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Factors associated with uptake of home delivered VCT; findings from a population based survey in Zambia.

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Abstract

Background:
Voluntary counselling and testing (VCT) has been shown to help change sexual behaviour and to be cost effective in low income settings. Though VCT has been available for a long time in Zambia, acceptability has been disturbingly low. In this study, we examine factors associated with use of home-based VCT.

Methods: The study is based on data collected in a population based survey conducted in selected urban and rural communities in Zambia, 2003. The survey employed stratified random-cluster sampling of households. Participants expressing interest (willingness) in being tested for HIV were followed up by counsellors and were given the opportunity to receive VCT at home. Logistic regression was used to come up with factors associated with use of home-based VCT.

Results: Common factors associated with increase likelihood to use home-based VCT services included high-self rated "risk of catching HIV" (adults OR= 1.34,young people OR= 1.71) and depression (OR =1.31 and OR =1.63 for adults and young people respectively). Adults with poor self-rated health (OR 2.4), previous HIV test (OR=1.57), rural residents (OR=1.58) and of male gender (OR= 1.41) were more likely to come for home-based VCT. But adults with higher education attainment [>13 years (OR=0.52) and history of STI OR= 0.64) were less likely to come for home-based VCT.

Conclusion: Major factors positively associated with uptake of home-based VCT among young people were self-perceived risk of catching HIV and depression, whereas poor self-rated health and being previously HIV tested among older age-groups. HIV status was not associated with uptake.

Introduction

Voluntary counselling and testing (VCT) is a key entry point to preventive and care services[1]. For those infected, they can access treatment and information on how they can live longer. For pregnant women VCT is an entry point to prevention of mother to child transmission of HIV (PMTCT) services [2-4]. VCT has become even more important in light of the scale up in the delivery of anti-retroviral drugs (ARVs) to patients in most developing countries in order to meet the millennium development goals. [5, 6] Therefore, low acceptability of VCT has grave consequences not only for preventive, but treatment efforts as well. Hence, accessibility to VCT has now been given high priority in the most countries affected by HIV [5,7-9] In Zambia, the government and non-governmental organizations (NGOs) have embarked on making VCT available as part of the overall prevention strategy. However, where VCT has been made readily available, demand has been disturbingly low. [7-9]

Several factors have been associated with actual use of VCT. A study done in united Kingdom found that VCT was associated with high self-rated risk, increased number of sexual partners and history of STI [10].This has also been reported in studies done in low- income countries [11,12].Older age group and increased knowledge about HIV have also been found to be associated with HIV testing [13]. A study, done in Zambia found coming for VCT to associated with higher education and rural residence. [14]
These factors have been reported in settings where VCT is offered in the clinic or by non-government organisation (NGOs).Offering VCT at home (home-based VCT) has been found to have high acceptability. [14] But few studies have reported factors associated with use of home-based VCT. In this study, we examined factors associated with use of home-based VCT services in Zambia.

Methodology

Study areas and population

The study is based on data collected in a population based cross-sectional survey conducted in Zambia in the year 2003. The survey employed stratified random-cluster sampling of selected communities in urban and rural areas of Lusaka and Kapiri Mposhi respectively. A total of 20 clusters were selected and the number of participants aged 15-49 was 5035. The survey used structured questionnaires and face-to-face interviews to collect information from both men and women in the study areas on matters pertaining to their socio-demographic, health and sexual behaviour. Details of participation rates have been reported else where.[15]
VCT study design
At the end of the interview, participants were informed about the general strategy regarding VCT in Zambia and how services could be arranged for them as part of the survey. Those who expressed interest in being tested (willingness) were then followed up by counsellors who were part of the survey. The counsellors provided pretest counselling and collected blood samples for

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test counselling was also provided by the counsellors. In urban areas this was done the following day while in rural areas, this could take upto 3 weeks. All this was done at home. All services were offered free of charge, but no particular strategy was instituted in terms of long-term follow-up services to HIV-infected individuals other than providing information about existing support and care opportunities. The counsellor recorded all outcome information.[5]

Laboratory procedures

All HIV testing was carried out at the local clinic using the same testing strategies as were at that time established by the national VCT programme. BIONOR HIV-1 & 2 (BIONOR AS, Skein, Norway) paramagnetic particle assay was used as the first test. All reactive samples were tested again using a rapid test (Capillus HIV-1/HIV-2, Cambridge Biotechnology). Samples with discrepant results were subjected to Western blot test.[15]

Data analysis

Logistic regression model controlling for cluster design and age was used to examine determinants of coming for home-based VCT (coded 0,1).Variables included in the model were sex, residence, educational attainment. Others variables were; reported ever tested for HIV before. HIV status (saliva based), self-rated health, depression and self-rated risk.

Self-rated health was based on single question: "How would you say your health is at the moment?" Scored 1 to 4. (excellent, good, fair, poor). Assumed to measure changes in physical and mental health .[8]

Self-rated risk was assessed by 2 questions; "In your situation do you think that your are at risk of getting (catching) HIV?" Scored 1 to 4 (No risk, moderate risk, high, and very high risk) "How worried are you about actually being infected with HIV". Score 1 to 4 (never, seldom, sometimes and, always worried). Self-rated risk was assumed to measure one's own judgement of risk.[5]

Depression was based on sum score on 4 dichotomous variables found in the Beck Depression Inventory (BDI).[5] Do you; (a) sleep badly, (b) find it difficulty to enjoy life activities (c) ever thought of ending your life and (d) feel tired always. Answers were Yes or No (1, 0).This was presumed to capture the psychological effect in those infected or affected by HIV. Data was analyzed using SPSS Version 12 and STATA version 8 for windows software packages. We checked for interactions using likelihood ratio. It was considered significant if $p<0.05$. All factors were entered into the model because they were few.

Results:

In univariate analysis, determinants of use of home-based VCT services among young people[15,24] included; high self-rated risk, poor self-rated health, history of sexually transmitted diseases (STI) and depression. These were associated with increased likelihood of coming for VCT. After multivariate analysis, important factors associated with coming for VCT were, high self-rated risk OR= 1.71(95%CI: 1.39-2.10), depression OR =1.63 (95%CI: 1.07-2.48). Those with high self-rated risk were more likely to come for testing. Indicators for depressive showed that those with higher scores on depression were more likely to come for VCT.

In univariate analysis factors associated with increased use of VCT services in adults included;[25-49] high self-rated risk, history of STI, poor self-rated health and depression. Rural residence, and higher education and were associated with reduced likelihood of using VCT services. After controlling for other factors, poor self-rated health OR= 2.35 (95%CI: 1.88-2.93), depression OR =1.31(95%CI: 1.01-1.78), rural residence OR=1.58(95%CI: 1.03-2.41) and high self-rated risk OR= 1.34(95%CI: 1.03-1.75), were associated increased likelihood to use VCT services. But higher education status [>13 years (OR=0.52(0.39-0.69) and history of STI OR= 0.64(95%CI: 0.46-0.89) were associated with less likelihood of coming for VCT.

Discussion

The present study examined factors associated with use of home-based VCT in adults and young people. It revealed that common and age specific factors, influence use of home-based VCT. Common factors included high self-rated risk and depression. Residence, self-rated health, previous HIV test, education attainment and history of STI were important determinants in adults but not young people.

In both adults and young people, those with high risk perception were more likely to come for testing than those with low risk. Studies have shown that most young people think that they may not be at risk of getting HIV and hence may not see the need to come for VCT. [12, 17, 18]

This may imply that VCT is able to capture those with high risk perception but may miss those who evaluate themselves as being at low risk of HIV infection especially among young people.[5, 19-21] Interestingly, analysis of the prevalence of HIV (anonymous saliva test) among those with low and high self-rated risk showed very similar prevalence especially among young people. In addition, condom use was found to be low among those who came and those who didn't, implying that risk behaviour is still common in those who may consider themselves to be at less risk. Based on this, it is clear that the people, who think that they are less at risk, are as important as those who think that they are at risk in transmitting HIV. The people with low perception of risk may contribute even more to the spread of HIV because they are unaware and would not take precautions to protect sexual partners.[21]

Table 1: Showing the percentage of those who came for Home-Based VCT according to variables

Variable		15 - 24		25 - 49	
		(%)	(n)	(%)	(n)
Sex	Male	26.6	(9301/1131)	22.7	(309/1361)
	Female	23.3	(350/1502)	19.9	(321/1613)
Residence	Urban	26.0	(436/1676)	16.7	(239/1431)
	Ural	22.3	(215/964)	25.3	(391/1678)
Marital status:	Single	25.9	(502/1938)	23.4	(91/388)
	Married	27.0	(130/481)	24.5	(458/1869)
	Divorced/widowed	35.4	(17/48)	29.6	(97/327)
Self Health	Good	19.2	(402/2093)	19.2	(402/2093)
	Poor	35.1	(113/322)	37.9	(225/593)
Ever had STD	No	26.4	(583/2208)	23.3	(496/2129)
	Yes	37.9	(33/87)	37.8	(135/357)
Depression	No	25.1	(522/2199)	22.8	(510/2237)
	Yes	36.7	(98/267)	39.8	(136/342)
Education	0 - 7	25.2	(207/821)	31.7	(332/1047)
	8 - 9	27.9	(134/480)	27.6	(110/399)
	10 - 12	27.0	(252/933)	21.3	(121/568)
	13+	23.7	(55/232)	14.0	(81/579)
HIV Test	Negative	27.4	(565/2062)	27.2	(457/1480)
	Positive	31.3	(52/166)	29.3	(163/556)
Ever tested for	No	25.6	(545/2129)	24.3	(486/1514)
	Yes	30.7	(101/329)	28.1	(161/572)
Self Rated risk	Low	21.6	(275/1273)	21.6	(235/1017)
	Moderate	28.3	(147/5719)	23.9	(158/661)
	High	33.7	(229/679)	30.2	(254/841)

Table 2: Logisitic regression model of determinants of use of Home-based VCT in Zambia

Age Group		15 - 24		25 - 49	
Variable		Unadjustd or (95%	Adjusted or (95% CI)	Unadjustd or (95% CI)	Adjusted or (95% CI)
Sex	Male	1.19 (0.98,1.42)	1.27 (0.96,1.67)	1.20 (0.99,1.67)	**1.41* (1.14,1.74)**
	Female	1.00		1.00	
Residence	Urban	1.00		1.00	
	Rural	0.82 (0.68,0.99)	1.04 (0.70,1.54)	1.69 (1.41,2.03)	**1.58* (1.03,2.41)**
Marital Status	Single	1.00		1.00	
	Married	1.06 (0.71,3.54)	0.91 (0.60,1.40)	1.07 (0.78,1.46)	0.93 (0.64,1.36)
	Divorced/wid-	1.57 (0.70,3.54)	1.51 (0.67,3.43)	1.38 (0.85,2.23)	1.26 (0.76,2.08)
Self-rated health	Good	1.00		1.00	
	Poor	(1.26,2.10)	1.33 (0.53,1.37)	2.85 (2.32,3.51)	**2.35* (1.88,2.93)**
Ever had STI	No	1.00		1.00	1.00
	Yes	1.70 (1.06,2.70)	0.85 (0.53,1.37)	2.02 (1.58,2.57)	**0.64* (0.46,0.89)**
Depression	No	1.00		1.00	
	Yes	1.73 (1.31,2.27)	**1.63* (1.07,2.48)**	2.24 (1.75,2.86)	**1.31* (1.01,1.78)**
Education	0 - 7	1.00		1.00	
	8 - 9	1.147 (0.76,1.74)	1.08 (0.76,1.53)	0.86 (0.65,1.12)	0.95 (0.68,1.33)
	10 - 12	1.09 (0.79,1.52)	1.03 (0.73,1.45)	0.59 (0.43,0.78)	0.75 (0.55,1.02)
	13+	0.92 (0.58,1.46)	0.718 (0.46,1.12)	0.35 (0.26,0.50)	0.52 (0.39,0.69)
HIV Status	Negative	1.00		1.00	
	Positive	1.209 (0.84,1.71)	1.01 (0.73,1.40)	1.11 (0.98,1.51)	**1.57* (1.21,2.02)**
Ever tested for HIV	No	1.00		1.00	1.000
	Yes	1.29 (0.99,1.67)	1.20 (0.89,1.61)	1.14 (0.80,1.68)	1.05 (0.73,1.52)
Self rated risk	Low	1.00	1.00	1.00	1.000
	Moderate	1.28 (0.99,1.620)	1.30 (0.95,1.79)	1.14 (0.80,1.68)	1.05 (0.73,1.52)
	High	1.70 (91.50,1.92)	**1.71* (1.39,2.10)**	1.57 (1.23,2.01)	**1.34* (1.03,1.75)**

Note: 1 All factors adjusted for age and cluster design. **2** All variables were included in the final model. Statistically significant in multi-variety analysis at 95% confidence level.

In a previous Zambian study, poor self-rated health was found to be associated with readiness to come for VCT, while other studies have shown self-rated health to predict survival and to be a powerful tool, in personal evaluation of health which is even more sensitive than clinical measures of health. [8, 22-24] This may mean that in VCT, self-rated health is also a sensitive indicator of use of VCT services, not only willingness,[8] but actual undertaking of HIV test as was demonstrated in our study. Analysis of HIV prevalence by self-rated health revealed that those with poor health where more likely to be HIV positive than those with good health. Poor health could be an indicator of deterioration in physical health especially among adults who may have had the infection for a longer time and hence developing signs of full blown AIDS.[8]

A measure of depressive symptoms indicated that those with high depression score were more likely to come for VCT. This was true both in young people and adults. This could be depression related to worries about chances of getting HIV or poor health. However, even after controlling for poor self-rated health, depression still emerged as an independent predictor of coming for VCT. Depression has been reported in HIV patients. Its presentation has been found at different stages of HIV though the aetiology is not well understood. [25, 27] In our study, HIV status tended to be associated with coming for HIV testing, though it was not significant. Other studies have found HIV status to be associated with coming for VCT.[28, 29]

Adults were more likely to come for VCT in rural areas than in urban areas. This could be attributed to the method where VCT was done at home rather than at the clinic. In urban areas, there are many VCT facilities and many people may already have access. Making VCT services available at home could have increased the uptake among rural residents.[30, 31] This may also reflect the levels of unmet need for VCT services in rural areas.

History of STI was significantly associated with less likelihood of coming for HIV testing in adults but not in the young people, though other studies have shown history of STI to be associated with HIV testing in young people[10, 12, 32]. History of STI could be interpreted as a danger sign as most people have come to grasp the increased chances of getting HIV if one has an STI. This could theoretically be considered a deterrent as many may fear to test positive for HIV if they have a history of STI. This could partly explain the reluctance to come for VCT in those with history of STI.

Men and people with lower education seem to have benefited more from home-based VCT because in older participants, women and those with higher education were less likely to come for VCT when it was offered at home. This contrasts sharply to the time before home-based were female gender and higher education were associated with HIV testing.[33]

Our study further revealed repeated HIV testing. Those coming for VCT were more likely to report previous HIV testing. Repeated testing may indicate continued risk behaviour after testing or lack of confidence in the quality of VCT services previously received or doubts about the test results.[34, 35] Interestingly those with repeated test did not differ by HIV status with those testing for the first time. Similar findings have been reported in Zimbabwe.[36, 37] This finding point to the need to further explore the benefits and the driving motives for repeated HIV testing.

In establishing VCT services and models, it is important to identify common factors for various target groups, at the same time, taking care of the variations. In our study common factors for young people and adults which were found included, depression and high self-rated risk. These applied to all age groups and hence must be strengthened when planning VCT services. However, unique factors like lower education, history of STI and rural residence were found only among adults. This underscores the fundamental importance in having both targeted and general VCT services as factors and issues involved may be different for young and older clients.[38, 39]

The study has gone beyond establishing intention to the factors influencing the actual behaviour of coming for VCT. Most published literature have reported factors associated with willingness or intentions. However as intention may not always predict behaviour, it is important to establish factors for predicting actual behaviour.[8] Our finding may be generalised to similar settings in sub-Sahara Africa. However, the influence of giving VCT at home may mean that some factors may not apply in situation where VCT is offered in a clinic or stand alone format. This being a cross sectional study, we cannot make cause inferences.

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