

# Factors associated with consistent condom use by employees in the brewery industry in Nigeria

A M Sunmola

## ABSTRACT

Many employees of large organisations in Nigeria face significant risks for HIV infection, especially due to occasional or regular job transfers, involvement in casual sexual encounters and lack of consistent condom use. The current study analysed the determinants of consistent condom use in 710 sexually active men ( $N = 617$ ) and women ( $N = 93$ ) recruited from the country's brewery industry. Results showed that only 12% of the employees consistently used a condom. Men who used condoms for all sexual encounters were more likely to be single, had 12 - 18 years of schooling, worked as intermediate level staff, thought a condom was useful to prevent HIV infection, and perceived that condoms hinder sexual satisfaction. Women who consistently used condoms were more likely to have 7 - 12 years of schooling. It is appropriate that brewery authorities develop work place programmes to enhance condom use among employees in order to prevent the spread of HIV infection.

*Keywords: condom use, HIV/AIDS, Nigeria.*

## RÉSUMÉ

Beaucoup d'employés des grandes entreprises du Nigéria courent un grand risque de contamination par le VIH surtout à cause des déplacements réguliers ou qui se font de temps en temps dus au travail, des relations sexuelles non suivies et de ne pas utiliser des préservatifs à chaquefois. Cette étude a fait une analyse des déterminants de l'utilisation des préservatifs de manière systématique chez 710 hommes ( $N = 617$ ) et femmes ( $N = 93$ ) qui sont sexuellement actifs et qui travaillent dans la brasserie du pays. Les résultats ont montré que 12% des employés utilisent des préservatifs systématiquement. Les hommes qui se servent des préservatifs à chaquefois qu'ils ont des rapports sexuels étaient plus souvent célibataires, ont subit 12 - 18 ans de scolarisation, étaient dans des postes moyennement placés sur l'échelon, ils considéraient des préservatifs comme un moyen de prévention contre la contamination par le VIH et ils pensaient que les préservatifs diminuent le plaisir sexuel. Les femmes qui utilisaient des préservatifs ont subit 7-12 ans de scolarisation. Il est nécessaire que les autorités de la brasserie puissent mettre en place des programmes/projets de sensibilisation à l'utilisation des préservatifs parmi les employés avec le but d'éviter la dissémination de l'infection par le VIH.

*Mots clés : l'utilisation des préservatifs, VIH/SIDA, le Nigéria.*

The prevalence of HIV in Nigeria, a country of about 115 million people (National Population Commission, 2000), has increased to epidemic proportions. The first cases of HIV infection were diagnosed in 1986, by 1995 the prevalence was 4.5%, in 1999 it rose to 5.4%, and reached 5.8% in 2001. The virus is mostly transmitted through heterosexual encounters, and is more widespread in urban than in rural areas (UNAIDS/WHO, 2001). The core transmitters are commercial sex workers and long-distance truck drivers, but the virus is also spread by sexually active people in the general population (Orubuloye,

Caldwell & Caldwell, 1992). As the prevalence of HIV and AIDS increases, there is an urgent need to prevent their spread to the productive workforce. In most African countries where the epidemic is explosive, the pandemic also affects the employees of large organisations (Mayala, Minlangu, Nzila, Mama, Jingu, Munddele, *et al.*, 2001).

Several factors suggest that there is a realistic danger of HIV spreading to employees in Nigeria, as many of them encounter the risks of infection. Firstly, most productive economic organisations in the country are

**Adegbenga Sunmola** is Senior Lecturer at the Department of Psychology, University of Ibadan. He has deep interest in the prevention of HIV/AIDS in African communities. He has recently developed a method for measuring the barriers to condom use in Nigeria.

*Correspondence to: Adegbenga M Sunmola, Department of Psychology, University of Ibadan, Ibadan, Nigeria. e-mail:gsunmola@skannet.com*

## Factors associated with consistent condom use by employees in the brewery industry in Nigeria

in the urban areas where there is increasing HIV prevalence. Secondly, many employees are routinely on job transfers (to other job locations in other communities within and outside the country) thus spending many days away from home, with the likelihood of sexual relationships (at their destination or transit points) with casual partners whose HIV serostatus is unknown. This is consistent with the observation in the African region that people in mobile occupational groups such as long-distance truck drivers and military personnel have among the highest infection rates (Quinn, 1996). Finally, young adults constitute the majority of employees. This category is usually sexually active in Nigeria, with the tendency for multiple sexual partners and other HIV risk practices (Amazigo, Silva, Kaufman, & Obikeze, 1997). The major negative effects of HIV spread to employees are reduction in productivity due to employee absenteeism, voluntary resignations and deaths. The country's GDP is likely to dwindle and its fragile economy, that is just improving due to the country's recent democratic transition, may again deteriorate.

The prevention of HIV spread through promotion of condom use has been a major thrust of transmission control efforts in the country (Iwuagwu, Ajuwon & Olaseha, 2000). This is an appropriate strategy for employees, since the condom is an effective preventive sexual measure if correctly and consistently used (Van de Perre, Jacobs & Sprecher-Goldberger, 1987). There are several efforts underway to promote condom use among the country's sexually active populations, especially through education, information and skills-based training. In recent years, a few non-governmental organisations in the country have begun to attend to the reproductive needs of vulnerable and high-risk populations. These groups, particularly sex workers, long-distance drivers and itinerant female traders at motor parks, are often trained in correct use of condoms, assertiveness and communication skills to negotiate condom use (Fawole, Ajuwon, Osungbade & Faweya, 2003).

The condom use patterns of brewery employees in the country are not known. There are both theoretical and empirical reasons to investigate these, as many of the employees share similar characteristics with the mobile populations. Since they work in a brewery they are likely to have access to free use of alcohol. In addition, as many of them regularly go on job transfers, there is a tendency for them to engage in

multiple sexual relationships with casual partners and commercial sex workers. Alcohol use before sexual episodes increases the likelihood of engaging in unsafe sex, especially due to its disinhibitory effects (Plant, 1990). Because of high infection rates and large numbers of sexual partners, mobile populations have been considered a core group who require consistent condom use to prevent HIV transmission (Hunt, 1989; Reiss & Leik, 1989)).

The Health Belief Model (Becker & Joseph, 1988) provides a theoretical framework for considering the determinants of protection (consistent condom use) against HIV infection. The model posits that the likelihood of consistent condom use is influenced by three factors. These are the perceptions of the threat of contracting HIV/AIDS, the benefits of altering behaviour to prevent HIV, and barriers to changing behaviour. Implicit in the model is a requirement to understand sexual practices that impede condom use, as well as the barriers to their use.

The overall aim of this study was to identify the predictors of consistent male latex condom use in a brewery employee population of men and women in Nigeria. The primary objective of the study was to investigate socio-demographic characteristics, HIV/AIDS-related sexual practices, and substance use variables that determine consistent condom use among employees.

### Methods

#### *Participants*

Participants were 1 996 men and women. We omitted 23.4% who had never used a condom from the data analysis as we were particularly interested in condom use in the 2 months before the survey. An additional 12.2% who had not used a condom at least once in the 2 months prior to the survey were omitted. The majority of them (68%) had used condoms for 7 months or longer before the survey. Many others (18%) could not remember when last they had used a condom. It was necessary to exclude this category of participants in order to enhance the accuracy of recall, especially as some of the responses required in the survey pertain to attention to details on barriers associated with condom use experience. Having to remember non-recent sexual encounters when condoms were used, may reduce the salience of barrier experiences, particularly on the recall of relevant previous communications with partners.

## Factors associated with consistent condom use by employees in the brewery industry in Nigeria

The final sample consisted of 710 sexually active women ( $N = 93$ ) and men ( $N = 617$ ) who had used a condom in the previous 2 months (see Table 1). The majority of the men were younger than 44 years (mean age = 33.3 years,  $SD = 7.3$ ), Christians (87%), married (63%), either from the Yoruba (36%) or Igbo ethnic group (36%), and had 7 - 18 years of schooling (81%). For the women, the majority younger than 40 years (mean age = 28.4,  $SD = 6.1$ ), single (52%), were Christians (91%), were from the Igbo ethnic group (50%), and had 13-18 years of schooling (65%).

**Table 1. PERCENTAGE DISTRIBUTION OF MEN AND WOMEN WHO HAD USED A CONDOM BY SELECTED BACKGROUND CHARACTERISTICS**

Characteristics	Men (N = 617)	Women (N = 93)
Age		
< 24	8.2	27.6
25 - 29	23	33.0
30 - 34	22.8	13.8
35 - 39	17.9	14.8
40 - 44	17.6	5.9
45 - 49	6.9	4.9
50 - 54	2.7	NA
> 54	0.7	NA
Marital status		
*Single	36.9	51.6
Married	63.1	48.4
Religious affiliation		
Catholic	28.8	30.3
Protestant	19.5	21.8
Other Christian	37.7	38.9
Muslim	11.8	6.2
Traditional	2.2	2.8
Ethnicity		
Yoruba	35.5	26.7
Igbo	35.7	50.0
Hausa/Fulani	3.9	15.7
Edo/Delta	9.5	4.3
Ibibio/Efik	6.3	3.3
Tiv/Idoma	8.8	NA
Formal education (years)		
1 - 6	8.5	3.2
7 - 12	36.5	25.8
13 - 18	44.1	64.5
> 18	10.5	6.5

\*Single participants included never married, widowed and divorced.

### Instrument

**Demographics.** Participants were asked their gender, age, marital status, religion, frequency of listening to the radio in the previous 2 months, number of years of education, ethnicity, work department, years of work with the organisation, and job status.

**Sexual practices.** We measured consistency of condom use in sexual relationships in the previous two months, by asking (yes/no) if condoms had been used (initiated by the men and women participants themselves, or by their partners) in all sexual episodes in the 2 months preceding the survey. A time period not exceeding 2 months has been shown to increase recall of sexual experiences among Africans (Kamenga, Ryder, Jingu, Bbuyi, Mbu, Behets, *et al.*, 1991). Participants were also asked how many sexual partners they had outside their marital relationships, and how many sexual partners they had if they were single. We determined whether participants had engaged in commercial sex in the previous 2 months by asking them to report if (yes/no) they had received or paid money for sex in the period. A previous large-scale Nigerian demographic and health countrywide survey had reliably measured experience of commercial sex transactions indirectly through asking participants if they had received or paid for sex in a given time period (National Population Commission, 2000). To assess the frequency of participants' sexual relations with casual partners met during official transfers outside job locations, we asked them to indicate if (yes/no) they had been on such transfer in the previous 2 months. If affirmative, we enquired if they had had sexual relations with a casual friend met during the trip, and the frequency of sexual relations in such casual encounters during the time period, with response options of: always (consistent), frequently, sometimes, not at all. The survey also assessed the source from which participants usually obtained condoms, their perception of the adequacy of condoms to prevent HIV/AIDS, and if they perceived themselves to be susceptible to contract HIV in sexual relationships without condom use. Lastly, intention to use a condom was assessed by asking if participants (Yes/No) intended to use a condom in their next sexual encounter.

**Substance use.** We assessed alcohol, marijuana, local herbal preparations to enhance sexual energy, and crack cocaine use over the period of 2 months. First, participants reported whether they had used the substance in the period using a yes/no response format. Second, participants reported the frequency (using not at all, sometimes, most times, and always format) of use prior to engaging in sexual intercourse. Assessing substance use in relation to sexual activity provides a more precise assessment of the link between these two behaviour types than does an

## Factors associated with consistent condom use by employees in the brewery industry in Nigeria

assessment of global substance use over a given time period (Leigh & Stall, 1993).

Regarding reliability, all the previously described variables were designed, pre-tested, subsequently amended and adopted for use in the study. Kappa reliabilities on the questionnaire items ranged from 0.71 to 0.93. Because the questionnaire did not yield a total score, reliability of the summed score could not be assessed.

**Condom use barriers.** Participants completed a 22-item scale measure of barriers to condom use, which was found to predict condom use barriers among young heterosexual women and men in Nigeria (Sunmola, 2001). The scale measures the tendency of participants to report that they experience obstacles that impede them from using condoms. The scale has three factor dimensions: condom sexual satisfaction barriers, condom health hazard barriers, and condom sexual interest barriers. The condom sexual satisfaction barriers dimension consists of 10 items that measure the tendency to report that condoms hinder sexual pleasure, urge, and satisfaction. The condom health hazard dimension assesses the tendency to report that condom use poses health problems. Finally, the condom sexual interest dimension measures the tendency to report that it is difficult to negotiate condom use with a partner, that condom use produces feeling of guilt, and that condoms are embarrassing to buy.

Each item was followed by a four-point response option format: [a] I have the experience all the time, [b] I have the experience often, [c] I have the experience once in a while, [d] I do not have the experience at all. A composite score was derived for each of the three dimensions by awarding individual participants values as follows: 3 points if an item was chosen as 'I have the experience all the time', 2 for 'I have the experience often', 1 for 'I have the experience once in a while' and 0 for 'I do not have the experience at all'. The internal reliability of the scale was high: Cronbach alpha coefficients were .86, .81, and .86 for condom satisfaction, health hazard, and sexual interest barriers respectively. Further analysis was conducted to examine the intercorrelations among the three subscales. There was some degree of intercorrelation among them. The correlation coefficients (range = 0.51 - 0.62,  $p < .05$ ) were considered as moderate in size, thus suggesting

discriminant validity. This indicates that each of the scales measured different aspects of the barriers, but the moderate correlation observed indicates that they have some overlapping characteristics in common.

### Procedures

In a consecutive sample design, all the company employees were approached through their heads of units and departments to participate in the survey by completing a self-administered anonymous questionnaire. It contained 160 structured questions and required an average of 20 minutes to complete. A total of 1 996 employees completed the questionnaire between October and November 2002. This represented about a 75% response rate. The high rate was due to co-operation of the company authorities who granted the researchers permission to enter and administer questionnaires in the company premises for the duration of the survey. Those who did not complete the survey mostly complained of inability to find time during the survey period to attend to the questionnaire. The employees who were in core production departments were most difficult to approach since they were not ready to interrupt production processes to complete the questionnaire. The research officers had to frequently wait around until their relaxation periods to ask them to complete the questionnaire.

### Data analysis

Data were analysed using the Statistical Package for the Social Sciences, version 10 (SPSS, Inc., Chicago, Illinois, USA). The participants were grouped based on whether they were women or men, since it was possible for consistent condom use to be different in these two categories. For categorical variables, differences were tested using contingency table chi-square tests. On continuous measures groups were compared using the  $t$  and  $F$  tests. To increase the barriers experience response accuracy, only participants who had used a condom in the previous 2 months were included in the analyses of condom use barriers. All  $p$  values were two-tailed and a  $p$  value of .05 was considered statistically significant.

At the multivariate level, stepwise logistic regression analysis was used to measure the net effect of the predictors (demographic characteristics, sexual practices, substance use and condom use barriers) on consistent condom use (dichotomous dependent variable). Variables entered in multivariate models

## Factors associated with consistent condom use by employees in the brewery industry in Nigeria

included those found to be significant in previous bivariate analyses or observed to be vital potential confounders based on biological or behavioural inference (Martins, Page-Shafer, Barros, Hudes, Chen & Hearst, 1999). To assess the independent associations of these variables with consistent condom use, multivariate models were evaluated using backward stepwise logistic regression. Only those variables associated with the outcome at  $p < .08$  in bivariate analysis were included in the regression model.

### Results

Of the 710 sexually active participants who had used a condom in the previous 2 months, only 12% of the participants had used a condom consistently and 88% had not used one in all sexual encounters during the period. Twenty per cent of the individuals who did not consistently use condoms were in extramarital relationships, while 39% of those who did not use them in all sexual encounters were in non-marital relationships with two or more sex partners. Having recently had an extramarital relationship or multiple sexual partners was not related to consistent condom use ( $p > .1$ ). Among men who had not consistently used a condom, 8% indicated that they had had sexually transmitted infections (STIs) such as syphilis and gonorrhoea in the previous 12 months, while 3% indicated they had been diagnosed with AIDS. For women, 3% reported they had been diagnosed with STIs, but none with HIV/AIDS. Having STIs or AIDS was not related to consistent condom use for men or women ( $p > .05$ ).

#### *Demographic characteristics and consistent condom use*

Thirty-five per cent of men who were aged 19 – 34 years reported that they consistently used a condom compared with 17% of those aged 35 – 54 years ( $p < .01$ ). Similarly, 25% of women who were aged 34 years and below reported that they used a condom consistently compared with 12% of women aged 35 – 49 years ( $p > .1$ ). Condoms were reportedly used in all sexual encounters by 37% of unmarried men and 17% of married men ( $p < .05$ ). Only 10% of men who were from the Hausa/Fulani ethnic group indicated that they consistently used a condom compared with 35% from the Edo/Delta ethnic background ( $p < .01$ ). Likewise, 41% of men who were working as intermediate level staff reported that they consistently used a condom compared with 22% of junior level workers ( $p < .05$ ), and 27% of senior level staff ( $p < .05$ ). Both men and women who had

more years of education were more likely to disclose that they used a condom consistently than those with fewer years of education. Specifically, 29% of men who had 13 – 18 years of education mentioned that they always used a condom compared with 11% of those with 1 – 6 years of education ( $p < .05$ ). Similarly, 13% of women who had 7 – 12 years of education indicated that they consistently used a condom while 3% of women with 1 – 6 years of education reported this ( $p < .05$ ) (see Table 2).

**Table 2. PERCENTAGE DISTRIBUTION OF MEN AND WOMEN WHO HAD CONSISTENTLY USED A CONDOM IN THE PREVIOUS 2 MONTHS BY SOCIO-DEMOGRAPHIC CHARACTERISTICS**

Characteristics	Men (N = 617)	Women (N = 93)
Age		
<24	28.9**	25
25 - 29	38.6	20
30 - 34	27.4	25
35 - 39	17.2	16.5
40 - 44	17.5	12.4
45 - 49	18.4	10.5
50 - 54	6.3	NA
> 54	NA	NA
Marital status		
Single	37.3*	8.4
Married	16.8	6.7
Religious affiliation		
Catholic	25	10
Protestant	27.9	12.5
Other Christian	25	7.7
Muslim	18.9	10.5
Traditional	14.3	11.4
Ethnicity		
Yoruba	19.4**	17.5
Igbo	26.0	13.7
Hausa/Fulani	9.5	10
Edo/Delta	35.3	18.1
Ibibio/Efik	20.0	11.7
Tiv/Idoma	24	NA
Formal education (years)		
1 - 6	11.1*	3.0*
7 - 12	19.7	12.6
13-18	28.6	9.0
> 18	26.7	9.3

\* $p < .05$ , \*\* $p < .01$ .  
Single participants included never married, widowed and divorced.

#### *Sexual practices and consistent condom use*

Participants reported various sources from which they obtained condoms, with a chemist most often reported by both men and women — 28% of men and 11% of women stated that they obtained condoms from a chemist. Thirty-two per cent of men who

## Factors associated with consistent condom use by employees in the brewery industry in Nigeria

mentioned that they obtained condoms from a chemist consistently used a condom, compared with 17% of men who indicated that they got condoms from a friend, and 19% who claimed that they got condoms from the company where they worked ( $p < .01$ ). The majority of men (57%) and 32% of women reported that they intended to use a condom in their next sexual encounter. Twenty-eight per cent of men who expressed the intention reported that they consistently used condoms, compared with 6% of men who were unwilling to use a condom in their next sexual relationship ( $p < .0001$ ).

Both men and women who reported that they engaged in commercial sex were not likely to be more consistent in using condoms than those who did not report this. Twenty-three per cent of men who indicated that they did not engage in commercial sex consistently used condoms, compared with 19% of men who reported that they engaged in commercial sex ( $p > .1$ , *ns*). Likewise, 9% of women who indicated that they engaged in commercial sex did not consistently use a condom, compared with 11% of women who reported that they did not engage in commercial sex ( $p > .1$ , *ns*). Although 20% of men and 12% of women reported that they had two or more sexual partners, there was no significant association between number of sexual partners (extramarital or non-marital sex) and consistent condom use. The majority of men and women perceived that they were susceptible to contract HIV in a sexual affair when they did not use a condom. Twenty-six per cent of men who perceived that they were susceptible reported consistent condom use, compared with 12% of men who did not think they were susceptible ( $p < .05$ ). Occasional or frequent casual sex during job transfers was reported by 17% of men, and 10% of women. Having recently had casual sex during job transfers was not related to consistent condom use for either men or women: 23% of men who had such sexual encounters reported consistent condom use,

compared with 21% of men who did not report such encounters ( $p > .1$ ); 20% of women who reported casual sexual encounters consistently used a condom, compared with 15% who did not report such encounters ( $p > .1$ ).

### Substance use and consistent condom use

Both men and women reported the use of only alcohol and local decoctions prior to sex. Thirty-seven per cent of men reported alcohol use, and 14% of men mentioned that they used local decoctions. For women 17% indicated they used alcohol, while 13% reported the use of local decoctions. There were no significant relationships between alcohol or local decoction use prior to sex and consistent condom use.

### Barriers to condom use and consistent use of condoms

Results of separate mean comparisons of the scores of men and women on each of the three sub-scales of barriers to condom use showed that the strongest condom use barrier reported by men was that condoms hindered sexual satisfaction (factor 1; mean = 8.03, SD = 4.26), followed by the claim that condoms reduced sexual interest (factor 3; mean = 2.50, SD = 1.37), and lastly that condoms caused health problems (factor 2; mean = 1.74, SD = 2.95). More men who mentioned that they did not use a condom consistently in their sexual encounters reported that condoms hindered their sexual satisfaction (mean = 7.9, SD = 6.1) than those who consistently used condoms (mean = 5.4, SD = 4.2,  $p < .01$ ). Similarly for women, the strongest barrier to condom use was that condoms hindered sexual satisfaction (factor 1; mean = 5.69, SD = 4.06), followed by reports that condoms reduced sexual interest (factor 3; mean = 2.09, SD = 1.76), and lastly that condoms caused health problems (factor 2; mean = 1.21, SD = 1.19). There was no significant mean difference in consistent condom use for any of the barrier factors (see Table 3).

**Table 3. MEANS (STANDARD DEVIATIONS) OF FACTOR DIMENSIONS OF CONDOM USE BARRIERS SUB-SCALES AMONG MEN AND WOMEN**

N/S	Factor	Men Mean (SD) n = 617	Women Mean (SD) n = 93
1	Condoms hinder sexual satisfaction	8.0 (4.2)	5.6 (4.0)
2	Condoms cause health problems	1.7 (2.9)	1.2 (1.1)
3	Condoms reduce sexual interest	2.5 (1.3)	2.0 (1.7)

## Factors associated with consistent condom use by employees in the brewery industry in Nigeria

Logistic regression analysis of factors associated with consistent condom use was computed separately for men and women. We analysed whether the models converged, given that there were several predictors entered into the equation, particularly as the sample size for the women was small. The models converged at iteration 9 and 11 for men and women respectively. This showed that the regression coefficients were reliable estimates.

For men, the results of the analysis showed that consistent condom use had a significant relation with being single (odds ratio [OR] = 2.3 (95% confidence interval [CI] = 1.3 - 3.6), having 13 - 18 years of schooling (OR = 3.38 (95% CI = 1.7 - 13.4)), working as intermediate level staff (OR = 4.20 (95% CI = 2.1 - 16.3)), thinking condoms were useful to prevent HIV infection (OR = 2.1 (95% CI = 1.1 - 3.3)), and perceiving that condoms hinder sexual satisfaction (OR = 2.7 (95% CI = 1.8 - 10.4). For females, the results of the analysis showed that consistent condom use had a significant relation only with having 7-12 years of schooling (OR = 2.2 (95% CI = 1.1 - 3.6) (see Table 4).

**Table 4. MULTIVARIATE LOGISTIC REGRESSION MODEL: FACTORS INDEPENDENTLY ASSOCIATED WITH CONSISTENT CONDOM USE AMONG MEN AND WOMEN BREWERY EMPLOYEES IN NIGERIA**

Variables	OR	95% CI
<b>Men</b>		
Being single	2.3	1.3 - 3.6
Having 13 - 18 years of schooling	3.3	1.7 - 13.4
Working as intermediate level staff	4.2	2.1 - 16.3
Think condoms prevent contracting HIV	2.1	1.1 - 3.3
Perceive condoms to hinder sexual satisfaction	2.7	1.8 - 10.4
<b>Women</b>		
Having 7 - 12 years of schooling	2.2	1.1 - 3.6

### Discussion

The current study analysed the relationship between demographic, perceptual and behavioural variables associated with consistent condom use among brewery employees in Nigeria. For both men and women, the number of years of schooling played a major role in consistent condom use. Having secondary and post-secondary education appeared to facilitate understanding of the role of condom use in HIV/AIDS prevention, and the application of this knowledge in sexual encounters. Previous research in sub-Saharan Africa also identified education as a major

determinant of condom use (Agha, 1998). For men, marital status also predicted consistent condom use. Single men were more likely to consistently use a condom than their married counterparts. Married men in Nigeria are most often in stable monogamous or polygynous relationships where condoms are infrequently used (Messersmith, Kane, Odebiyi & Adewuyi, 2000). The current findings also showed that job position of men significantly predicted their consistent condom use. Men who were intermediate level staff consistently used a condom as opposed to other categories of staff. The finding appears to be associated with level of education and marital status. Those who were in the intermediate level staff rank of large organisations also tended to have higher educational experience than junior level workers. The intermediate level staff were also more likely to be single than those who were senior level staff. Another finding indicated that the perception of condoms as useful for prevention of HIV significantly predicted consistent condom use for men. Men who perceived condoms as useful were more likely to use a condom consistently. Similarly, it was found that men who perceived condoms as hindering sexual satisfaction were less likely to use a condom consistently. Previous studies in sub-Saharan Africa showed that when participants expressed dislike for condoms and perceived that they reduced sexual satisfaction they were less likely to use a condom (Mnyinka, Kvale & Kleep, 1995; Adih & Alexander, 1999).

In conclusion, it is thus appropriate for the country's brewery authorities to develop condom use intervention programmes to enhance consistent use of condoms for their employees, in the light of increasing HIV risk practices of casual sex and multiple sex partners. Educational programmes should be established to improve employees' knowledge of the efficacy of condoms. Counselling programmes should also be established to identify and reduce the barriers for men who perceive condoms as hindering sexual pleasure. The study findings identified various differences between men and women who consistently used condoms and those who did not. While the study sample comprised of participants from diverse demographic backgrounds, the findings appeared appropriate to be generalised to other categories of mobile employees. But the findings cannot readily be generalised to employees outside the brewery industry, especially those with less risk for HIV infection. Future studies are needed in the

## Factors associated with consistent condom use by employees in the brewery industry in Nigeria

country to identify the determinants of consistent condom use among persons in organisations that are distinctly different from the brewery industry.

### References

- Adih, W.K. & Alexander, C. S. (1999). Determinants of condom use to prevent HIV infection among youth in Ghana. *Journal of Adolescent Health*, 24, 63-72.
- Agha, S. (1998). Sexual activity and condom use in Lusaka, Zambia. *International Family Planning Perspectives*, 24, 32-37.
- Amazigo, U., Silva, N., Kaufman, J. & Obikeze, D. (1997). Sexual activity and contraceptive knowledge and use among in-school adolescents in Nigeria. *International Family Planning Perspectives*, 23, 28-33.
- Becker, M. & Joseph, J. (1988). AIDS and behavioural change to reduce risk: a review. *American Journal of Public Health*, 78, 394-410.
- Fawole, O.I., Ajuwon, A.J., Osungbade, K. O. & Faweya, O. C. (2003). Interventions for violence prevention among young female hawkers in motor parks in south-western Nigeria: A review of effectiveness. *African Journal of Reproductive Health*, 7, 71-82.
- Hunt, C.W. (1989). Migrant labor and sexually transmitted diseases: AIDS in Africa. *Journal of Health and Social Behaviour*, 30, 353-373.
- Iwuagwu, S.C., Ajuwon, A.J. & Olaseha, I.O. (2000). Sexual behaviour and negotiation of the male condom by female students of the University of Ibadan, Nigeria. *Journal of Obstetrics and Gynaecology*, 20, 507-513.
- Kamenga, M., Ryder, R., Jingu, M., Mbuyi, N., Mbu, L., Behets, F., Brown, C. & Heyward, W.L. (1991). Evidence of marked sexual behaviour change associated with low HIV-1 seroconversion in 149 married couples with discordant HIV-1 serostatus: Experience at an HIV counselling center in Zaire. *AIDS*, 5, 61-67.
- Leigh, B.C. & Stall, R. (1993). Substance use and risky sexual behaviour for exposure to HIV: Issues in methodology, interpretation, and prevention. *American Psychologist*, 48, 1035-1045.
- Martins, J.R., Page-Shafer, K., Barros, M.B., Hudes, E.S., Chen, S. & Hearst, N. (1999). Seroprevalence and risk factors for HIV infection among incarcerated men in Sorocaba, Brazil. *AIDS and Behavior*, 4, 122-128.
- Mayala, M., Minlangu, M., Nzila, N., Mama, A., Jingu, M., Mundele, L., Alingi, E. & Colebunders, R. (2001). Prevalence and incidence of HIV-1 infection among employees of a large textile business and their wives in Kinshasa, 1991-1996. *Review of Epidemiology*, 49, 117-124.
- Messersmith, L., Kane, T.T., Odebiyi, A.I. & Adewuyi, A. A. (2000). Who's at risk? Men's STD experience and condom use in southwest Nigeria. *Studies in Family Planning*, 31, 203-216.
- Mnyinka, K.S., Kvale, G. & Kleep, K. I. (1995). Perceived function of and barriers to condom use in Arusha and Kilimanjaro regions of Tanzania. *AIDS Care*, 7, 295-305.
- National Population Commission (2000). *Nigeria Demographic and Health Survey 1999*. Calverton Maryland: National Population Commission and ORC/Macro.
- Orubuloye, I.O., Caldwell, J.C. & Caldwell, P. (1992). Diffusion and focus in sexual networking: Identifying partners and partners' partners. *Studies in Family Planning*, 23, 343-351.
- Plant, M., ed. (1990). *AIDS, drugs, and prostitution*. London: Tavistock.
- Quinn, T.C. (1996). Global burden of the HIV/AIDS epidemic. *Lancet*, 348, 99-100.
- Reiss, I.L. & Leik, R.K. (1989). Evaluating strategies to avoid AIDS: Number of partners vs. use of condoms. *Journal of Sex Research*, 26, 411-433.
- Van de Perre, P., Jacobs, D. & Sprecher-Goldberger, S. (1987). The latex condom, an efficient barrier against sexual transmission of AIDS-related viruses. *AIDS*, 1, 49-52.
- Sunmola, A. M. (2001). Developing a scale for measuring the barriers to condom use in Nigeria. *Bulletin of the World Health Organization*, 79, 926-932.
- UNAIDS/WHO (2001). *AIDS Epidemic Update, December 2001*. UNAIDS/WHO, Geneva.