

## ORIGINAL RESEARCH ARTICLE

# Application of Health Belief Model for Promoting Behaviour Change among Nigerian Single Youths

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## ABSTRACT

The study analyzes the factors influencing conduct of HIV test and risky behaviour change using the health belief model. The data were obtained from the Nigeria's 2004 NLSS data and analyzed with descriptive statistics and Probit regression. Results show that 87.79% of the single youths were aware of HIV/AIDS, 3.34% conducted HIV test and 71.73% desisted from risky behaviour by having sex with one partner (24.35%), not starting sex (16.90%) and using condom (14.29%). Also, probability of conducting HIV test and changing risky behaviours significantly increases ( $p < 0.10$ ) with age, access to radio, television and per capita expenditure, while it significantly decreases with no formal education. Residence in urban area significantly increases probability of conducting HIV test, but significantly reduces probability of changing risky behaviours. The study recommends integration of health studies into Nigerian elementary school curriculums, provision of adequate facilities for free HIV test in rural areas, among others (*Afr. J. Reprod. Health* 2010; 14[2]:63-75).

## RÉSUMÉ

**Application du modèle de la croyance médicale à la promotion de la modification du comportement chez les jeunes célibataires.** L'étude fait une analyse des facteurs qui influent sur la réalisation du test de dépistage du sida et la modification du comportement risqué à l'aide d'un modèle de la croyance médicale. Nous avons obtenu les données à partir des données recueillies de l'Enquête sur le Niveau de vie National de 2004 (ENVN) que nous avons analysées à l'aide des statistiques descriptives et la méthode de la régression des probits. Les résultats ont montré que 87,79% des jeunes célibataires étaient au courant du VIH/SIDA, 3,34% ont subi le test pour détecter le VIH et 71,73% ont évité le comportement risqué en ayant les rapports sexuels avec un seul partenaire (24,35%), en décidant de ne pas commencer à avoir des rapports sexuels (16,90%) et en utilisant les préservatifs (14,29%). En plus, la probabilité de passer le test pour détecter le VIH et la modification des comportements risqués augmentent considérablement ( $p < 0,10$ ) avec l'âge, l'accès à la radio, à la télévision et la dépense par personne, alors qu'elle diminue considérablement chez les jeunes qui n'ont pas reçu une éducation formelle. Le fait d'habiter dans un milieu urbain augmente considérablement la probabilité de faire une analyse pour déterminer la présence du VIH, mais elle réduit considérablement la probabilité d'une modification des comportements, risqués. L'étude préconise l'intégration des études de la santé dans les programmes des écoles primaires nigérianes, une procuration des structures adéquates pour les tests gratuits de dépistage du sida dans les milieux ruraux entre autres (*Afr. J. Reprod. Health* 2010; 14[2]:63-75).

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KEYWORDS: Behaviour change, health belief model, HIV test, youth, Nigeria.

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## **INTRODUCTION**

The first case of HIV was reported in Nigeria more than three decades ago. Since then, the Federal Government of Nigeria (FGN) has been battling with the reality of the numerous developmental and social challenges that the disease had brought. Available data show that HIV&AIDS prevalence rates were 1.8 percent in 1991, 3.8 percent in 1994, 4.5 percent in 1995 and 5.4 percent in 1999<sup>1</sup>. In 2003, adult HIV prevalence rate was approximately 5.4 percent (3.6 million)<sup>2-3</sup>, while it was 3.9 percent in 2007<sup>4</sup>. Presently, Nigeria accounts for the third-largest number of people living with HIV virus in the world.

The nature of HIV pandemic in Nigeria is complex, with significant state and regional variations. The epidemic is more concentrated and driven by risky sexual behaviours. Youth and young adults are particularly vulnerable, with young women at higher risk than young men. Some risk factors that contribute to the spread of HIV include prostitution, high-risk practices among itinerant workers, high prevalence of sexually transmitted infections, clandestine high-risk heterosexual and homosexual practices, international trafficking of women, and irregular blood screening<sup>5</sup>.

Also, HIV&AIDS prevalence is higher in Nigeria's urban areas than rural area<sup>2-3</sup>. However, persistent urban-rural and rural-urban drifts have subjected rural youths and adults to high risk of infection<sup>2</sup>. Moreover, in Nigeria, youths and adults in their most productive age groups are the most vulnerable and at highest risk to HIV/AIDS. The high death rate among young adults (20 to 40 years of age) is depleting human capital and the skill base necessary for social development and economic growth. Therefore, in order to reverse the upward trend of HIV infection, there have many educational programmes and advertorial jingles meant to create awareness and ensure that people desist from involving in risky behaviours. It is also widely advocated that everybody should attempt to know his status, via HIV test, and

thereafter decide to take the most secured and convenient behavioural changes. This is because, unlike some other diseases, vulnerability to HIV is expressed as the degree to which people are able to control their exposure to the risk of acquiring HIV/AIDS, or the degree to which infected people are able to access appropriate care and support. It is often defined as the end product of a complex interplay among many personal, social, legal, economic, political, and cultural factors<sup>6</sup>.

It had been submitted that behavioural change has been responsible for the prevention successes to date<sup>7</sup>. It was noted that strategies to modify risk behaviours need to remain a main priority for HIV prevention. Those strategies are those that attempt to delay onset of first intercourse, decrease the number of sexual partners, increase the number of sexual acts that are protected, provide counseling and testing for HIV, encourage adherence to biomedical strategies preventing HIV transmission, decrease sharing of needles and syringes, and decrease substance use. The main objective of this study is to assess the different factors that motivate rural and urban youths aged 14 to 30 to conduct HIV test in order to ascertain their HIV status and desist from some risky HIV-prone behaviours.

## **Behaviour change theories and applications**

Since the emergence of HIV as real socio-economic problems, efforts had been made to apply existing theories on human behavioural change as the major means of stopping the disease. However, achieving behavioural change in the public policy context is often a difficult and complex task. This is because, most of the times, people may be asked to give up a habit formed over a very long time. Therefore, to achieve behavioural change, particularly as part of tackling complex policy problems, a basic understanding is required of the key determinants of behaviour. Precisely, how people behave is determined by many factors, and this is deeply

embedded in social situations, institutional contexts and some cultural norms<sup>8</sup>.

It should be noted that nearly all prevention interventions for HIV are based on some theoretical underpinnings. The fundamental proposition of all these theories is that access to correct information about HIV transmission and prevention will lead to some form of behavioural change that will reduce vulnerability<sup>9</sup>. Also, because some studies have indicated that education alone is not sufficient to induce behavioural change, some second-generation interventions were developed based on individual psychosocial and cognitive approaches that educate individuals in practical skills to reduce their risk for HIV infection<sup>10</sup>.

The theory of reasoned action was advanced in the mid-1960s. It was founded on the assumptions that human beings are quite rational and make systematic use of the information available to them. People consider the implications of their actions in a given context at a given time before they decide to engage or not engage in a given behaviour, and that most actions of social relevance are under volitional control<sup>11</sup>. The theory of reasoned action operates under the premise that a person's intention is a function of two basic determinants, which are attitude towards the behaviour and 'subjective norms' or social influence.

The social cognitive or social learning theory (SCT) states that new behaviours are learned either by analyzing the behaviour of others or by direct experience. This theory highlights the important roles played by some self-regulatory processes in psychological functioning and looks at human behaviour as a continuous interaction between cognitive, behavioural and environmental determinants<sup>12</sup>. The stages of change model developed early in the 1990s<sup>13</sup> proposes six stages that individuals or groups undergo when changing behaviour. These are pre-contemplation, contemplation, preparation, action, maintenance and relapse. In order for an intervention to be successful, it must target the appropriate stage of the individual or group.

It had been submitted that an understanding of the factors that motivate safer sexual behaviour is needed in order to reduce HIV transmission<sup>14</sup>. Some health-related behaviours, including HIV-preventive behaviour have been explained by the health belief model<sup>15</sup>. The model is based on the idea that an individual must have the willingness to participate in health interventions and believe that being healthy is a highly valued outcome. Therefore, it was possible to predict if an individual would engage in positive health behaviours by determining the individuals' perception of the disease, illness or accident, identification of modifying factors, and the likelihood that the individual will take some action. The most influential factor within Becker's model that might prevent an individual from engaging in healthy behaviours was the perceived barriers<sup>16</sup>. Applied to AIDS, six elements of the health belief model which are AIDS knowledge, perceived susceptibility to HIV infection, perceived effectiveness of HIV-preventive measures, self-efficacy, barriers to behaviour change, accessibility of health care/advice and social support for safer sexual behaviour have been highlighted<sup>14</sup>.

The AIDS risk reduction model which was developed in 1990 used constructs from the health belief model, the social cognitive theory and the diffusion of innovation theory. The model identifies three stages involved in reducing risk for HIV transmission, including behaviour labeling, commitment to change, and taking action. In the first stage, knowledge about HIV transmission, perceived HIV susceptibility, as well as aversive emotions influence how people perceive AIDS. The commitment stage is shaped by four factors which are perceptions of enjoyment, self-efficacy, social norms and aversive emotions. Again, in the last stage, aversive emotions, sexual communication, help-seeking behaviour and social factors affect people's decision-making process<sup>17</sup>.

Health belief model had been applied to determine if changes in dietary habits could result in a reduction of fat and cholesterol intake. The findings revealed that the health

belief model components help people make changes in their dietary habits and that the beliefs were subject to influences by others in particular health care personnel who provided health teaching<sup>18</sup>.

Another study<sup>19</sup> focused on the use of health belief model and Ajzen and Fishbien's Theory of Planned Behaviour in identifying factors that influenced women willingness to complete routine cervical pap smears. Their results show that a positive attitude toward the procedure itself was more important in having it done than the perceived threat of the disease or social pressure.

Empirical applications of some of these theories in economic studies have shown that economic factors have some strong influences on individual sexual behaviour, mostly through poverty and unemployment<sup>9</sup>. It had been submitted that using the health belief model, results from logistic regression revealed that social support for behaviour change and accessibility of health care / advice are the most consistent predictors of risk reduction across sex and outcome measures<sup>14</sup>. The other variables do not consistently give any significant association with behaviour change. It was therefore concluded that AIDS campaigns must foster the perception that there is concerted normative support for HIV-related behaviour change and that community and small group, face-to-face AIDS education, which may have more impact on perceived social support than mass media campaigns, must be emphasized.

An integrated approach to assess vulnerability of women aged 15-24 years to HIV in Osun State found that empowering young people enhances their sense of self-worth and increased their ability to take informed decisions<sup>20</sup>. Precisely, increased sense of self worth and economic independence reduce vulnerability to sexually transmitted infections including HIV/AIDS. A quasi-experimental evaluation using randomized, control design had been used in four urban high schools in Ibadan<sup>21</sup>. Evaluation after six months of intervention found a statistically signi-

ficant difference in the proportions of students who reported never having had sexual intercourse and mean number of sexual partners. Also, there was increased use of condoms.

The perception of HIV vulnerability had been examined with the cumulative and additive risk models among Nigerian youths using the 2003 Demographic and Health Survey (DHS)<sup>22</sup>. The model of cumulative risk (estimated for males) revealed a consistent and positive association between the number of risk factors experienced and perceived vulnerability to HIV infection. However, for females, the same model revealed that those who had experienced two risk factors perceived more vulnerability to HIV infection than those who had experienced three risk factors. Also, additive risk model revealed that having had a sexually transmitted disease was associated with males' perceptions of vulnerability to HIV infection, whereas past sexual activity and having had multiple sexual partners were linked to females' perceptions of vulnerability.

Another study<sup>23</sup> investigated the relationship between sexual behaviour and knowledge of HIV/AIDS among the youths in South-west Nigeria. The result of the analysis revealed that most of the respondents were sexually active and engaged in high risk sex such as casual, same sex, multiple sex and sex in exchange for money or favour. Also, although they have very high knowledge of key basic concept of HIV/AIDS, many hold some misconceptions about the cure of AIDS.

## **MATERIALS AND METHODS**

### *The data and its source*

The data used were collected by the National Bureau of Statistics (NBS). NBS came into existence due to the merger of the Federal Office of Statistics (FOS) and the National Data Bank (NDB) as part of the implementation of the Statistical Master Plan (SMP). Presently, NBS is legislatively saddled with the responsibility of collecting reliable and complete data on every section of the Nigerian economy. This is sometimes done with technical assistance from some

**Table 1.** Distribution of respondents across the geopolitical zones in Nigeria.

Zones	Rural		Urban		Total	
	Frequency	% of total	Frequency	% of total	Frequency	% of total
South South	3358	12.10	813	2.93	4171	15.03
South East	3297	11.88	573	2.06	3870	13.94
South West	884	3.18	2213	7.97	3097	11.16
North Central	4078	14.69	1150	4.14	5228	18.83
North East	4109	14.80	887	3.20	4996	18.00
North West	5102	18.38	1293	4.66	6395	23.04
<b>Total</b>	<b>20828</b>	<b>75.04</b>	<b>6929</b>	<b>24.96</b>	<b>27757</b>	<b>100.00</b>

**Source:** Extracted from NLSS, 2004 data by the National Bureau of Statistics (NBS), Nigeria.

line Ministries. The collected data are to be disseminated to users all over the world for appropriate analysis and policy information.

Data for this study were obtained from the National Living Standard Survey (NLSS) that was conducted between September 2003 and August 2004. The sampling unit was based on the 1991 population census. Two-stage stratified sampling method was used in the selection of the respondents. At the first stage, clusters of 120 housing units called enumeration areas (EAs) were selected from each of the 36 State, while 60 were selected from the Federal Capital Territory (FCT). The second stage involved random selection of 5 housing units from the selected EAs. A total of 600 households were randomly selected in each of the States and 300 from the FCT. These give a sum total of 21,900 targeted households. However, only 19,158 households completed the survey. The survey covered different aspects of households' activities including health. Data on health were collected on every member of the households. This study used the health segment of the data, which covered such issues as disease incidence, immunization, reproductive health and HIV / AIDS. The total number of household members that completed this section of the survey is 92,516.

Because our study deals only with youths, we have been faced with the challenge of getting appropriate definition and the right age range to be taken. It should be noted that there are some variations in the definition of youth in many countries. This study took those between 14-30 as youths because it forms a subset of those who are likely to be sexually active and at higher risk of contacting HIV virus in Nigeria. UNICEF<sup>24</sup> submitted that it is worrisome to note that the prevalence rate of HIV in Nigeria is highest among young people with 4.7 per cent of those between 20-24 year-olds and 4.9 per cent of 25-29 year-olds being infected with the HIV. We used this age range because UNICEF<sup>24</sup> submitted that it is

worrisome to note that the prevalence rate of HIV in Nigeria is highest among young people with 4.7 per cent of those between 20-24 year-olds and 4.9 per cent of 25-29 year-olds being infected with the HIV. Also, it had been noted that each country has its own definition of youths<sup>25</sup>. It was noted that in Cyprus, those between 14-30 years are taken as youth as against 15-30 years and 6-30 years for Bangladesh and Nigeria, respectively. This category of people, whose data were analyzed in this study comprised of 27,757 people, from the urban and rural areas. The distribution of the samples across the urban and rural areas is contained in Table 1.

#### *Analytical methods*

The data were analyzed with the descriptive and Probit regression methods. The descriptive methods comprised of frequency distribution, means, standard deviation and coefficient of variation (standard deviation/mean\*100).

#### *Probit regression*

The factors that explain youths' participation in conducting an HIV test and willingness to change some risky behaviours were modeled using the Probit model. This is a type of regression model in which the dependent or response variable is dichotomous in nature, taking a 1 or 0 value. This model uses the normal Cumulative Density Function (CDF). It should be noted that this type of analysis can as well be carried out using Logit. The major difference between Logit and Probit regression is that logistic has slightly flatter tails, implying that the normal or probit curve approaches the axes more quickly than the logistic curve. It should however be noted that qualitatively, Logit and Probit Models give similar results.

The estimated Probit model for this study is

## Factors Influencing Behaviour Change among Nigerian Single Youths: An Health Belief Model

stated as:

$$Y_i = \mu + \omega_j \sum_{i=1}^j M_j + h_j \quad 1$$

Where:  $\mu$  and  $\omega_i$  are estimated parameters and  $Y_i$  = HIV testing (Yes =1, 0 otherwise) or willing to change risky behaviour (Yes =1, 0 otherwise). Following Wilson *et al*<sup>4</sup> this study used the health belief model. The components of the model are: AIDS knowledge {which was estimated with variables HIV/AIDS is avoidable (Yes =1, 0 otherwise) and healthy persons can have HIV/AIDS (Yes =1, 0 otherwise)}; perceived susceptibility to HIV infection {which was estimated with sector of the economy (urban =1, 0 otherwise) and sex of the youth (male = 1, 0 otherwise)}; perceived effectiveness of HIV-preventive measures {estimated with radio as a source of information (Yes =1, 0 otherwise), television as source of information (Yes =1, 0 otherwise), newspaper as source of information (Yes =1, 0 otherwise), poster as source of information (Yes =1, 0 otherwise), faith-based organization as source of information (Yes =1, 0 otherwise), school as source of information (Yes =1, 0 otherwise) and community meetings and friends as source of information (Yes =1, 0 otherwise)}; self-efficacy {estimated as no formal education (Yes =1, 0 otherwise), elementary school (Yes =1, 0 otherwise), primary school (Yes =1, 0 otherwise), secondary education (Yes =1, 0 otherwise), tertiary education (Yes =1, 0 otherwise), age of youth (years), household size, has a job (Yes =1, 0 otherwise)}; barriers to behaviour change {estimated with regional variables south south zone (Yes =1, 0 otherwise), south east zone (Yes =1, 0 otherwise), south west zone (Yes =1, 0 otherwise), north central zone (Yes =1, 0 otherwise) and north east zone (Yes =1, 0 otherwise)}; and accessibility of health care/advice and social support for safer sexual behaviour {estimated with variables health worker as source of information (Yes =1, 0 otherwise), and per capita total expenditure (₦)}. Also  $h_j$  is the stochastic error term.

## RESULTS AND DISCUSSIONS

### *Socio-economic characteristics of the youths*

Table 2 shows that the males among the youths constitute 46.9 percent of the respondents. Also, 40.52 percent of the respondents are females residing in the rural areas. Although average age is 21.35 years and the coefficient of variation is 24.08 percent, age group 15-19 years constitutes the highest proportion of the people with 33.75 percent. Average household size is 6.59, with varia-

bility index of 52.76 percent. Also, educational groupings of the respondents reveal that majority of the youth attained secondary education (57.41 percent), while 27.53 percent have no formal education. As expected, out of the illiterate youths, 24.51 percent are residing in the rural areas. Based on occupation, the largest proportion of the youths (61.75 percent) is either inactive in the labour market or schooling. Among those that are employed, 22.18 percent are engaged in agricultural/forestry enterprises.

### *HIV/AIDS and behavioural change*

Table 3 shows that 87.79 percent of all the youths have heard about HIV/AIDS. Given series of on-going programmes on HIV, one would have expected a 100 percent level of awareness, as found by Adedimeji<sup>26</sup> and Ogundana<sup>27</sup>. Also, majority (70.71 percent) of the youths get information on HIV/AIDS from radio, while friends and television take 3.21 percent and 3.09 percent, respectively. Odu and Akanle<sup>23</sup> submitted that the power of increased knowledge to motivate logical sexual behaviour and reduce HIV infection now constitutes the crux of most HIV/AIDS education campaigns on many Nigerian radio and television stations.

Table 4 also reveals that 49.01 percent of the youths indicate that sexual intercourse is the primary means through which HIV / AIDS is transmitted. This is followed by having many partners (19.47 percent), intercourse with prostitutes (8.18 percent) and blood transfusion (4.10 percent). These findings reveal that the youths seem to be well informed about the means of HIV transmission. It had been found that knowledge of correct routes for HIV transmission motivated proper usage of condom in some parts of Nigeria<sup>28</sup>. However, some of the youths believed that HIV could be transmitted by mosquito bites (0.16 percent), kissing (0.16 percent) and supernatural means (0.13 percent). It was also found that 23.1 percent and 18.5 percent of some respondents in Nigeria believed that HIV is transmitted through mosquito bites and sharing of food with infected

**Table 2.** Socio-economic characteristics of the rural and urban youths in Nigeria.

Socio-economic groups	Rural		Urban		Total	
	Freq	% of total	Freq	% of total	Freq	% of total
<b>Sex</b>						
Male	9582	34.52	3446	12.41	13028	46.94
Female	11246	40.52	3483	12.55	14729	53.06
<b>Age groups</b>						
10 - 14	1569	5.65	530	1.91	2099	7.56
15 - 19	6965	25.09	2402	8.65	9367	33.75
20 - 24	5181	18.67	1936	6.97	7117	25.64
25 - 29	4851	17.48	1519	5.47	6370	22.95
30 - 34	2262	8.15	542	1.95	2804	10.10
<b>Educational groups</b>						
None	6803	24.51	789	2.84	7592	27.35
Elementary	136	0.49	40	0.14	176	0.63
Primary	1335	4.81	254	0.92	1589	5.72
Secondary	10919	39.34	5017	18.07	15936	57.41
Tertiary	358	1.29	527	1.90	885	3.19
Others	1277	4.60	302	1.09	1579	5.69
<b>Occupational groups</b>						
Student or inactive	12029	43.34	5112	18.42	17141	61.75
Professional or technical	153	0.55	133	0.48	286	1.03
Administration	2	0.01	7	0.03	9	0.03
Clerical	129	0.46	150	0.54	279	1.01
Sales and related	562	2.02	531	1.91	1093	3.94
Services and related	1762	6.35	319	1.15	2081	7.50
Agricultural and forestry	5814	20.95	343	1.24	6157	22.18
Production and transport	196	0.71	172	0.62	368	1.33
Manufacturing and processing	51	0.18	49	0.18	100	0.36
Others	130	0.47	113	0.41	243	0.88

Source: Computed from NLSS 2004.

persons<sup>29</sup>. It may therefore be inferred that more people are now getting the most needed right information about the disease.

Table 5 shows the different forms of risky behaviour that youth decided to change in order to avoid HIV. While 28.37 percent did not respond to the question, having sex with one partner is the option of behavioural change with highest use (24.35 percent). This is followed by do not start sex (16.90 percent) and use of condom (14.29 percent).

Only 7.33 percent decided to stop all sex until they are married. These findings go in line with that of Adedimeji (2003) that although some Nigerian were aware about HIV and its preventive measures, no serious preventive efforts were taken towards avoiding infection.

#### *Factors explaining conduct of HIV test*

The results revealed that only 3.34 percent of the youths have been tested for HIV. This

**Table 3.** Primary sources of information by Nigerian rural and urban youths on HIV/AIDS.

Information sources	Rural		Urban		Total	
	Freq	% of total	Freq	% of total	Freq	% of total
<b>Awareness</b>						
No response	1569	5.65	530.00	1.91	2099	7.56
Aware	18175	65.48	6193.00	22.31	24368	87.79
Not aware	1084	3.91	206.00	0.74	1290	4.65
<b>Information sources</b>						
None	2653	9.56	736	2.65	3389	12.21
Radio	14673	52.86	4954	17.85	19627	70.71
T.V	413	1.49	444	1.60	857	3.09
Newspaper	153	0.55	104	0.37	257	0.93
Posters	262	0.94	109	0.39	371	1.34
Health workers	634	2.28	96	0.35	730	2.63
Mosques/Churches	589	2.12	93	0.34	682	2.46
Schools	374	1.35	157	0.57	531	1.91
Community meetings	209	0.75	21	0.08	230	0.83
Friends	714	2.57	176	0.63	890	3.21
Work place	11	0.04	5	0.02	16	0.06
Others	143	0.52	34	0.12	177	0.64

Source: Computed from NLSS 2004.

**Table 4.** Perception of rural and urban youths on the means of HIV/AIDS transmission.

Means of transmission	Rural		Urban		Total	
	Freq	% of total	Freq	% of total	Freq	% of total
Sexual intercourse	10060	36.24	3545	12.77	13605	49.01
Many partners	4110	14.81	1294	4.66	5404	19.47
Prostitutes	1795	6.47	475	1.71	2270	8.18
Not using condom	390	1.41	172	0.62	562	2.02
Homosexual contact	127	0.46	44	0.16	171	0.62
Blood transfusion	824	2.97	313	1.13	1137	4.10
Injection	446	1.61	199	0.72	645	2.32
Kissing	31	0.11	13	0.05	44	0.16
Mosquito bites	35	0.13	10	0.04	45	0.16
Circumcision	67	0.24	40	0.14	107	0.39
Supernatural	25	0.09	10	0.04	35	0.13
Other	265	0.95	78	0.28	343	1.24
No response	2653	9.56	736	2.65	3389	12.21

Source: Computed from NLSS 2004.

implies that majority of the rural and urban youths have never conducted HIV test des-

pite recent campaigns and free offers being provided in some circles. Odimegwu (2003)



**Table 5.** Different form of behavioural changes among Nigerian rural and urban youths in order to prevent HIV/AIDS.

Form of change	Rural		Urban		Total	
	Freq	% of total	Freq	% of total	Freq	% of total
Do not start sex	3292	11.86	1399	5.04	4691	16.90
Stopped all sex	1519	5.47	516	1.86	2035	7.33
Using condom	2959	10.66	1007	3.63	3966	14.29
Sex with one partner	5458	19.66	1302	4.69	6760	24.35
Reduced partners	414	1.49	129	0.46	543	1.96
No homosexual contact	127	0.46	39	0.14	166	0.60
Sharing no syringe	519	1.87	207	0.75	726	2.62
Using personal clipper	238	0.86	113	0.41	351	1.26
Other	528	1.90	116	0.42	644	2.32
No response	5774	20.80	2101	7.57	7875	28.37

Source: Computed from NLSS 2004.

earlier reported that a major reason why some Nigerians may not want to subject themselves to HIV test is the kind of stigmatization that follows, especially if a positive result is obtained. Also, it should be noted that low conduct of HIV test may result from the fact that majority of the respondents were youth and students, who never were. Therefore, they might not have utilized the compulsory pre-marriage HIV-test being mandated by some Faith-Based Organizations (FBOs) as requirement for wedding.

We further proceeded to estimate the factors explaining conduct of HIV test among the youths using Probit regression method. The results, from Limdep 7.0 software are as presented in Table 6. The Chi-Square value (1274.399) is statistically significant ( $p < 0.01$ ), and it implies that the data fits the data very well. Many of the parameters show very high statistical significance. Precisely, the results show that as the family size increases, the probability of conducting HIV test significantly reduces ( $p < 0.01$ ). This might have resulted from the financial requirements of asking every child to go for HIV test. Also, the males have significantly lower probability of conducting HIV test ( $p < 0.01$ ). As youths' ages increase, the probability of conducting HIV test

significantly increases ( $p < 0.01$ ). Residence in the urban area significantly increases probability conducting HIV test ( $p < 0.01$ ). This is expected because most of the HIV testing centers are located in urban areas. Out of the zonal variables, only the parameter estimated for the north east is not statistically significant ( $p > 0.10$ ). The other four parameters have positive sign and statistically significant ( $p < 0.01$ ). These show that residence in south-south, south east, south west, and north central significantly increases the probability of conducting HIV test.

Furthermore, as expected, those who indicated to know where HIV test is being conducted have significantly higher probability of conducting HIV test ( $p < 0.01$ ). The sources of information that significantly increased probability of conducting HIV tests ( $p < 0.01$ ) are radio and television. This is due to recent increases in jingles and programmes that focus on educating the public on HIV through these media of information transmission. The other sources that show statistical significance ( $p < 0.10$ ) are newspapers and churches/mosques. Also, as per capita expenditure increases, probability of conducting HIV test significantly increases ( $p < 0.01$ ). Those that have job have signifi-

**Table 6.** Probit regression of the determinants of HIV testing among Nigerian youths.

Variables	Parameters	t-values	probability
Constant	-3.4658	-23.467	.0000
Household size	-0.0226	-4.229	.0000
Sex	-0.0923	-2.797	.0052
Age	-0.0309	8.078	.0000
South south	0.2838	4.569	.0000
South east	0.6510	10.999	.0000
South west	0.2582	3.774	.0002
North central	0.1741	2.928	.0034
North east	0.0677	1.057	.2904
Sector	0.1840	4.824	.0000
Know where test is done	0.7998	17.555	.0000
Friends/community meeting	0.1617	1.078	.2809
Radio	0.3060	2.649	.0081
T.V	0.4495	3.339	.0008
Newspaper	0.3396	1.885	.0594
Posters	0.1944	1.068	.2854
Health workers	0.2405	1.545	.1224
Mosques/Churches	0.2650	1.717	.0859
Schools	0.0761	0.435	.6634
AIDS is avoidable	0.0002	0.010	.9917
Healthy looking person can have AIDS	-0.0354	-1.593	.1111
Per capita expenditure	0.000001	4.883	.0000
No education	-0.2522	-4.775	.0000
Elementary education	0.0121	0.058	.9539
Primary	-0.1415	-1.798	.0721
Secondary	-0.0096	-0.260	.7946
Tertiary	0.1679	1.963	.0500
Unemployed	0.0764	2.025	.0429

Source: Computed from NLSS 2004.

cantly higher probability of conducting HIV test ( $p < 0.05$ ). Those who have no formal education and primary education have significantly lower probability of conducting HIV test ( $p < 0.10$ ), while attainment of tertiary education increases it ( $p < 0.05$ ).

*Factors explaining change of risky behaviours*

Table 7 shows the results of factors explaining change of risky HIV-prone behaviours. The results show that the model produced a

good fit for the data as revealed by the statistical significance of the computed Chi Square ( $p < 0.01$ ). Many of the variables show statistical significance. Precisely, males have significantly lower probability of changing risky behaviours ( $p < 0.10$ ). As the youths grow older, the probability of changing risky behaviours significantly increases ( $p < 0.01$ ). Residence in the south south, south east, north central and north east significantly increased probability of changing risky behaviours ( $p < 0.01$ ). The parameter for south west does not show statistical significance

**Table 7.** Probit regression of the determinants of behavioural change among youths.

<b>Variables</b>	<b>Parameters</b>	<b>t-values</b>	<b>probability</b>
Constant	-2.1276	-30.423	.0000
Household size	-0.0038	-1.287	.1981
Sex	-0.0364	-1.843	.0654
Age	0.0054	2.517	.0118
South south	0.1162	3.441	.0006
South east	0.1966	5.515	.0000
South west	0.0038	0.102	.9189
North central	0.2578	8.550	.0000
North east	0.5185	16.792	.0000
Sector	-0.2385	-9.741	.0000
Know where test is done	.1964	9.828	.0000
Friends/community meeting	2.9756	46.027	.0000
Radio	3.1580	64.046	.0000
T.V	3.1848	44.705	.0000
Newspaper	3.1296	29.304	.0000
Posters	3.2679	34.261	.0000
Health workers	3.1536	42.160	.0000
Mosques/Churches	3.1975	41.749	.0000
Schools	2.9882	37.994	.0000
AIDS is avoidable	-0.1976	-15.685	.0000
Healthy looking person can have AIDS	-0.1084	-9.967	.0000
Per capita expenditure	0.000003	8.071	.0000
No education	-0.0832	-3.210	.0013
Elementary education	-0.2027	-1.781	.0750
Primary	-0.0087	-0.199	.8420
Secondary	-0.0231	-1.093	.2746
Tertiary	-0.0346	-0.629	.5293
Unemployed	0.0081	0.369	.7122

**Source:** Computed from NLSS 2004.

$p > 0.10$ ). Residence in urban areas significantly reduces the probability of changing risky behaviours ( $p < 0.01$ ). This is expected because prostitution and internet pornographies, which fuel involvement in risky behaviours among youths are highly concentrated in urban areas.

Also, those that know where HIV test is being done have significantly higher probability of changing risky behaviours, while all the information sources significantly increase the probability of changing risky behaviours.

Those who indicated that HIV is avoidable and that healthy looking persons can have HIV have significantly lower probability of changing behaviours. The youths with no formal education and those with elementary education have significantly lower probability of changing risky behaviours ( $p < 0.10$ ).

## **CONCLUSIONS**

Behavioural change after confirming one's

HIV status has been widely advocated in order to stop the scourge of HIV in our societies. Also, higher vulnerability among the youths gives an indication that efforts to address the scourge of the disease must be channeled through them. The findings of this study provide some way forward for ensuring the Nigerian rural and urban youths are protected from HIV infection through timely detection of their status and adoption of adequate behavioural changes. There is need for more intensive HIV awareness creation among the youths. Although youths were aware about the means of HIV transmission, behavioural change of staying with a partner, which is not so efficient if the other partner is not faithful was largely used to guard infection. Programs on HIV awareness should therefore ensure that emphasis is placed on abstinence as a sure way of fighting HIV. Much emphasis should also be placed on those youths from urban areas because our results show that they have significantly lower probability of changing risky behaviours. Some ways of salvaging the situation are prohibition of prostitution and implementation of appropriate code of conduct among cyber café and club houses in a way that discourages pornography.

Also, since majority of the youths are students, efforts to incorporate health studies into school curriculum will assist to ensure proper awareness about the disease. Education for the youth is particularly important because the youths that are illiterates have significantly lower probability of conducting HIV test and changing risky behaviour. In addition, the people should be appropriately informed about the locations where HIV tests are conducted. This results from the fact that those who know where HIV tests are being conducted have higher probability of conducting the test. Finally, government needs to make HIV tests to be free for the poor because our findings imply that those youths from wealthy homes have significantly higher involvement in HIV testing and changing risky behaviours.

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