

## **Economic Analysis of the Demand for Male Condoms and Implication for the Prevalence of HIV/AIDS in Nigeria**

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**Abstract:** Male contraceptives should meet the physical, mental and social health needs of individuals throughout their lives. The current epidemics of Sexually Transmitted Diseases (STDs), including HIV has stimulated renewed interest in the methods of prevention. In the study, we found that effective use of condoms play important role in preventing HIV infection and other sexually transmitted diseases. Empirical results from the study revealed the fear of contacting the HIV virus, the fear of STDs and the level of awareness of STDs and HIV are the major factors influencing condom demand in Nigeria. However, factors such as price, income and brand of condom are not important factors that influence the demand for condoms. Consequently, policies that makes condoms readily available and accessible will go a long way to reduce the prevalence of HIV/AIDS and other STDs in Nigeria.

**Key words:** Male, university, condom, demand, HIV/AIDS, Nigeria

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### **INTRODUCTION**

Since the early 1980s, sub-Sahara African countries have faced formidable challenges to their development. They have had to cope with deteriorating economies, the imposition of structural adjustment programmes and the spread of Sexually Transmitted Diseases (STDs) including HIV/AIDS. These economic and health situations have serious implications for morality and fertility, threatening to delay and in some cases, even stop the process of demographic transition as well as compound population and developmental problems. The case of Nigeria, particular, stands out here. Nigeria has a population of about 140 million and life expectancy is around 50 years. The annual growth rate of the population was about 3.3% and accounts for over one-fifth of the region's population. This has been attributed to the high fertility rate of 6-7 children per woman. The high birth rate prevalent in the country led to the suggestion of contraceptives as a way of adjusting fertility and growth rates to what is needed for human and national development. Another fundamental issue is the HIV/AIDS scourge. Acquired Immune Deficiency Syndrome (AIDS) is the fourth leading causes of mortality in the world and has claimed the lives of several millions people since it was first identified in 1981 in United States.

The impact of HIV/AIDS on the economy is likely to be more pronounced in a highly populated country like Nigeria. The 2003 survey estimated that there were 3,300,000 adults living with HIV/AIDS in Nigeria and 1,900,000 of these were women. It is estimated that

3.2-3.8 million adults and children were living with HIV/AIDS in the year 2003 (MDG, 2006). As a result of the epidemic, the crude death rate in Nigeria was about 20% higher in 2000 than in 1990 (MDG, 2006). HIV/AIDS prevalence is highest among young people between the ages of 20-24 compare with other aged groups. Nigeria's STD/HIV control estimates that over 60% of new HIV infections are in the 15-25 years old age group. In 2005, it was estimated that there were 220,000 deaths from AIDS and 930,000 AIDS orphans living in Nigeria. Several factors have contributed to the rapid spread of HIV in Nigeria which has posed negative consequences to national development. The 5 major routes of transmission are unsafe sex, unscreened blood transfusion, contaminated needles, breast milk and transmission from an infected mother to her baby at birth. However, it is estimated that 80% of HIV infections in Nigeria are transmitted through unsafe sex (MDG, 2006). Presently, HIV/AIDS currently has no cure, a fact which makes it more deadly. The effects of the HIV/AIDS on economic development of Nigeria will be better appreciated when it is realized that presently the economically active population is already over-burdened. The success of the AIDS scourge on the active population, therefore, would mean a further push on the dependence ratio.

Consequently, the use of male condom was recommended as the most effective barrier method as a way of preventing HIV/AIDS and control fertility with no side effect and which may be used jointly with other family planning techniques. However, despite the widespread universal knowledge of this contraceptive

method, it is rarely used thereby necessitating the need to investigate the economic analysis of the demand for it. Among the numerous problems facing the use of the male contraceptive demand are low quality of condom, the prices of condom, the low awareness of the importance of condom use among others. It is therefore timely determine whether the condom which has limited popularity for fertility regulation would be more acceptable as an effective means of preventing the spread of HIV/AIDS and other sexually transmitted diseases. The major objective of this study is therefore to carry out an economic analysis of the demand for male condom and the implication for HIV/AIDS in Nigeria.

### **MATERIALS AND METHODS**

The review of relevant literature for this study is discussed with reference to the price of contraceptives, income of individual, education, effectiveness of condom, interpersonal communication of condoms. The literature has found price to be a factor in the demand for male contraceptive. According to Martin and Wu (2000) states that wide availability and low cost of contraception have contributed to the decline in Canadian fertility over the past two decades, as well as Sexually Transmitted Diseases (STDs), including HIV and AIDS in their study. They states that low cost of contraception will encourage sexually active people to use condom and thereby reducing infection rates of STDs. The view of this study was also corroborated by Ciszewski and Harvey (1995). Income is another factor that could influence the demand for male contraceptives (condom) for the protection of sexually transmitted diseases. For example, Tremblay and Ling (2005) noted that income play important roles in influencing a young person's valuation of alternative condom choices. However, Philipson and Posner (1995) states that people with low income may not use contraceptives when engaging in their sexual activities. Similarly, Hearst and Hulley (2004) also noted that the quality of condom depends on one's income. They argued that the higher the income of the condom user the better the quality of the condom.

The level of education of condom users have also been found to influence the demand for its usage. Education played important role in fighting the menace of STDs. The World Bank (2002) noted that one of the most important factor in helping to prevent young people from contracting the HIV virus is through education. They concluded that education is the only vaccine against STDs/HIV. Similarly, Martin and Wu (2000) explained that education has a critical role to play in mitigating the effects of STDs and HIV by providing knowledge that will

inform self-protection; fostering the development of a personal held constructive value system; inculcating skills that will facilitate self-protection; promoting behaviour that will lower infection risks and enhancing capacity to help others to protect themselves. In the case of Zambia, he found that there is a marked decline in HIV prevalence rates in 15-19 years old boys and girls with a medium to higher educational level but a rise among those with lower education levels. Blanc (2000) also argued that education promotes both logical and different ways of thinking which allow better educated people to take action in preventing their health. In his findings, De Walque (2004) noted that as a result of human capital investment in their future, better educated individuals have stronger incentives to protect their health. These results were supported by many researchers (Blanc, 2000; Waithaka and Bessinger, 2001; Lagarde *et al.*, 2001; Filmer, 2002; Bruns *et al.*, 2003; Yarber *et al.*, 2005; Tremblay and Ling, 2005). However, the findings stated above may not hold in all situations. For example, Over (1998) argued that gender inequality in illiteracy rates and access to work, together with poverty and income inequality facilitate the spread of HIV. He concludes that controlling the epidemic requires economic and social development to reduce income and gender inequality. Moreover, higher socio-economic development, such as increased urbanization can increase the spread of HIV, leading to the perverse possibility that some HIV epidemics might be better described as epidemics of development than of poverty (Gregon *et al.*, 2001).

On the effectiveness of condoms, Holmes *et al.* (2004) stated that correct and consistent use of latex condoms reduces the risk of HIV transmission by approximately 85% relative to risk when unprotected. It also reduces the risk of Gonorrhoea for men by approximately 71% relative to risk when unprotected. Hearst and Chen (2004) opined that for condoms to work against STDs, including HIV they must be effective and must be used consistently by sexually active people. Finally, communication is another key factor in promoting safer and healthier sexual practices. A proper communication of two sexual active partners on how to use condoms can reduce the spread of Sexually Transmitted Diseases (STDs) including HIV. According to McGrath *et al.* (1993) in the study of Kwazulu-Natal, they found that sex is not seen as an appropriate topic of discussion between men and women. In addition, it was revealed that when women initiate condom use it is likely to lead to distrust, suspicious of infidelity and on certain occasion, violence. They further explained that women who request condoms use are usually perceived as promiscuous. This confirms the earlier findings of Miles (1992). Nevertheless, issues

surrounding trust and commitment may interfere with condom use in relationships. An incorrect AIDS prevention belief that trusted partners are safe partners may lead to the perception of decreased risk as trust develops in relationship overtime. Individuals in diverse samples frequently mention trust as a reason for not discussing or using condoms (Hammer *et al.*, 1996; McQuiston and Gordon, 2000). Thus, proposing condom use to a partner may be considered a violation of trust because it suggests that one or both partners is engaging in sex outside of the relationship or has a sexual past that involves risk (Hammer *et al.*, 1996; Maxwell and Boyle, 1995; Misovich *et al.*, 1997; Donnell *et al.*, 1994).

Taking a brief overview of these studies, the proper and consistent use of latex condoms when engaging in sexual intercourse such as vaginal, anal or oral can greatly reduce a person's risk of acquiring or transmitting STDs, including HIV infection. According to Centres for Diseases Control and Prevention (1993), states that sexually transmitted infections are preventable. The use of barriers which prevent contact with infections sores or fluids is one strategy for reducing risk.

The latex condom provides a continuous mechanical barrier which affords excellent protection against a wide variety of bacteria, viruses and other germs. Aside from preventing HIV infection directly widespread condom use could have a substantial indirect impact on the HIV epidemic by preventing other Sexually Transmitted Diseases (STDs), some of which increase the risk of HIV transmission. The underlying economic framework derives from the standard consumer theory based on the solution of the consumer's optimization problem. The standard approach assumes a functional relationship between condom demand and key explanatory variables such as prices, income, fear of STDs and HI, sexual partner, awareness of STDs and HIV, brand of condoms, religion beliefs, other contraceptives, socio-cultural belief, accessibility and multiple sexual partners. A-priori we expect:

- Price to be negatively related to demand
- Income to be positively related to demand
- Fear of STDs and HIV will increase the demand for male condoms
- Sexual partner can influence one's choice on the demand for male condoms
- The level of awareness of STDs and HIV is positively related to the demand for condoms. This will increase the demand for condom
- The brand of condoms will depend on one income and it is inversely related to the demand for male condoms

- Religion belief is negatively related to the demand for male condoms. This will decrease the demand for male condoms
- Socio-cultural belief has negative relationship on the demand for male condoms
- Easy accessibility to condom increases its demand
- Multiple sexual partners are positively related to the demand of condoms. The higher the multiple sexual partners, the higher the number of condoms use

A descriptive survey research design was utilized for this study as it seeks individual demographic characteristics as well as the factors that influence the demand for male condoms. The population for this study is the male undergraduate students of the University of Ibadan. The University is situated within the Ibadan North local Government Area of Oyo State. University of Ibadan is located five miles from the centre of the city of Ibadan in Western Nigeria. The University owes its unique character to a combination of historical, geographical, cultural and architectural factors. Its history is a chronicle of the first citadel of higher education established in the country in 1948 as a college of the University of London. The University became an independent University in 1962, 2 years after the country gained independence from Britain in 1960.

Questionnaires were used to obtain information for the study. The questionnaire was divide into two sections with the first covering the demographic characteristics of each respondent, while the second sought information about whether they demand for condom, what brand of condom they demand for the factors that determine the determinant of the demand for male condoms what types of STDs they fear most, whether they use contraceptive as a result of not contracting STDs and prevention of unwanted pregnancy and finally the effectiveness on the demand for condom on the prevention on STDs, HIV and for contraceptives. The questionnaires were administered on a population of 100 students from the undergraduate and postgraduate male halls of residence in the University. The halls of residence are: Mellanby (10 respondents), Tedder (10 respondents), Ransome Kuti (10 respondents), Sultan Bello (10 respondents), Nnamdi Azikiwe (10 respondents), Independence (10 respondents), Tafawa Balewa Postgraduate (10 respondents), New Postgraduate (10 respondents) and Obafemi Awolowo (20 respondents). The respondents in each of the undergraduate halls were chosen based on the population size of the halls of residence and selected from different size of students. The choice of the University of Ibadan is influenced by the fact that the majority of the youths who are sexually

active falls between the age brackets of 18 and 30 years. This particular group of people will need condom for protection against STDs, unwanted pregnancies. Consequently, they represent a good source of information for this study.

Percentages and descriptive statistics were used to describe the main characteristics of the study population and also the factors that influence the demand for condoms. The analysis ignores the gender of respondents because the study was base on the male students and also their educational level was ignored because majority of the respondents are university students.

**RESULTS AND DISCUSSION**

The result show that majority of the respondents, 98% are single (Table 1). This is because they are young and mostly students. In terms of the religion of the respondents, 69% were found to be Christian, while 30% are Muslims and other religions represents 1% (Table 2). This shows that in spite of their religions, the respondents opted for condoms as a protective device for STDs/HIV. On the age of respondents, 96% were found within the age bracket of between 17 and 28, indicating the most of the respondents that fall within this age level are sexually active and choose condom as a preventive mechanism (Table 3). With respect to income of the respondents, 64% are found within the income level of N1,000-10,000, indicating that majority of the respondents are students who depend on their parents and guardians for their monthly income (Table 4). It was also found that a higher percentage (83%) of the respondents make use of condoms (Table 5). This could be an indication that most students use it for the protection of unwanted pregnancy and prevention of

STDs including HIV/AIDS. The number of respondents that used contraceptives as a result of not contracting STDs and prevention of unwanted pregnancy are 78% (Table 6). This is because majority of the respondents are students, they might wanted to concentrate on their study than being a victim of STDs or a father at this level. In addition, it could be because most of the students depend on their parents for financial support. On the type of STDs that they fear most 83% of the respondents noted that HIV/AIDS is what they really fear because it has no cure and because it leads to stigmatization from the public (Table 7). On the brand of condoms, 35% of the respondents uses rough rider because it make sex enjoyable, it cannot break or slip, it bring comfort and it is easy to use. While 28% demand for gold circle. This is as a result of the low cost and it is the one that is very popular to them (Table 8).

On the effectiveness of condom, 62% of the respondents noted that the brand of condoms is an effective choice of contraceptive, while 24 and 14% of the

Table 1: Marital status of respondents

Marital status	Frequency	%	Valid (%)	Cumulative (%)
Single	98	98.0	98.0	98.0
Married	2	2.0	2.0	100.0
Total	100	100.0	100.0	

Table 2: Religion of respondents

Religion	Frequency	%	Valid (%)	Cumulative (%)
Christianity	69	69.0	69.0	69.0
Islam	30	30.0	30.0	99.0
Others	1	1.0	1.0	100.0
Total	100	100.0	100.0	

Table 3: Age level of respondents

Age level	Frequency	%	Valid (%)	Cumulative (%)
17-20	16	16.0	16.0	16.0
21-24	47	47.0	47.0	63.0
25-28	33	33.0	33.0	33.0
29-32	4	4.0	4.0	100.0
Total	100	100.0	100.0	

Table 4: Income level per month

Income level	Frequency	%	Valid (%)	Cumulative (%)
N1,000-5,000	24	24.0	24.0	24.0
N6,000-10,000	40	40.0	40.0	64.0
N11,000-15,000	19	19.0	19.0	83.0
N16,000-20,000	11	11.0	11.0	94.0
N21,000 and above	6	6.0	6.0	100.0
Total	100	100.0	100.0	

Table 5: Numbers of respondents that demand for condoms

Response	Frequency	%	Valid (%)	Cumulative (%)
Yes	83	83.0	83.0	83.0
No	17	17.0	17.0	100.0
Total	100	100.0	100.0	

Table 6: Those that use condom as contraceptive

Response	Frequency	%	Valid (%)	Cumulative (%)
Yes	78	78.0	78.0	78.0
No	22	22.0	22.0	100.0
Total	100	100.0	100.0	

Table 7: Types of STDs they fear most

STDs	Frequency	%	Valid (%)	Cumulative (%)
Syphilis	4	4.0	4.0	4.0
Gonorrhea	6	6.0	6.0	10.0
Chlamydia	1	1.0	1.0	11.0
HIV/AIDS	83	83.0	83.0	94.0
Others	6	6.0	6.0	100.0
Total	100	100.0	100.0	

Table 8: Brands of condoms

Brands	Frequency	%	Valid (%)	Cumulative (%)
Romantic wild cat	9	9.0	10.8	10.8
Rough rider	28	28.0	33.7	53.0
Lifestyle	11	11.0	13.3	66.3
Gold circle	35	35.0	42.2	100.0
Total	83	83.0	100.0	
Missing	System	17.0	17.0	
Total		100.0	100.0	

respondents noted that it has not being effective and moderately effective, respectively (Table 9). Also, 64% of the respondents noted that the brand of condoms is effective in the prevention of STDs, while 14 and 22% noted that it is not effective or moderately effective respectively. Finally, 61% of the respondents noted that the brand of condoms is effective in the prevention of HIV/AIDS, while 16 and 23% of the respondents opined that it is not effective or moderately effective in the prevention of HIV/AIDS.

From the analysis, 44% noted that price strongly influence their choice of the demand for condoms, while 16% noted the moderate influence of price, 7% said it has low influence while 35% said it does not influence their decision for condom usage (Table 10). Also, less than one-half of the respondents noted that income strongly influence their choice of the brand of condoms (46%), 17% noted that income moderately influence their choice of the brand of condoms, 7% noted that it has low influence, while 30% revealed that it does not influence their demand for condom. However, majority of the respondents showed that the fear of STDs strongly influence their choice on the use of condoms (86%), moderately influence (12%), low influence (4%) and does not influence (16%) (Table 10). Similarly, the data analysis revealed that 73% of the respondents noted that the fear of HIV strongly influence their choice on the demand for condoms, 7% noted that it moderately influence their decision, while 4 and 17% revealed that it has low and no influence at all. Furthermore, it was revealed that 41% of the respondents noted that their sexual partner strongly influence their demand for condoms, 16% noted that their sexual partner moderately influence their choice on the demand for condoms, while 13 and 30% of the respondents showed that their level of awareness of STDs strongly influence their demand for condoms; moderate influence (23%), low influence (2%) and no influence (16%). In addition, 66% of the respondents noted that their level of awareness of HIV strongly influence their demand for condoms; moderately influence (15%); no influence (4%). It was found from the analysis that 36% of the respondents noted that the brand of condoms strongly influence their demand for condoms; moderately influence (32%), low influence (11%) and no influence (21%). On religious belief, 24% of the respondents noted that their religion belief strongly influence their choice on the demand for condoms, 13 and 20% of the respondents noted that it has moderate and low influence while the remaining 43% of the respondents noted that it does not influence their decision.

Only 25% of the respondent indicated that other contraceptives strongly influence their demand for

condom, 33% explained that it moderately influence their demand for condom, while 17 and 25% noted that it has low and no influence at all. The socio-cultural belief of respondents also played a role in the demand for condom. The analysis revealed that 17% of the respondents noted that their socio-cultural belief strongly influence their demand for condom, 23% said explained that it moderately influence their decision, while 28 and 32% of the respondents noted that it has low and no influence respectively. In addition, it was revealed that 27% of the respondents noted that accessibility strongly influence their demand for condom, 36% said it moderately influence their demand, while 15 and 22% said it has low and no influence, respectively. Finally, 52% of the respondents explained that their multiple sexual partners strongly influence their choice on the demand for condoms, moderate influence (17%) low influence (4%) and no influence (27%) (Table 10). Table 11 shows the relative contribution of rating of factors that influence the demand for condoms. To help us characterize the data,

**Table 9: Effectiveness of the demand for condoms**

Items	VE (%)	NE (%)	ME (%)	Total
Contraceptives	62	24	14	100
STDs	64	14	22	100
HIV/AIDS	61	16	23	100

VE = Very Effective, NE = Not Effective and ME = Moderately Effective

**Table 10: Factors that influence the demand for condoms**

Items	SI (%)	MI (%)	LI (%)	DI (%)	Total
Price	44	14	7	35	100
Income	46	17	7	30	100
Fear of STDs (Gonorrhoea, Syphilis, etc.)	68	12	4	16	100
Fear of HIV/AIDS	73	7	3	17	100
Sexual Partner	41	16	13	30	100
Awareness of STDs	59	23	2	16	100
Awareness of HIV/AIDS	66	15	4	15	100
Brand of condom	36	32	11	21	100
Religious belief	24	13	20	43	100
As a contraceptive	25	33	17	25	100
Socio-cultural belief	17	23	28	32	100
Accessibility to condom	27	36	15	22	100
Multiple sexual partners	52	17	4	27	100

SI = Strongly Influence; MI = Moderately Influence, LI = Low Influence, DI = Does not Influence

**Table 11: Rating of factors that influence the demand for condom (mean)**

Factors	Influence
Price	2.6700
Income	2.7900
Fear of STDs	3.3200
Partner	2.6800
Awareness of STDs	3.2500
Awareness of HIV	3.3200
Condom brand	2.8300
Religion	2.1800
Contraceptive	2.5800
Socio-cultural belief	2.2500
Easy accessibility	2.6800
Multiple sexual partners	2.9400
Total	2.8346

we also include mean value representing each of the factors that influence the demand for condoms most. We employed a scale between 1.0 and 4.0. Mean values between 2.0 and 3.0 represent a relatively even mix of factors that influence the demand for condoms. Responses to nine statements fall into this category, including those related to price, income, partner, condom brand, religion, contraceptive socio-cultural, accessibility and multiple sexual partner. Mean values above 3.0 suggests favourable factors influencing the demand for condoms. Respondents seemed to particularly support the ideas that the factors that determine the demand for male condoms are the fear of STDs (3.3), fear of HIV (3.6), level of awareness of STDs (3.2) and awareness of HIV (3.3). Economic factors such as price and income signify a low mean value which reflects a largely unsupportive influence of the demand for condoms. Nevertheless, none of the items produced a mean value that suggests the majority of respondents had negative influence about the demand for condoms.

### CONCLUSION

Male contraceptives should meet the physical, mental and social health needs of individuals throughout their lives. The current epidemics of Sexually Transmitted Diseases (STDs), including HIV has stimulated renewed interest in the methods of prevention. In the study, we found that effective use of condoms play important role in preventing HIV infection and other sexually transmitted diseases. This is as a result of consistently and properly use. Empirical results from the study revealed the fear of contacting the HIV virus is the one of the major determinant of condom demand among our youth. the fear of STDs, fear of HIV, level of awareness of STDs and awareness of HIV. Nevertheless, factors such as price, income and brand signify a low mean value which reflects a largely unsupportive influence of the demand for condoms. Consequently, policies that makes condoms readily available and accessible will go a long way to reduce the prevalence of HIV/AIDS and other STDs in Nigeria. Condoms must be readily be available universally either free or at low cost and promoted in a way that help overcome social and personal obstacles to their use. Condom use is more likely when people can access them at no cost or a greatly subsidized price.

Nevertheless, HIV prevention education and condom promotion must overcome the challenges of complex gender and cultural factors. Young girls and women are regular and repeatedly denied information about and access to condoms. Often they do not have the power to negotiate the use of condoms. In many social contexts,

men are resistant to the use of condoms. This needs to be recognized in designing condom promotion programmes. Condoms have played a decisive role in HIV prevention efforts in many countries. Condoms have helped to reduce HIV infection rates where AIDS has already taken hold and curtailed the broader spread of HIV in setting where the epidemic is still concentrated in specific populations.

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