Mobile HIV Counselling and Testing (HCT) Outreach: A Model for Community based Approach to Increasing Uptake of HCT and Antiretroviral Therapy (ART) Services in Benue State Nigeria

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Abstract—

Background: HIV testing is a key component of prevention and entry point to HIV/AIDS care and treatment, however, coverage and access to testing remains low in Nigeria. HIV Counselling and testing (HCT) scale up is needed in other to meet with the growing demand for universal access to HCT services. In recent times, Primary Health Centres (PHCs) and hospitals have provided the only access to HIV Counselling and testing (HCT) in Nigeria and other high prevalence settings. This study aimed to assess uptake of HCT and Antiretroviral therapy (ART) services in Benue state with HIV prevalence of 15.4% and look at the characteristics of clients who self- initiated HCT at mobile outreaches.

Methodology: Cross sectional study using multistage sampling to identify 422 participants who are 18 years and above in Guma, Benue State from September to October 2015. Information on demographic characteristics, knowledge, attitude and perception of HIV and stigma associated with uptake of HCT were asked. Data was analysed using descriptive, chi square and odds ratio on SPSS version 20.0.

Results: Findings showed 52.4% were male, 48.1% farmers, single individuals (OR=0.634; 95%CI: 0.178-2.263), Age <30 years (OR=1.459; 95%CI:0.114-1.843) and participants with tertiary education are more likely to assess HCT. Static model of HCT was preferred by individual 18 years and above with P>0.05, there is evidence of significant association between facility testing and community HCT uptake (p=0.000). About 77 %(326) of those have been tested for HIV, 65% will not be ashamed if tested positive to HIV (P=0.094).

Conclusion: With HIV/AIDS continuing to be a major public health concern in Benue state and Nigeria, the issues surrounding acceptance and use of HCT need to be addressed. Respondents who were male, farmers, single, age below 30 years, and tertiary education were more likely to access HCT services. Static model of HCT led to access and utilization of HCT in the community. Community awareness, sensitization and benefits of early HIV diagnosis, increasing access to HCT and treatment sites for general population, with focus on key population like adolescent and young person and most at risk populations (MARPS) need to be explored. Strategies to target women in churches, markets, integrated community outreaches should be implemented. Further research is needed, possibly qualitative, to explore motivation for testing or not testing in rural populations.

I. INTRODUCTION

Globally, the HIV/AIDS pandemic has continued to constitute serious health and socio-economic challenges for over three decades. The first AIDS cases in Nigeria were reported in 1986 and since then, the epidemic has continued to spread and has been attracting due attention. According to the UNAIDS (2010) reports Nigeria has the second highest burden of people living with HIV in the world after South Africa.

HIV Counselling and testing (HCT) has become an integral part of HIV prevention in sub-Saharan Africa and an entry point to care, treatment and support for people living with HIV/AIDS. In their report Morin et al. (2006) stated that HIV voluntary counselling and testing(VCT) has emerged as a central prevention strategy in National AIDS control plans in most developing countries because it leads individuals to reduce HIV risk behaviour.

More than 80% of the people infected with HIV in low income countries of sub Saharan Africa do not know their HIV sero-status (Tumwesigye et al., 2010). Corroborating the statement of Tumwesigye, Sharma et al. (2015) argued that despite the high burden, only one- third of adults in sub-Saharan Africa have been tested for HIV in the past year and less than 50% of HIV positive individuals know their HIV status. Also, MacPherson et al. (2011) is of the opinion that the success of home based HCT services might rely on the combination of convenience (bringing the health services to people door step) and personal invitation.

HCT scale up needs to be met with equal growth in demand for universal access to be achieved. The success of national HIV/AIDS program will necessitate the expansion of HIV testing coverage through the implementation of innovative facility and community based models as home based HIV counselling and testing. The World Health organization currently recommends that everyone attending a healthcare facility in regions where there is generalized HIV epidemic should be offered HCT. The facility based HCT alone is unlikely to be sufficient to enable national and global targets to be reached.

Benue state is located in the North Central region of Nigeria, has a population of 4,219,214(2,164,058 male and 2,055,186 female) with an annual growth rate of 2.99% (NPC 2006). Youth (aged 10-24 years) constitute 29% of the total population. The state HIV prevalence has consistently remained above 10% in the last 4 antenatal care (ANC) surveys (BENSACA 2010). From 2005 to 2014, the rate increased progressively to 10%, 10.6%, 12.7% and 15.4% respectively; hence this indicate there is an urgent need to provide a combination approach of prevention to ensure a greater proportion of the populace remains HIV negative.

For many years, primary health clinics (PHC) and hospitals have provided the only access to HCT in Nigeria and other high HIV prevalence settings. Tabana et al. (2012) in their reports stated that the low uptake of facility based HCT in South Africa, particularly amongst adults has hindered access to effective treatment and preventive strategies. The major challenge today is to enhance health seeking behaviour and extend HCT coverage to a population groups with limited access to existing services.

The study was done in four council wards in Guma Local government area of Benue state. Participants who are 18 years and above that came out for HCT were selected using a systematic random sampling technique. The study aims to look at the characteristics of clients who self- initiated HCT at mobile outreaches in Guma local government area of Benue state, North Central Nigeria. Also, to determine if the mobile outreaches attracted a population of people who have never had access to HCT and to assess the reasons for clients choosing the services. It assesses if there is higher uptake of HCT in the community than in the healthcare facilities; and determined if stigma is responsible for HCT uptake in the community.

II. METHODOLOGY

A descriptive cross sectional study using an interviewer administered questionnaire and observational checklist was conducted for adults above 18 years of age residing in Nzorov, Uvii, Kaambe, Mbawa council wards and had given informed consent to participate in the study. Participants were drawn from the general population who attended the HCT outreach at the different council wards within the days mapped out for the activities after successful community mobilization had been done. A multistage sample technique with two stages was used to obtain representative participants in Guma Local government.

Using the systematic sampling methods, 450 subjects were selected in the study. Of these, 422 provided informed consent and completed the questionnaire. Subjects were those attending outreach within a number of days at areas where the community mobilization had been adequately done. The study population would consist of individuals 18 years and above who have given informed consent to participate in the study, and have been resident at the randomly selected communities for at least one year in Guma local government. Individuals below 18 years of age at the time of the study were not considered.

The questionnaire was administered by the researcher and four other researcher assistant who were trained prior to data collection. Data collection was done from 8th to 23rd September 2015. Information collected in sections of the questionnaire includes socio-demographic characteristics, knowledge, attitude and perception of HIV/AIDS and stigma associated with uptake of mobile HCT services.

Ethical approval was sought from Department of Public Health, Benue State Ministry of Health and University of Staffordshire ethical committee. Data was collected and analysed using descriptive and inferential statistics on statistical Package for social science (SPSS) version 20. Descriptive statistics are percentages, frequencies, pie and bar charts while the inferential statistics are correlation analysis, chi square and odds ratio.

III. RESULTS

Four hundred and twenty-two (422) participants from 4 ward councils in Guma Local government area participated in the study. Their minimum age is 18 years while their maximum is 96 years with a mean age of 35 years. 221(52.4%) male and 201(47.6%) female participated in the study respectively.

TABLE 1. Socio-Demographic Characteristics

Variables	Frequency	Percent
Age		
<= 30	214	50.7
31-70	194	46.0
71-100	14	3.3
Location		
Kaambe/Agasha	104	24.6
Nzorov	99	23.5
Uvii	110	26.1
Mbawa/Daudu	109	25.8
Marrital status		
Single	100	23.7
Married	265	62.8
Divorced	14	3.3
Separated	14	3.3
Widowed	29	6.9
Occupation		
Farming	203	48.1
Trading	53	12.6
Student	92	21.8
Housewife	24	5.7
civil servant	31	7.3
Artisan	18	4.3
Others	1	.2
Education		
None	115	27.3
Quaranic	3	.7
Primary	87	20.6
Secondary	154	36.5
Tertiary	62	14.7
Others	1	.2

From table 1 above, Uvii council ward has the highest number of respondents 110(26.1%), Mbawa ward with location in Daudu is second with 109(25.8%), Agasha had 104 participants (24.6%) while Nzorov ward with location in Gbajimba had the lowest with 99 participants (23.5%). 214 (50.7%) participants were less than 30 years, 194 (46.0%)

participants were between the ages of 31- 70, while 14% of participants were above 70 years.

265 (62.5%) are married, 100(23.7%) are single, while participants that are widowed and separated are 14(3.3%) respectively. 203 of the participants are farmers keeping in view that the study was held in rural communities, 53 (12.6%) were traders, 929(21.8%) were students, 31(7.3%) civil servants and 18(4.3%) were artisans.

Table 1 also showed that 154(36.5%) of participants had secondary education, 115 (27.3%) participants (had no level of education), 62(14.7%) had tertiary education, 3 participants (0.7%) had qur'anic education from the 4 study locations.

TABLE 2. Socio - Demographic Determinant of mobile HCT and ART Services

Variables	Have you been tested for HIV before		x^2	Df	P-value
	Yes	No			
Location					
Kaambe	73(70.2)	31(29.8)	5.427	3	0.143
Nzorov	76(76.8)	23(23.2)			
Uvii	86(78.2)	24(21.8)			
Daudu	91(83.5)	18(16.5)			
Sex					
Male	168(76.0)	53(24.0)	0.401	1	0.526
Female	158(78.6)	43(21.4)			
Religion					
Christianity	298(79.0)	79(21.0)	20.459	3	0.000
Islam	17(85.0)	3(15.0)			
Traditional	1(16.7)	5(47.4)			
None	10(52.6)	9(47.4)			
Marital Status					
Single	79(79.0)	21(21.0)	13.532	4	0.009
Married	209(78.9)	56(21.1)			
Divorced	10(71.4)	4(28.6)			
Seperated	13(92.9)	1(7.1)			
Widowed	15(51.7)	14(48.3)			
Occupation					
Farming	150(73.9)	53(26.1)	14.412	6	0.025
Trading	36(67.9)	17(32.1)			
Student	74(80.4)	18(19.6)			
Housewife	23(95.8)	1(4.2)			
Civil Servant	29(93.5)	2(27.8)			
Artisan	13(72.2)	5(27.8)			
Others	1(100)	0(0)			
None	75(65.2)	40(34.8)	17.913	5	0.003
Quaranic	2(66.7)	1(33.3)			
Primary	66(75.9)	21(24.1)			
Secondary	126(81.8)	28(18.2)			
Tertiary	56(90.3)	6(9.7)			
Others	1(100)	0(0)			

From table 2, the socio-demographic variables that are significant determinants of HCT and ART uptake in the study population are religion (x^2 =20.559 df=3 p<0.05), marital status (x^2 =13.532 df=4 p<0.05), occupation (x^2 = 14.412 df=6 p<0.05) and education (x^2 =17.913 df=5 p<0.05). Study Location (x^2 =5.427 df=4 p=0.143) and sex (x^2 =0.401 df=1 p=0.526) respectively are not significantly associated with the uptake of HCT and ART.

TABLE 3. The community distribution of the model of mobile HIV counseling and testing where participants prefer to have their HIV test.

	Door To Door	Static	Moonlight	Others	Total
Agasha/Kaambe	46 (44.2%)	51 (49.0%)	2 (1.9%)	5 (4.8%)	104 (100%)
Nzorov	39 (39.4%)	59 (59.6%)	1 (1.0%)	0 (0%)	99 (100%)
Uvii	46 (41.8)	63 (57.3%)	1 (0.9%)	0 (0%)	110 (100%)
Daudu/Mbawa	30 (27.5%)	78 (71.6%)	0 (0%)	1 (1.4%)	109 (100%)
Total	161 (38.2%)	251 (59.5%)	4 (0.9%)	6 (1.4%)	422 (100%)
x^2 =22.968, df = 9, p= 0.006					

There is a significant relationship between the communities of study and the models of HCT or ART uptake (x^2 =22.968, df = 9, p= 0.006).

TABLE 4. Binary Logistic regression analysis of the socio-demographic determinant of HCT uptake

Explanatory variables	Odds Ratio	95% CI	Level of significance
Gender			
Male	1.123	0.672 – 1.875	0.658
Female	1.00	1.00	
Religion			
Christianity	0.496	0.007-0.626	0.018
Islam	0.386	0.004-0.583	0.017
Traditional	1.00	1.00	
Marital Status			
SINGLE	1.289	0.680-2.444	0.604
EVER MARRIED	1.00	1.00	
DIVORCED	.297	0.188 - 4.273	0.891
SEPERATED	.175	0.017 - 1.856	0.148
WIDOWED	1		
Education			
Formal Education	2.276	1.281-4.045	0.005
None	4.167	1.231 - 14.109	0.022
Quaranic	0.192	0.147 - 7.752	0.123
Primary	2.857	0.855 - 9.540	0.088
Secondary	1.857	0.682 - 5.052	0.226
Tertiary	5.196	0.347 - 77.782	0.233
No Formal Education	1		
Age			
<= 30	0.259	0.071-0.937	0.040
31-70	0.243	0.243-0.072	0.023
71-100	1.00	1.00	

The adjusted odds ratio of the socio demographic determinants of HCT uptake. The multivariate analysis control for gender, religion, education, marital status and age. The variables that are statistically significant with the uptake of HCT and ART are religion, education and age.

The odds of HCT uptake among the respondent who are Christians are higher than the odds of HCT uptake among respondents in the other religious groups (OR= 0.496, 95% CI =0.007-0.626). Also it was observed that the odds of HCT uptake among the study participants who are single is higher than the odds of HCT uptake among the respondents who have been married at a point or the other (OR=1.289, 95%CI=0.680-2.444).

The odds of HCT uptake among the respondents who had formal education was found to be 2 times higher than the odds of HCT uptake among the respondents who were not formally educated (OR=2.276, 95% CI=1.281-4.045). Finally, the odds of HCT uptake in the respondents who are less than 31 years of age are higher than the odds of HCT uptake in the older age categories (OR= 0.259, 95% CI=1.281-4.045).

IV. DISCUSSION

More than half of participants that took part in the study were less than 30 years, while one in seven of participants are above 70 years. Participants less than 30 years with odds ratio of 1.459(95% CI: 0.114-1.843; p=0.272) are more likely to receive HCT services than those greater than 30 years. This reflection indicates that more adolescent and young persons are important in improving HCT access. Strangely this group have been underserved and should be reached with HIV testing services based on their vulnerability. Maheswaran et al. (2012) in their study in South Africa corroborated that young people younger than 25 years' account for nearly 41% of new infections and for HIV prevention strategies to be effective, this age group need to be targeted. However, correct knowledge of HV in Nigeria among young persons is low (24.2%), higher in males (25.4%) than females (19.3%) and is lowest in the 15-19 age group (NARHS 2009). The minimum age is 18 years while the maximum is 96 years with a mean age of 35 years.

More male are likely to access HCT than female, however, there is no significant difference between both sex and uptake of mobile HCT. This markedly contrasts to other studies where female tend to present more to community or facility HIV counselling and testing; to buttress this fact Cockcroft et al. (2007) in their study opined that women's take up of HCT is generally higher than that of men and studies of different groups have reported higher HIV testing rates among women, in countries without routine HIV testing. This finding highlights the need for improved HCT uptake across gender.

Participants with tertiary education are five times likely to receive HCT services than any other educational level. To affirm the findings from the study, Wringe et al. (2008) stated in their reports that overall, voluntary counselling and testing was highest for both sexes among those with the most years of education. The equitable expansion of HIV testing requires innovative approaches to reaching people in remote settings (De Cock et al., 2006) and in high prevalence settings in sub Saharan Africa, conventional approaches to VCT that rely on self-presentation do not reach enough person to meet the public health goals(Negin et al., 2009) . Further, Gruskin and Tarantola (2008) in their study highlighted that HCT at clinics remains limited to persons who attend medical facilities. Several studies concluded that HCT provision outside clinical settings (community bases HCT) is feasible and acceptable and results in a higher uptake of HTC, particularly among populations that are usually hard to reach, such as men or first time testers.

Bateganya et al. (2007) in the study opined that home based VCT(HBVCT) is a means of improving access to testing, while simultaneously reducing the potential stigma associated with facility based testing. HBVCT generally involves the use of trained lay counsellors or community health workers who provide door- to –door counselling and testing services. Conventional facility based HIV testing and counselling has not achieved high testing coverage in sub Saharan Africa and will probably be insufficient to meet UNAIDS ambitious 90-90-90 targets- 90% of HIV positive people knowing their status, 90% of HIV positive people who are aware of their status on ART , and 90% of people on ART virally suppressed (Sharma et al., 2015). Out of the 104 respondents from Kaambe ward, 41.3% preferred community testing while 58.7% prefer to visit the healthcare facilities for their HIV test. Also, Mbawa community had similar findings, which out of the 109 participants, 67.4% preferred facility based HIV test while 37.6% would rather have their HIV test in the community. The two communities (Mbawa and Kaambe) are semi- urban settlements with one public health facilities and many private clinics, so residents would prefer to visit any of these clinics for their health needs. The respondents from Nzorov and Uvii shared similar findings; 25.3% of 99 Nzorov participants preferred facility testing while 74.7% would prefer to have their HIV test in the community, 36.4% of 110 Uvii participants would like to visit the facilities for their HIV test while 63.6% of them prefer the HIV testing team visit their communities or homes. Nzorov and Uvii communities are rural hard to reach areas with a public health facility domiciled in Nzorov and none in Uvii, also with very few private clinics to care for the sick.

A lot of persons that want to access HCT either at the health facility may not be able to do so either because they would be stigmatized by people around or the health workers which has led to decrease in number utilizing the health facilities. Results from (Kalichman and Simbayi, 2003) showed that individuals who had not tested for HIV held significantly greater AIDS related stigma than individuals who had been tested. Also, during the community outreaches, the case is no different, as stated in the report of (Morin et al., 2006) that fear of testing positive or of the test itself was a commonly expressed psychologic barrier for study participants. In the study locations, 77% (326) of participants have been tested for HIV in the past and 65% will not be ashamed if they were tested positive for HIV. This shows there is lesser stigma on uptake of HIV in the community as against what is obtainable in other part of the state where the rate of stigma is still very high. According to Mbonu et al. (2009) stigma enhances secrecy and denial, which are catalysts for HIV transmission

V. LIMITATIONS OF STUDY

Comparison of current baseline testing data from the health facilities with mobile outreaches to ascertain the trend of HCT uptake from the two locations. Also, Participants were not asked why they wanted to test for HIV and underlying motivations were not sought. It would have been valuable to ask participants how recently they had tested since this would help indicate whether they are testing regularly according to the national guidelines. Testers who were interviewed thought that stigma did present a barrier to other community members

who stayed away from the testing sites and were thus not available for recruitment.

VI. CONCLUSION

With HIV/AIDS continuing to be a major public health concern in Nigeria and Benue State specifically, the issues surrounding acceptance and use of HCT need to be addressed. Religion, marital status, occupation and level of education are socio demographic variables that led to higher uptake of HCT and ART services, also, the different study locations and sex are not associated with uptake of HCT in the communities. Other HTC strategies to target women since they are more vulnerable and with higher prevalence, places like markets, churches, integrated community outreaches with focus on pregnant women and ante-natal visits at the health facilities. Also, integration of Sexual, reproductive health (SRH) and HIV programs for AYP, including promotion and provision of family planning services, in the community, post- partum care and immunization services. Engagement of media through provision of HIV education messages to increase knowledge of HIV, jingles to address issues of stigma and discrimination which is a major driver of the epidemic in Nigeria.

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