Unit (PEU) of Federal Medical Centre (FMC), Ido-Ekiti, Nigeria.

MATERIALS AND METHODS

This study was a prospective, hospital-based and cross-sectional study. The study was carried out at the Paediatrics Emergency Unit (PEU) of FMC, Ido-Ekiti over a period of 6 months (April 2012-September 2012). This PEU is a 13-bedded ward with about 100 patients seen monthly. Federal Medical Centre, Ido-Ekiti is a tertiary hospital that serves as a referral centre for the neighbouring towns in Ekiti State and neighbouring Ondo, Osun and Kwara States. There was an ongoing HIV infection treatment, care and support programme in the hospital at the time of study and at the time of writing.

Study Participants

The subjects were consecutive caregivers of new paediatric patients, aged 6 weeks to 15 years who presented in the PEU with any illness. Only caregivers who gave written informed consents were enrolled for the study. Assent was also obtained from each child aged seven years and above. Caregivers of patients with documented HIV status at presentation were excluded from the study. Each patient was recruited once until the desired sample size was attained.

The sample size was calculated using Fisher's formula and a prevalence value of 50% giving a minimum sample size of 385 [13]. Five hundred and forty-three caregivers were however counselled for HIV testing.

Data Collection

Caregivers and patients were given HIV pre-test counselling using WHO guideline on PITC with the choice of "opting out" [11]. Counselling cards for paediatric HIV disclosure adopted by Paediatric AIDS Treatment for Africa were used to obtain assent from children aged seven years and above [14]. Pre-test and post-test information were provided in the individual sessions. An interviewer-administered questionnaire designed for the study was used to record information from each caregiver. Data obtained from the caregivers included their age, gender, educational level, occupation, relationship with the child (whether biological parents, grandparents, etc.) and history of previous HIV testing.

The socioeconomic classification of the children was based on social classification system given by Oyediji GA [15]. This is based on the mean of a set of scores, assigned for the educational attainments and occupation for the parents. Scores of 1-5 were assigned to each education or occupation category. The scores assigned to the different categories correspond to the 10th, 25th, 50th, 75th and 90th percentile of incomes of Nigerians [16]. The mean scores are approximated to the nearest whole number. Scores of 1 and 2 correspond to the upper socioeconomic classes, while a score of 3 is equivalent to the middle class and scores of 4 and 5 to the lower socioeconomic classes.

Ethical consideration: Institutional Ethical Approval was obtained from the Ethics and Research Committee of FMC, Ido-Ekiti. The protocol number assigned to this study is ERC/2011/10/01.

STATISTICAL ANALYSIS

The data were entered into a computer and analysed using the software, Statistical Package for Social Sciences (SPSS) version 15.0 [17]. Categorical variables were expressed in proportions, ratios and percentages. Categorical variables were compared using the Chi-square (χ^2) test and Odds ratio where appropriate. Statistical significance was set at p-value less than <0.05.

RESULTS

A total of 543 caregivers participated in the study. [Table/Fig-1] shows the distribution of caregivers in relation to their ages, gender, levels of education, social classes and their relationships with the children. A total of 497 (91.5%) of the caregivers were in the age range of 20-39 years; with the overall mean age of 30.20 (6.86) years. Only two (0.4%) of the caregivers were males. Secondary

school education was the highest level of education attained by 337 (62.1%) of the caregivers. Three hundred and fifteen (58.0%) of the 543 caregivers were in social class III. Five hundred and four (92.8%) of the caregivers were the mothers of the children while 12 (2.2%) were accompanied by both parents.

Variable	Number (%)
Age in years	
<20	2 (0.4)
20-29	299 (55.1)
30-39	198 (36.5)
40-49	28 (5.2)
≥50	16 (2.9)
Gender	
Male	2 (0.4)
Female	541 (99.6)
Educational level	
No formal education	13 (2.4)
Primary	29 (5.3)
Secondary	337 (62.1)
Tertiary	164 (30.2)
Social class*	
I	62 (11.4)
II	115 (21.2)
III	315 (58.0)
IV	33 (6.1)
V	18 (3.3)
Relationship with child*	
Father only	1 (0.2)
Mother only	504 (92.8)
Both parents	12 (2.2)
Uncle/aunt	4 (0.7)
Grandmother	22 (4.1)
Total	543 (100.0)

[Table/Fig-1]: Distribution of caregivers in relation to age, gender, levels of education, social class and their relationship to the children.

*Where both parents accompanied the patient, the mother was recorded as the caregiver

All the 543 caregivers were aware of HIV infection and 538 (99.1%) of them were also aware of where HIV testing was available.

The [Table/Fig-2] shows the association between the ages of the caregivers and acceptance of HIV testing for the children/ward. The association between ages of caregivers and acceptance of HIV testing was not statistically significant ($\chi^2=2.378$; $df=4$; $p=0.667$). The acceptance rate was 100.0% among the caregivers less than 20 years and those aged above 50 years, while those between 40 and 49 years had acceptance rate of 96.4%, none of these was statistically significant.

The [Table/Fig-2] also shows the association between the levels of education of caregivers and acceptance of HIV testing for the children. There was an overall statistically significant association between levels education of caregivers and acceptance of HIV testing ($\chi^2=18.763$; $df=3$; $p\leq 0.001$). All (100.0%) those who had no formal education and only primary education accepted testing, while only 153 (93.3%) of those with tertiary education accepted HIV testing ($\chi^2=16.155$; $p<0.001$). A lower proportion of those with tertiary education accepted HIV testing; this difference was statistically significant ($\chi^2=16.155$; $df=1$; $p\leq 0.001$). A total of 153 (93.3%) of the caregivers with tertiary education accepted testing, compared with 377 (99.5%) of those with lower level of education ($\chi^2=16.155$; $p<0.001$).

The relationship between social classes of the caregivers and acceptance of HIV testing for the children are also shown in [Table/Fig-2].

There was an association between level of education of caregivers and acceptance of HIV testing; this was statistically significant ($\chi^2=33.401$; $df=4$; $p\leq 0.001$); probably accounted for by much lower acceptance rate among caregivers in the high social class I. For example, only 54 (87.1%) of the caregivers in social class I accepted testing ($\chi^2=28.197$; $df=1$; $p\leq 0.001$).

Variable	Accepted testing n (%)	Declined testing n (%)	χ^2	p-value
Age in years				
<20	2 (100.0)	0 (0.0)	$\leq 0.001^{**}$	1.0
20-29	294 (98.3)	5 (1.7)	0.876**	0.349
30-39	191 (96.5)	7 (3.5)	1.053**	0.305
40-49	27 (96.4)	1 (3.6)	$\leq 0.001^{**}$	1.0
≥ 50	16 (100.0)	0 (0.0)	$\leq 0.001^{**}$	1.0
$\chi^2=2.378$; $df=4$; $p=0.667$; **with Yates's correction				
Educational level				
No formal education	13 (100.0)	0 (0.0)	$\leq 0.001^{**}$	1.0
Primary	29 (100.0)	0 (0.0)	0.059**	0.808
Secondary	335 (99.4)	2 (0.6)	10.378**	0.001
Tertiary	153 (93.3)	11 (6.7)	16.155	≤ 0.001
$\chi^2=18.763$; $df=3$; $p\leq 0.001$; **with Yates's correction				
Social class*				
I	54 (87.1)	8 (12.9)	28.197**	≤ 0.001
II	114 (99.1)	1 (0.9)	0.741**	0.389
III	311 (98.7)	4 (1.3)	2.993**	0.084
IV	33 (100.0)	0 (0.0)	0.116**	0.733
V	18 (100.0)	0 (0.0)	$\leq 0.001^{**}$	1.0
$\chi^2=33.401$; $df=4$; $p\leq 0.001$; **with Yates's correction				

[Table/Fig-2]: Association between age, level of education and social class of caregivers and acceptance of HIV testing for the children.

The [Table/Fig-3] shows the association between acceptance rate for HIV testing and the relationship of caregivers with the child. There was an overall association between acceptance of HIV testing and the relationship of the caregivers with the children which was statistically significant ($\chi^2=9.599$; $df=4$; $p=0.048$). A total of 3 (75.0%) of four uncle/aunties accepted testing. Although the acceptance rate among uncle/aunties was the lowest, this was not statistically significant ($\chi^2=1.761$; $df=1$; $p=0.184$). Though biological parents and grandmothers had the highest acceptance rate, this was not statistically significant.

Relationship with the child	Accepted testing n (%)	Declined testing n (%)	χ^2	p-value
Father only	1 (100.0)	0 (0.0)	≤ 0.001	1.0**
Mother only	493 (97.8)	11 (2.2)	0.379	0.538
Both parents	12 (100.0)	0 (0.0)	≤ 0.001	1.0**
Uncle/aunty	3 (75.0)	1 (25.0)	1.761	0.184**
Grandmother	21 (95.5)	1 (4.5)	≤ 0.001	1.0**

[Table/Fig-3]: Relationship of caregivers with the child and acceptance of HIV testing. $\chi^2=9.599$; $df=4$; $p=0.048$; **with Yates's correction

The [Table/Fig-4] shows the association between previous screening of caregivers for HIV and acceptance of HIV testing. Previous HIV screening experience of the caregivers was not significantly associated with acceptance of HIV testing ($\chi^2=0.312$; $df=1$; $p=0.576$).

The association between admission status as an indicator of severity of illness in the child and acceptance of HIV testing is also shown in [Table/Fig-4]. Three hundred and forty-eight (99.4%) of the 350 caregivers of children who were admitted accepted testing, compared with 182 (94.3%) of the 193 caregivers of the children

Previous HIV screening	Accepted testing n (%)	Declined testing n (%)	χ^2	p-value
Yes	305 (97.1)	9 (2.9)	0.312	0.576**
No	225 (98.3)	4 (1.7)		
Admission status				
Admitted	348 (99.4)	2 (0.6)	11.891**	0.001
Not admitted	182 (94.3)	11 (5.7)		

[Table/Fig-4]: Association between previous screening of caregivers for HIV and severity of illness in the child with acceptance of HIV testing.

**with Yates's correction

who were not admitted. Thus, the admission status of the children was significantly associated with acceptance of testing ($\chi^2=11.891$; $df=1$; $p=0.001$).

A total of 291 (95.4%) out of 305 caregivers with prior screening test had their HIV screening done at the Antenatal Clinic, while Voluntary Counselling and Testing, and screening during blood donation accounted for twelve (3.9%) and two (0.7%) respectively.

DISCUSSION

The overall acceptability rate for HIV testing using PITC Strategy in the present study among caregivers of new patients was 97.6%. This was very high and quite encouraging. The high rate of acceptability was consistent with what had been documented in earlier studies on PITC Strategy in other areas with generalised HIV epidemics, similar to that of Nigeria [3,18]. Wanyenze RK et al., reported acceptability rate of 98% among paediatric in-patient in Uganda [18], Weigel R et al., reported over 95% from Malawi and Mutanga J et al., reported 98.2% from Southern province of Zambia [11,19]. Prior to the study by Wanyenze RK et al., HIV testing was available only upon request and payment [18]. However in their study, as in the present one, HIV testing was free. This might have influenced the high uptake rate. Topp MS et al., demonstrated that introducing PITC using lay healthcare workers in busy urban out-patient departments of primary healthcare centres doubles the HIV testing rate and substantially increased case-finding of individuals with HIV infection [20]. The high acceptability rate supports the view that routine PITC can help in normalising HIV testing and remove a key structural barrier to accessing care and treatment [11,21]. The PITC Strategy is much more likely to reach out to more individuals than the Client-initiated HIV Testing and Counselling that only reaches out to clients who seek HIV counselling and testing services. The use of rapid tests kits for HIV testing also allows prompt delivery of results which enhance timely delivery of antiretroviral drugs with proven efficacy to patients with HIV infection in resource constraint regions.

The high level of awareness of HIV infection and availability of HIV test among caregivers in the present study was consistent with the 2010 report from National HIV sero-prevalence sentinel survey in Nigeria [22]. It was however much higher than the findings of Akpede GO et al., in a study in North-eastern Nigeria on perception of voluntary screening for paediatric HIV and response to post-test counselling by Nigerian parents [23]. The higher awareness rates reported in the National HIV sero-prevalence sentinel survey and in the present study when compared to findings of Akpede GO et al., could be as a result of intense campaign against HIV in the last decade in Nigeria [23]. The high level of awareness of HIV infection amongst caregivers in the present study may therefore be a function of time, which may have also influenced the high level of acceptability of HIV testing recorded.

The low level of previous HIV testing among the caregivers in the present study indicates that there is a need to employ the newer strategies like PITC to get more people to know their HIV status. Factors that influence uptake of HIV testing in the present study, include level of education and social class of the caregivers.

Knowledge of these factors are crucial for designing effective control interventions that will curb the spread of HIV infection [24].

The present study also showed that more of the caregivers of children with more severe illness requiring hospital admission accepted testing. Perhaps the severity of the illness made the caregivers to want everything possible done for such children; hence their high level of acceptance.

Although, the findings in the present study suggested that the gender of the caregivers was also an important determinant, with a higher proportion of the male caregivers accepting testing, the interpretation of this finding should be with caution as it may not be a reflection of the reality because of the small number of males involved. It was rather surprising that the findings in the present study suggested that previous HIV screening experience of a caregiver did not influence the likelihood of his/her acceptance for HIV testing. A possible explanation for this was that majority of the caregivers who had HIV testing in the past were offered at the ANC clinic where it was provided as one of the routine investigations which they had to do. The present study, however, offered an opportunity to 'opt out', previous studies have shown that this strategy has the advantage of increasing the uptake of HIV testing, increase new case detection and provide clients with the choice to either accept or reject testing in contrast to voluntary counselling and testing [24,25]. The findings in the present study might thus represent the true reflection of acceptance of HIV screening test using the PITC Strategy.

LIMITATION

The present study being a hospital based study of may not reflect the acceptability rate for HIV testing in the general community.

CONCLUSION

Testing for HIV infection using the PITC Strategy in the present study was highly acceptable. The level of awareness of HIV infection was similar to the findings in National sentinel survey. The PITC Strategy should therefore be a feasible strategy for increasing access to paediatric HIV care in health facilities, particularly in generalised epidemic settings like Nigeria. It is therefore recommended that Provider-Initiated Testing and Counselling Strategy should be offered to all children presenting in health care institutions in Nigeria and other African countries.

Authors' Contributions

OA supervised the study and involved in the data analysis and manuscript writing, OTB studied the conceptualization, data collection and analysis, manuscript writing, LSB involved in the data analysis and manuscript writing. All authors have read and approved the manuscript.

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