

Factors Determining the Use of Voluntary Counselling And Testing For HIV and AIDs Among Men And Women In Malawi

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Abstract

Voluntary Counseling and Testing (VCT) is one of the measures used in the fight of HIV and AIDS in Malawi. WHO/UNAIDS/UNICEF (2011) estimated that about 440,000 to 510,000 people living with HIV and AIDS in Malawi were not getting treatment. This could be the case because they did not know their HIV status. Knowing the factors that lead people to seek Voluntary Counseling and Testing services in Malawi could demystify this. This study therefore investigated the determinants of Voluntary Counseling and Testing for HIV and AIDS among men and women in Malawi. The principal research focus was on the socio-economic and socio-demographic factors that determine one's need to demand VCT services. A logistic regression model was used due to the categorical nature of the dependent variable i.e. whether one was tested or not. Among women, the variables age, residence, education, marital status, employment, mode of employment and lifetime number of sexual partners were found to be significant factors influencing the uptake of VCT. With the lower class as the reference variable, the 'rich group' was found to significantly influence the uptake of VCT but not the middle class. On the men's side, the variables age, education, region of residence, lifetime number of sexual partners, marital status, wealth status and employment were found to have a significant influence on VCT uptake. The results also show that a man's place of residence and mode of employment do not affect VCT uptake. In summary, the findings show that for both men and women the variables; age, education and lifetime number of sexual partners were significant. The variables; residence and mode of employment were significant only for women while the variable region of residence was only significant for men. The variable wealth status had the rich group being significant among both men and women while middle group was insignificant among both men and women. The variables marital status and employment were significant at all levels for women while for men they had at least one variable not significant. The variable religion was insignificant for both women and men except one variable – other religion affiliation, which was significant among men.

Keywords: Socio-economic and socio-demographic factors, Voluntary Counselling and Testing, Logistic Regression Model

1. Introduction

Screening for HIV which is commonly known as VCT is now considered to be a cornerstone of an integrated intervention package to tackle HIV and AIDS in Sub-Saharan Africa (UNAIDS, 2001). Its essence is to enhance the success of both prevention and treatment in the fight against HIV and AIDS. In terms of prevention, public health officials, activists and researchers postulate that people who know their HIV status are more likely to adopt sexual behaviour that minimizes the likelihood of being infected if they are negative or prevent infections or cross-infections within intimate relationships if they are HIV positive. This viewpoint is supported by studies that have shown that VCT can lead to significant reductions in HIV transmission rates (Denison et al. 2005; De Zoysa et al. 1995).

VCT services were firstly introduced in Malawi at two sites in 1992, and became more widespread in 1995 when the Malawi AIDS Counseling Resource Organisation (MACRO), an NGO with the aim of strengthening and developing VCT initiatives was founded. Rapid blood testing for HIV, which allows people to find out their HIV status on the same day of testing, was introduced in Malawi in 2000 and

significantly increased the accessibility of VCT. Despite the many testing sites and the fact that the services are free of charge at point of access in all government facilities, the VCT patronage has still been low among Malawians such that only an estimated 1% of the adult population were tested and counseled up until 2003. Latest published survey as per MDHS 2010 indicated that out of a sample selected for HIV testing comprising 23,020 women aged 15 to 49, 27% never got tested and out of 7,175 men sample aged between 15 and 54, 47% never got tested. One wonders as to why such is the case irrespective of the benefits that VCT offers.

Problem statement

Understanding the factors that influence demand for VCT can inform efforts to extend coverage of VCT in Malawi. Researchers have identified that demand for VCT is affected by the characteristics of individuals with socio-economic and demographic factors being the major ones. In addition, in the case of VCT, stigma, fear and other factors that define the socio-cultural environment in which people live have been highlighted as determinants of VCT uptake (deGraft-Johnson et al., 2005). Given the Malawi scenario, the research focus has largely been limited to the clinical aspects of HIV and AIDS (Moses et al. 2008). The social aspects have been ignored. We hypothesize that the socio-economic factors should be understood if the clinical aspects of HIV and AIDS are to work. As noted, the low patronage of consumption of VCT services is in itself worth an issue that raises the questions of why it is the case. Do socio economic factors matter or is it only the biological aspects that matter in the consumption of VCT services. It is against this background that this study investigated the VCT demand determining factors based on socio- economic and demographic factors. However this study did not tackle the socio-cultural environment which is another broad topic requiring a separate investigation.

Methodology

The study used data from the 2010 Malawi Demographic and Health Survey (MDHS) which was collected by the National Statistical Office. The sampled households included all women in the age group 15-49 years and men aged 15-54 years. VCT demand was measured using the survey question that asked respondents if they had ever taken VCT. To determine the independence of the independent variables in affecting one's need for VCT, self-reported data was used such that the quality of the analysis is relatively unaffected by imposed VCT. Thus the responsible variable was self-reported. Having identified that a person was tested, the survey follow-up question was to establish why the test was taken. Three questions were asked in the questionnaire as to why respondents took the test. Thus being, mandatory (e.g. for a job interview or scholarship abroad), advised by clinician (e.g. clinicians seeking to confirm a presumptive AIDS illness, or testing pregnant women during an antenatal visit to prevent possible mother-to-child transmission etc.) or simply self-initiated. Individuals who took VCT based on mandatory reasons or prompted by a clinician were excluded from the analysis.

In analyzing the data, this study estimated the following logistic econometric model:

$$\ln\left(\frac{P_i}{1-P_i}\right) = \beta_0 + \sum_{i=1}^N \beta_i X_i + \mu_i \quad (1)$$

The dependent variable $\ln\left(\frac{P_i}{1-p_i}\right)$ is probability that a person undertook VCT. On the right side of the equation is a group of regressors (independent variables) which were used to test their significance on determining VCT uptake. Thus, X_i is a particular independent variable of interest and the preceding β_i is a corresponding coefficient, μ_i is the error term, β_0 is a constant.

The study employed logistic model due to the fact that, the functional relationship being investigated under this study is binary in nature since the regressand can take the value 1 for those who took VCT and 0 for those who did not.

2. Conceptual Framework

In this section we explore the theoretical aspects that guided the study. The theories are grounded on the assumption that use of VCT is a rational choice that individuals make. This is so since our focus has dwelt on the third reason as to why individuals demand or make use of VCT which is self-initiated.

2.1 Demand for Health Capital

Health screening measures such as VCT represent a demand for a typical form of so-called secondary prevention (Kenkel, 1994). Secondary prevention is distinguished from primary prevention such as vaccinations and some lifestyle activities, which aim to prevent an individual from contracting disease. The main motivation for secondary prevention is to detect any presence of a disease infection before it becomes symptomatic and, if detected, to facilitate measures to minimize its health consequences.

In the theoretical model of demand for health capital, which stretches its background from the theory of human capital (Becker, 1964), health is regarded as a capital good and the individual is taken as the producer of health by buying health inputs (medical care, food, training services), which are eventually combined with one's own time to produce services that increase utility. In this case, the individual's decision to take VCT is modeled as an input into the health production process. Through VCT, individuals can observe their current health stock and possibly predict their future health as well. If necessary, the individual would consume medical care or change lifestyle in order to maintain good health status. Good health itself is demanded for two main reasons namely that individuals derive utility directly from being well as opposed to being unwell, and that good health will make more time available for work (Kenkel, 2000).

Demand for VCT is constructed as an economic optimization behavioral model in which individuals weigh the benefits of VCT against its associated costs. The benefits of VCT lie in early detection facilitation of prompt access to treatment and care that would help an individual live a healthier and longer life (Cropper, 1977). Economics models these benefits as alleviating the utility losses and health care costs that would be associated with random and potentially huge deterioration in health status (Kenkel, 1994). From an economic perspective, the cost of VCT is conceptualized broadly to include direct out-of-pocket expenses, time cost, perceived side-effects, embarrassment and anxiety associated with the screening process, and the fear of stigma associated with HIV (Kneel 2000; Fylkesnes et al. 2000; Maman et al. 2001).

2.2 Theory of Consumer Choice

The economic theory of consumer choice forms a framework for the analysis of health care seeking behaviour. In seeking health care, an individual seeks to maximize utility by attaining the desired health status at a minimal cost both monetary and time. These utility functions are, dependent on several factors being socioeconomic, environmental or otherwise which an individual possesses or interfaces. Consumer preferences may be learnt from the behaviour observed from individual responses as a result of the characteristics they possess on the one hand (revealed preferences) or on the other hand as a result of exogenous factors such as changes in income, prices, perceptions, environmental factors and circumstances.

VCT services from different providers can be classified as a differentiated commodity from which a particular individual derives different utility levels depending upon both the consumer and commodity characteristics (in this case provider) or incentives. With alternative sources of VCT providers,

consumers may appear to be indifferent toward the facilities, or to rank, higher, those facilities that are more preferred. This therefore implies that campaigns on VCT by the service providers can induce demand for VCT uptake by creating an impressive environment for VCT allocation in an individual's utility function. Thus, the VCT service campaigns can induce resource allocation needs in one's consumption utility bundle which includes health care.

2.3 Theory of Planned Behaviour (TPB)

Ajzen (1991) determined that the investigation on the determinants of VCT usage is aligned with the requirements of the Theory of Planned Behaviour. This is the case because the study focus is on people who in their own right took VCT services. The theory's focal point is the individual's intention to perform a given behaviour and such intentions can be used to deduce or capture the motivational factors that influence one's behaviour and at the same time act as indications of how much of an effort people are willing to exert in order to perform a given pattern of behaviour. This theory tends to explain intention only if the behaviour in question is under volitional control – thus if the person decides at will to perform or not perform an action. The theory predicts that the intention to perform behaviour is a function of three salient beliefs: the person's attitude, subjective norms and perceived behavioral control. The three predictors influence subsequent behaviour indirectly through behavioural intention. A general rule for the Theory of Planned Behaviour is that the stronger the intention is to engage in a particular behaviour, the more likely should be its performance. In this regard based on Theory of Planned Behaviour it is possible to deduce the motivating factors that enable one's volition to access VCT services.

3. Results

After presenting the methodology, we now focus on the results. In the first place we present the descriptive statics and then the regression output.

3.1 Descriptive Statistics

As indicated earlier, the total sample comprised of 23,840 respondents of which 16,693 were women and 7,147 were men. Table 1 indicates the percentage of respondents involved in this study who took VCT.

Table 1: Proportion of respondents who took VCT based on various demographic factors

VARIABLE	WOMEN (%)	MEN (%)
% of people who took VCT by age group		
15 – 19 :	21.3%	20.3%
20 – 24 :	44.2%	29.9%
25 – 29 :	46.9%	36.1%
30 - 34 :	44.2%	31.7%
35 – 39 :	41.0%	29.8%
40 – 44 :	38.3%	26.7%
45 – 49 :	33.0%	27.7%
% taken VCT by residence		
Urban	43.5%	29.4%
Rural	35.4%	27.7%
% who took VCT by education		
No education	34.7%	19.1%
Primary	34.9%	25.1%
Secondary	42.7%	36.0%
Tertiary	53.4%	36.3%
% who took VCT by marital status		
Never married	22.1%	23.4%
Currently married	41.2%	30.5%
Formerly married	43.9%	34.1%
% who took VCT by wealth status		
Poor	36.0%	24.5%
Middle	36.1%	27.1%
Rich	41.2%	31.2%
% of people who took VCT by religion		
Catholics	36%	28.0%
Protestants	36.4%	28.5%
Other Christians	37.8%	29.2%
Other religion	34%	22.4%
% who took VCT by region of residence		
Northern Region	38.7%	37.5%
Central Region	34.6%	24.6%
Southern Region	37.3%	26.7%
% who took VCT by employment		
Currently working	40.0%	29.1%
Had work in previous twelve months	35.3%	24.0%
Never had work	30.4%	22.1%
% who took VCT by mode of employment		
Throughout the year	43.4%	29.3%
Seasonally	37.1%	28.1%
Occasionally	35.1%	28.6%

Source: NSO and ICF MACRO, 2010

The statistics above show that the trend in VCT uptake by age group amongst the women increased from age 15 until 29 with VCT uptake at age group 15 to 19 estimating 23.1% and age group 25 to 29 estimating 46.9%. After age 29 a decreasing trend in VCT uptake is observed. More to this, on average a higher proportion of women than men made use of VCT. For example VCT uptake was higher among the urban women with an estimated uptake of 43.5% compared to urban men which had 29.4%. Although VCT uptake among rural women had 35.4% which is lower than their urban counterparts, still more it exceeded the VCT uptake by rural men who had 27.7%. However on the

men side there was a small difference in VCT uptake between those dwelling in the urban and those in the rural.

Analysis on education status showed that VCT uptake was also higher among women than men and women with primary, secondary and tertiary education level had VCT uptake percentage respectively estimated at 34.9%, 42.7% and 53.4% whereas men's VCT uptake by education estimated 25.1%, 36% and 36.3% respectively for primary, secondary and tertiary level. Noteworthy, type of religion seems not to bring much variation in VCT uptake. However according to the descriptive statistics on religion it seems Christianity could at least have an influence on VCT uptake as compared to other religions. Similarly there is no much variation in VCT uptake by region among women but as for men there is.

Marital status shows that both men and women who are single and never married have a low motivation to undergo for VCT as compared to the currently married and the formerly married. This is a bit surprising as we expect this category of people to be more cautious than the married once since VCT is one preparatory stage towards marriage. The descriptive statistics indicate that the single and never married women group had VCT uptake measuring 22.1 % which is less than the married and formerly married group which respectively had 41.2% and 43.9%. As for men, the single and never married, the currently married and the formerly married respectively had 23.4%, 30.5%, 34.1%. It could be possible that the married and the formerly married had a higher uptake of VCT as a way of assessing their status from previous sexual relationships.

The descriptive statistics also denote that VCT uptake is directly proportion to one's increase in wealth with the rich people having more likelihood of undergoing a VCT test. The wealth division followed a reconciliation of the poorest and poorer wealth group placed in one category named the poor group and those in the richer and richest group placed in the rich category. The other group of neither rich nor poor was considered as middle class.

Descriptive statistics on employment showed that employed people take VCT services highly than those not employed. The statistics presented a proportion of 40% of employed women taking VCT while that of the non-employed measured 30.4%. The descriptive statistics on the men side presented 29% and 22.1% of the employed and non-employed men respectively taking VCT. This proportionally signifies that VCT uptake is high among the working class people.

3.2 Regression results

The results from the logistic regression focused on the interpretation of the marginal effects as they measure the chance or likelihood of an event in a way that results could be interpreted based on probabilistic magnitude. Table 2 presents socio demographic variable results while Table 3 will present results of socioeconomic variables.

Table 2: Marginal effects Regression Results for Socio Demographic Variables

VARIABLE	WOMEN		MEN	
	dy/dx	P> z	dy/dx	P> z
Age in years	0.029 (0.004)*	0.000	0.011 (0.005)**	0.020
Age square	- 0.001 (0.000)*	0.000	- 0.002 (0.000)*	0.006
Residential area (urban = 1, rural = 0)	0.056 (0.014)*	0.000	- 0.011 (0.018)	0.560
Marital status: Married (reference group)				
Single/never married	- 0.063 (0.018)*	0.001	- 0.441 (0.020)**	0.028
Divorced/separated/widowed	0.034 (0.012)*	0.004	0.476 (0.031)	0.126
Religion affiliation Catholic (reference group)				
Protestant	- 0.010 (0.013)	0.428	- 0.004 (0.017)	0.810
Other Christian	0.010 (0.012)	0.386	0.010 (0.015)	0.515
Muslim	- 0.018 (0.016)	0.266	- 0.009 (0.022)	0.696
Other	- 0.099 (0.071)	0.170	- 0.151 (0.047)*	0.001
Region of residence Northern region (reference group)				
Central	- 0.003 (0.013)	0.802	- 0.102 (0.016)*	0.000
Southern	- 0.002 (0.012)	0.865	- 0.087 (0.015)*	0.000
Lifetime number of sexual partners	- 0.001 (0.000)***	0.083	- 0.001 (0.000)**	0.086

Source: author's computation basing on the data

Note: *denotes significance at 1% **denotes significance at 5% ***denotes significance at 10%.
 The figures in parenthesis are standard errors

From the socio demographic variables regression results displayed in Table 2, it is observed that VCT seeking behavior among women is influenced by age, marital status and total life number of sexual partners. The variables religion and region of residence did not have any significant effect on the likelihood of a woman to undertake VCT services.

As for men the variables age, region of residence, lifetime number of sexual partners and other religious affiliations (not of the main stream denomination) have been found to be significant in influencing VCT taking behavior. On the other hand as per the regression results above religion (except for other religion affiliates), area of residence, formerly married marital status group and employment's noncurrent working class group have been found to have no any significance in influencing taking of VCT services by men. Below is an explanation on how each of the independent variables influences VCT service which is the dependent variable in this study.

Similar to the findings by Masiye, 2009, the results in Table 2 show that age significantly affects VCT uptake in a nonlinear way. It was established that the turning point for age is 30 years for both men

and women. This implies that the likelihood of taking VCT services increases with age below 30 years but beyond that, the likelihood of an older person undergoing for VCT services tends to reduce. However the decline is greater among women than men and both are at 1% significant level as measured by age squared. It is plausible that all things being equal, age can be associated with a declining perceived underlying susceptibility to HIV infection. It could also mean that after the age of 30, people are married therefore a need for VCT reduces as they are supposedly in stable relationships.

Apart from the above, the results on area of residence show differences between men and women. Residential location which is defined by rural or urban matters for women while for men it does not matter. It has been found that urban women are 5.6% more likely to go for VCT than women residing in the rural area. These findings would suggest that rural women in Malawi face more barriers than their urban counterparts in the form of a lack of information on VCT, lack of facilities and cultural barriers. The effects of gender inequality and socio-cultural barriers on VCT demand among women have been reported in previous studies (Maman et al. 2001). The location variable was insignificant among male counterparts indicating that location does not explain VCT uptake among men.

Consistent with previous results (Sambisa et al., 2010), the results show a significant association between marital status and VCT. The married, widowed and divorced women are more likely to use VCT services than the never married. In fact there is a negative relationship between VCT and single or never married individuals. It is estimated that the never married women group is 6.3% less likely to take VCT as compared to the married and formerly married counterparts. A study by Maman et al. (2001) indicated that women described HIV testing as a means to confirm their positive HIV status or to check reproductive health problems especially fertility problems. As for men it is estimated that the never married group is less likely to undertake VCT services by 44% as compared to the married. The significance level for the never married women is at 1% while that of men is at 5%. The taking up of VCT by formerly married men turned out to be insignificant in our multivariate analysis. It is believed that the positive likelihood of formerly married women and married individuals in taking VCT is perceived to be associated with personal risk in their current or past relationships.

Religion affiliation generally does not influence the probability of taking VCT except that among men, people of Hindu or other religious affiliation are less likely to take VCT compared to the Catholics. The result was significant at 1%.

It was interesting to note that lifetime number of sexual partners was found to be negatively associated with taking of VCT service though with a diminutive percentage. This implies that lifetime number of sexual partners does not positively influence taking of VCT services. The statistical significance of the results was at 10% for women and 5% for men. It is suggested that people with an increasing number of sexual partners tend to be 'just careless' and because they are 'just careless' they are not bothered about VCT. The other reason could be that people who have had a number of sexual partners would make a resolution to shun away from taking VCT services for fear of knowing the unknown.

The previous analysis illustrated the effect of socio demographic variables on VCT uptake. The following Table 3 shows the effect of socio economic variables in determining VCT uptake.

Table 3: Marginal effects Regression Results for Socio Economic Variables

	WOMEN		MEN	
	dy/dx	p>z	dy/dx	p>z
Level of education: No education (reference group)	0.034 (0.013)*	0.007	0.067 (0.027)*	0.009
Up to primary	0.095 (0.018)*	0.000	0.166 (0.032)*	0.000
Up to secondary	0.703 (0.037)*	0.000	0.159 (0.051)*	0.002
Tertiary				
Wealth Status: Poor (reference group)				
Middle	0.019 (0.012)	0.111	0.010 (0.017)	0.552
Rich	0.020 (0.011)***	0.066	0.041 (0.015)**	0.008
Employment No work (reference group)				
Currently working	0.063 (0.012)*	0.000	0.049 (0.024)**	0.040
had work in the previous twelve months	0.035 (0.017)**	0.038	0.050 (0.037)	0.174
Mode of employment Work all year through (reference group)				
Seasonal work	- 0.023 (0.011)**	0.034	0.021 (0.013)	0.116
Occasional work	- 0.031 (0.016)***	0.054	0.014 (0.230)	0.545

Source: Authors computation from DHS 2010 data

Note: *denotes significance at 1% **denotes significance at 5% ***denotes significance at 10%.
 The figures in parenthesis are standard errors

From these results it is observed that VCT seeking behavior among women is influenced by level of education, employment, mode of employment and wealth status, especially the rich. The variable middle class wealth status group is found to have no significant effect on the likelihood of a woman to undertake VCT services. The poor class was our reference variable.

As for men, the variables level of education and employment (especially those currently working) have been found to be significant in influencing VCT taking behavior. On the other hand mode of employment, middle income wealth status group, and employment's noncurrent working class group have been found to have no significance in influencing the taking of VCT service by men. Below is an explanation on how each of these independent variables influences VCT service uptake.

Similar to VCT previous studies done in Kenya (Nammazi, 2011) the regression results on education variable indicate that there is a positive relationship between education and VCT uptake. According to the marginal effects results, it shows that the level of education also matters with each advanced educational level contributing more to VCT uptake than the preceding level. In our tabulated results primary education, secondary education and tertiary education resulted into 3.4%, 9.5% and 70.3% respective increase in VCT uptake. It is believed that the increment is probably because educated people have more understanding of the benefits of VCT services and are more likely to respond to health promotion messages (de Walque, 2006b).

The wealth variable was significant to the taking of VCT by the rich at 10% for women and 5% for men. The middle class wealth status group variable turned out to be statistically insignificant. It was estimated that the likelihood of the rich women to take VCT services is 2% higher than those in the poor wealth status group. On the other hand as for men, it was estimated that the rich are likely to take VCT more highly by 4.1% than those in the poor wealth status group.

The regression results indicate a positive relationship between employment and VCT taking behaviour among the females. Women who were currently employed or had at least been under employment till the last 12 months were 3.5 to 6.3 percent more likely to take VCT services than women who never had been employed. Significance level for currently working females was at 1% while for those who previously had employment in the last 12 months was at 5%. The Employment variable on men was significant at 5% for those currently working and insignificant for those who were formerly employed in the last 12 months. The currently working class men were found to be 4.9% more likely to take VCT service than those men who never were on formal employment.

Mode of employment was assessed as seasonal, occasional and all year through employment. The results for females were respectively statistically significant at 5% and 10% for seasonal and occasional employment while all year through employment was taken as the base group. It has been found that women who are on seasonal and occasional employment are 2.3 to 3.1 percent less likely to take VCT services as compared to women on all year through employment. This would probably be because women who are on all year through employment are those who are in formal sector employment hence knowledgeable and well informed and passionate on health seeking behaviour. Mode of employment was found to be insignificant on men.

5.0 Conclusion

A number of individual factors have been identified as strong predictors of demand for VCT. Consistent with the literature, the results show a strong education gradient with individuals with less years of formal schooling being less likely to take VCT. This implies that strategies to encourage VCT uptake should target the less-educated, with simple, appropriately tailored messages on the benefits of VCT. The results show that both women and men with greater household economic wealth, indirectly measured through a list of household assets, are more likely to seek VCT than the poor. No clear wealth effect is seen to influence middle class decision to take VCT. It is believed that this result requires answers to a more fundamental question as to why wealth does influence the rich's HIV-related health behaviour but not the middle class. However as noted in the results, policies on VCT setup management should target on influential decisions that will aid the poor to have access to VCT services. More to this, there is need for encouragement of VCT for the youth.

The results should further be interpreted with caution since; they are based on self-reported behavior which suffers from bias as is all the cases with all self-reported data. This thus acts as the main challenge of the study but there is no solution to it since our results are based on national representative data. From here we think it is also necessary that a further study be done to understand why there is low VCT uptake among the youth as well as the unmarried couples. A mixed method which must capture both qualitative which will seek to answer attitude issues and quantitative should be done.

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