

*Full Length Research Paper*

# Knowledge of HIV/AIDS, risk perception, sexual lifestyle and condom use among drivers in Sokoto, Nigeria

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Reports from studies conducted among drivers in countries with high burden of human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) show very high prevalence of HIV infection in multiples of the national average. HIV risk perception has been identified as an important antecedent for one's adoption of protective behavior against contracting the disease. This study was conducted to assess the knowledge of HIV/AIDS, risk perception, sexual lifestyle and condom use among drivers in Sokoto, Nigeria. A cross-sectional survey was conducted among 264 randomly selected drivers in March, 2011 using pre-tested, interviewer administered, semi-structured questionnaire. Data analysis was done using computer software, SPSS version 17. Awareness of HIV/AIDS was high (93.9%), and majority had adequate knowledge of transmission (83.3%) and prevention (84.9%) of HIV infection. Only a few (12.9%) perceived the disease to be a threat to them. Twenty seven (10.9%) had engaged in casual sex in the past 12 months and the determinants included age below 40 years (OR = 2.119, 95% CI = 0.006 to 0.175) and being single, separated or divorced (OR = 2.848, 95% CI = 0.055 to 0.304). Although consistent use of condom was low (19.7%), it was twice as prevalent among respondents that had casual sex in the past 12 months (44.4%) compared to those that did not (18.1%),  $\chi^2 = 10.077$ ,  $p = 0.002$ . This study demonstrated poor HIV/AIDS risk perception, unsafe sexual practices and poor condom use among drivers in Sokoto despite adequate knowledge of the disease. The findings in this study suggest the need for intensification of mass media campaigns and other public health measures aimed at discouraging unsafe sexual practices, stimulating appropriate risk perception and promoting consistent use of condom.

**Key words:** Knowledge, human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS), risk perception, sexual lifestyle, condom use.

## INTRODUCTION

Despite all efforts aimed at controlling the dreaded acquired immune deficiency syndrome (AIDS) caused by the human immunodeficiency virus (HIV), its burden remains high in Nigeria with 3.3 million people living with

the disease and 220,000 deaths from it in 2009. Nigeria therefore had both the second highest number of people living with HIV/AIDS and second highest number of deaths from HIV/AIDS in the world in 2009 after South

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Africa (Central Intelligence Agency (CIA), 2009). About 80% of HIV infection in Nigeria was estimated to be due to heterosexual relationship, and transport workers (especially drivers) together with other groups that included men who have sex with men (MSM), injection drug users (IDUs), members of the armed forces (and their partners) were estimated to account for 40% of new HIV infections in Nigeria (Federal Ministry of Health (FMoH), 2012; Joint United Nations Programme on HIV/AIDS (UNAIDS), 2012). Several HIV/AIDS related behavior and social studies had identified drivers as an important HIV/AIDS occupational risk group. It was observed in these studies that drivers were constantly away from home because of their occupational itinerary, where they become vulnerable to non-marital sex, extramarital sex and sexual intercourse with female sex workers; all in an HIV/AIDS high risk cycle of overlapping sexual partnerships and large sexual networks (Dude et al., 2009; Ramjee and Gouws, 2002).

Reports from studies conducted among drivers in countries with high burden of HIV/AIDS show very high prevalence of HIV infection in multiples of the national average. A survey among truck drivers in South Africa by Delany-Moretiwe et al. (2013) reported an HIV prevalence of 26% compared to the National average of 12.2% (Shisana et al., 2014) and HIV infection was found to be associated with spending 2 to 4 weeks on the road (adjusted OR = 1.4; 95% CI = 1.1 to 1.9). A similar study by Azuonwu et al. (2011) among long distance drivers in Nigeria reported an HIV prevalence of 10% compared to the national average of 3.1% (CIA, 2012).

In a report by the World Bank Group (2013), the transport sector was identified as a social vector in the transmission of HIV/AIDS similar to other high risk behaviors such as injecting drug use and commercial sex which fuel the epidemic. Truck drivers were found to constitute 70% of clients of commercial sex workers, twice as likely to acquire HIV infection compared to workers in low risk occupations, and serve as bridge populations linking the general populations (World Bank, 2013). Knowledge of HIV/AIDS transmission is essential for a person to make an informed decision about engaging in, or continuing certain behaviours that may increase or disease risk of infection. Eventhough knowledge alone is insufficient, it is assumed to be a key component of behavioural change decision making, in addition to providing cues for action. Estimating the level of knowledge of HIV/AIDS transmission among groups at risk is crucial in guiding public health programs, especially those directed towards reducing the transmission of the disease. Reports from studies show that eventhough awareness and knowledge of some aspects of HIV/AIDS transmission was high among drivers, they lack adequate knowledge of transmission and prevention of the disease (Salam et al., 2001; Chaturvedi et al., 2006), this could influence their HIV/AIDS related risk perception and behaviours.

HIV risk perception has been identified as an important antecedent for one's adoption of protective behavior against contracting the disease (Macintyre et al., 2004). Available evidence also shows that knowledge alone is not enough pertaining to HIV/AIDS prevention. Studies among groups with adequate knowledge of HIV/AIDS in Enugu (Onah et al., 2004) and Ibadan (Ogbuji, 2005) have identified gaps between knowledge of the disease and risk behaviours related to it. This lend credence to the fact that people could act contrary to their knowledge in certain situations such as; need to satisfy sexual urge, meet up with socio-economic needs, and under the influence of drugs. The effectiveness of consistent use of condom in preventing transmission of HIV infection in situations where unsafe sex becomes inevitable has been demonstrated in several studies (Joint United Nations Programme on HIV/AIDS (UNAIDS), 2004).

Studies across Nigeria show wide variations in the knowledge of HIV/AIDS transmission and prevention, risk perception and condom use among drivers. A study by Sunmola (2005) reported low level (9%) of consistent condom use among long-distance truck drivers intercepted along some highways in Nigeria despite high knowledge (70%) of condom's HIV/AIDS preventive properties. Another study by Ekanem et al. (2005) among intra-city commercial bus drivers and motor park attendants in Lagos, reported that, while 96.4% had proper perception of being at risk of HIV/AIDS infection, 74.3% still engaged in high risk sexual practices and only 11.6% consistently used condom during sex with casual partners. It is therefore necessary to determine the pattern of knowledge and practices related to HIV/AIDS among this high risk group in Sokoto. This study was conducted to assess the knowledge of HIV/AIDS, risk perception, sexual lifestyle and condom use among drivers in Sokoto, Nigeria.

## MATERIALS AND METHODS

This cross-sectional descriptive study was carried out among drivers in Sokoto, Sokoto State, North-Western Nigeria, in March, 2011. The drivers are members of the National Union of Road Transport Workers (NURTW), affiliated to the Nigeria Labour Congress (NLC). Advocacy visits were paid to the Executives of the Sokoto State Chapter of NURTW, the purpose of the study was explained to them, following which permission to carry out the study was granted. The sample size was estimated at 266, using the statistical formula for calculating the sample size for descriptive studies (Araoye, 2004), prevalence of adequate knowledge of HIV/AIDS in North-Western Nigeria of 20.7% from a previous national survey (National Population Commission (NPC) and ICF Macro, 2009), precision level of 5% and an anticipated response rate of 95%. All those that have worked as drivers for a minimum of 1 year were considered eligible. Drivers of consecutive vehicles on the line as they take their cue to load passengers in the randomly selected sub-stations (designated according to the final destination of the vehicles) in 7 out of the 8 motor parks in Sokoto metropolis were enrolled into the study.

A set of pretested, semi-structured, interviewer administered questionnaire was used to obtain information on respondent's

sociodemographic characteristics, knowledge of causative agent, transmission and prevention of HIV/AIDS, risk perception, respondent's sexual lifestyle and condom use. The questionnaire was adapted from the survey tool used for the 2007 National HIV/AIDS and Reproductive Health Survey (FMOH, 2008). The questionnaire was pretested among 15 drivers at Tashan-Kura motor-park, Sokoto; appropriate modification was made based on the observations made during the pretest. Four nurses assisted in questionnaire administration after pre-training on conduct of survey research, the objectives, selection of study subjects and questionnaire administration. Institutional ethical clearance was sought from the Ethical committee of Specialist Hospital Sokoto, and informed written consent was also obtained from the participants before data collection.

Data was analyzed using SPSS version 17 computer statistical software package. Knowledge of HIV transmission was scored on an 8 item scale, while a 6 item scale was used in scoring knowledge of HIV prevention. Correct response was scored one and incorrect response or non-response was scored zero. Respondents scoring less than 60% were considered to have inadequate knowledge while those with scores of 60% and above were graded as having adequate knowledge. Descriptive statistics and Chi-square test were done to explore associations between demographic characteristics, adequate knowledge of HIV/AIDS, risky sexual lifestyle and consistent use of condom. Logistic regression analysis was used to determine the variables that predict adequate knowledge of HIV/AIDS, risky sexual practices and consistent use of condom. All levels of significance were set at  $p < 0.05$ .

## RESULTS

Two hundred and sixty four drivers completed the questionnaire giving a response rate of 99.2%. All the respondents were males, aged 20 to 70 years (Mean = 44.12, Standard deviation (SD) = 10.14) with a larger proportion (38.6%) in the 40 to 49 years age group. Majority (91.3%) were married, more than a third either did not have Western education (38.3%) or had primary education (39.0%), while about a fifth (22.7%) had secondary education and above. Islam was the most predominant religion (89.4%), although their duration of service ranged from 1 to 45 years (Mean = 20.78, SD = 8.80), majority (73.5%) have driven commercial vehicles for 11 to 30 years (Table 1).

### Knowledge of HIV/AIDS

Majority, 248 (93.9%) of the 264 respondents have ever heard of HIV/AIDS, and barely a third, 103 (39.0%) knew that the disease could be asymptomatic. The main sources of information were radio/television (45.2%), health workers (29.4%) and friends/relatives (20.2%). Only a few reported newspaper/magazine (4.4%) and church/mosque (0.8%) as sources of information on HIV/AIDS. Two hundred and twenty (83.3%) of the 264 respondent had adequate knowledge of HIV transmission. The proportion of participants with adequate knowledge of HIV transmission was statistically significantly higher ( $\chi^2 = 5.591$ ,  $p = 0.011$ ) among

respondents with secondary education and above (93.3%) than those with primary education and below (80.4%). There was no association between adequate knowledge of HIV transmission and the other socio-demographic variables. Majority of the respondents knew the disease to be transmissible through sexual intercourse (95.2%), transfusion with an infected blood (96.0%), from an infected mother to her unborn child (82.3%), sharing sharp objects like needles (91.5%) and from the breast milk of an infected mother to her baby (79.0%). Most of the respondents rejected the misconceptions of the disease being transmissible through sharing food with an infected person (78.2%), mosquito bite (58.9%) and spiritual attack (59.3%) as shown in Table 2.

Two hundred and twenty four (84.9%) had adequate knowledge of HIV prevention. The proportion of respondents with adequate knowledge of HIV prevention increased progressively and statistically significantly ( $\chi^2 = 13.142$ ,  $p = 0.009$ ) from 75.2% among respondent with no Western education, 88.3% among respondents with primary education, 94.5% among respondents with secondary education, to 100% among respondents with tertiary education. There was no association between adequate knowledge of HIV prevention and the other socio-demographic variables. Majority of the respondents knew abstaining from sex (91.9%), limiting sexual intercourse to one faithful HIV negative partner (92.3%), consistent use of condom (85.1%), avoiding sharing sharp objects like syringes (93.5%), treating an HIV positive mother during pregnancy (82.3%) and feeding an HIV positive mother's baby with substitute milk (76.2%) as ways of preventing HIV infection (Table 3).

### Respondents' HIV/AIDS risk perception and sexual lifestyle

HIV/AIDS risk perception was very poor among the respondents, only 34 (12.9%) of the 264 respondents considered the disease to be a serious threat to them. All the 34 respondents that considered the disease to be a serious threat to them were from the 248 respondents that were aware of the disease, and this constitutes 13.7% of the subgroup of respondents that were aware of the disease. Twenty seven (10.9%) of the 264 respondents had engaged in casual sex in the past 12 months ranging from once to twenty four times (mean = 5.9, SD = 5.9). Almost half 12 (44.4%) of the 27 respondents that had engaged in casual sex in the past 12 months reported doing so while drunk. Prevalence of casual sex in the past 12 months increased progressively and statistically significantly from 8.4% among respondents that were married, 33.3% among respondents that were separated, to 41.2% among respondents that were single ( $\chi^2 = 19.238$ ,  $p < 0.001$ ). On the contrary, prevalence of casual sex in the past 12 months decreased progressively (although not statis-

**Table 1.** Socio-demographic profile of respondents.

Socio-demographic variables (N = 264)	Frequency (%)
<b>Age groups (in years)</b>	
20-29	11 (4.2)
30-39	72 (27.3)
40-49	102 (38.6)
50-59	52 (19.7)
60 and above	27 (10.2)
<b>Marital status</b>	
Single	19 (7.2)
Married	241 (91.3)
Separated	3 (1.1)
Divorced	1 (0.4)
<b>Western education</b>	
None	101 (38.3)
Primary	103 (39.0)
Secondary	55 (20.8)
Tertiary	5 (1.9)
<b>Religion</b>	
Islam	236 (89.4)
Christianity	28 (10.6)
<b>Duration of service (in years)</b>	
1-10	35 (13.3)
11-20	122 (46.2)
21-30	72 (27.3)
31 and above	35 (13.3)

tically significant) from 18.2% among respondents in their 20s, 16.7% among respondents in their 30s, 12.9% among respondents in their 40s, 3.8% among respondents in their 50s, to 0% among respondents aged 60 years and above ( $\chi^2 = 9.099$ ,  $p = 0.059$ ). In logistic regression models, the predictors of casual sex in the past 12 months included age below 40 years (OR = 2.119, 95% CI = 0.006 to 0.175) and being single, separated or divorced (OR = 2.848, 95% CI = 0.055 to 0.304) as shown in Table 4.

### Condom use among respondents

Knowledge of condom source was poor among the respondents, barely a third 96 (36.4%) of the 264 respondents knew where to obtain a condom. These comprised of 94 (37.9%) of the 248 respondents that were aware, and 2 (12.5%) of the 16 respondents that were unaware of HIV/AIDS, and the difference was

statistically significant ( $\chi^2 = 4.192$ ,  $p = 0.032$ ). Consistent use of condom was very low among the respondents, only 52 (19.7%) of the 264 respondents reported consistent use of condom despite the fact that 195 (73.9%) believed that consistent condom use can reduce the risk of HIV/AIDS transmission, and 230 (87.1%) were in support of condom education. However, consistent use of condom was high among respondents that had engaged in casual sex in the past 12 months. Majority, 24 (88.9%) of the 27 respondents that had engaged in casual sex in the past 12 months reported consistent use of condom. Among the 52 respondents that reported consistent use of condom, less than half, 24 (46.2%) solely used it to prevent HIV and other sexually transmitted infections (STIs), 18 (34.6%) used it to prevent unwanted pregnancy, 7 (13.5%) used it to prevent both HIV/STIs and unwanted pregnancy, while 3 (5.8%) used it to prolong the matting period. The major reasons given for inconsistent use of condom included desire to have a baby (39.8%), religion being against condom use (33.2%), condom use wastes time (12.2%), engage in sexual intercourse only with partner (7.1%), reduction in enjoyment (4.1%) and opposition from partner (3.6%).

Consistent use of condom was statistically significantly twice as prevalent among respondents aged 40 years and below (25.9%) compared to respondents aged above 40 years (10.3%),  $\chi^2 = 7.878$ ,  $p = 0.004$ ; and twice as prevalent among respondents that perceived HIV/AIDS to be a threat to them (38.2%) compared to those that did not (18.2%),  $\chi^2 = 7.090$ ,  $p = 0.012$ . It was also statistically significantly twice as prevalent among respondents that believed that consistent use of condom can reduce the risk of HIV and other STIs (24.1%) compared to those that did not (9.4%),  $\chi^2 = 5.411$ ,  $p = 0.022$ ; five times more prevalent among respondents that had casual sex in the past 12 months (88.9%) compared to those that did not (18.1%),  $\chi^2 = 10.077$ ,  $p = 0.002$ ; and thrice as prevalent among respondents that knew where to obtain condom (34.0%) compared to those without knowledge of condom source (13.0%),  $\chi^2 = 15.616$ ,  $p < 0.001$ .

In logistic regression models, age 40 and below (OR = 2.120, 95% CI = 0.008 to 0.224), perception of HIV/AIDS as a threat (OR = 2.213, 95% CI = 0.019 to 0.322), and knowledge of where to obtain condom (OR = 3.216, 95% CI = 0.070 to 0.292) were the predictors of consistent use of condom as shown in Table 5.

### DISCUSSION

Awareness of HIV/AIDS was high (93.9%) among the respondents in this study, most of them also demonstrated adequate knowledge of HIV transmission (83.3%) and prevention (84.9%). There was a statistically significant association between education level of respondents and adequate knowledge of HIV transmission

**Table 2.** Knowledge of HIV transmission.

Can HIV be transmitted through the following ways?	Response		
	Yes [No(%)]	No (%)	I don't know [No(%)]
Sexual intercourse with an infected person	236 (95.2)	2 (0.8)	10 (4.0)
Transfusion with an infected blood	238 (96.0)	4 (1.6)	6 (2.4)
From an infected mother to unborn child	204 (82.3)	11 (4.4)	33 (13.3)
Sharing sharp objects like razor and needles	227 (91.5)	8 (3.2)	13 (5.2)
Breast feeding by an infected mother	196 (79.0)	16 (6.5)	36 (14.5)
Sharing food with an infected person	21 (8.5)	194 (78.2)	33 (11.3)
Through mosquito bite	46 (18.5)	146 (58.9)	56 (22.6)
Through spiritual attack	30 (12.1)	147 (59.3)	71 (28.6)

**Table 3.** Knowledge of HIV prevention.

Can HIV be prevented through the following ways?	Response		
	Yes [No (%)]	No (%)	I don't know [No(%)]
By abstaining from sex	228 (91.9)	8 (3.2)	12 (4.8)
By limiting sexual intercourse to only one HIV negative partner	229 (92.3)	3 (1.2)	16 (6.5)
Consistent use of condom	211 (85.1)	9 (3.6)	28 (11.3)
Avoid sharing of sharp objects such as razor and needle	232 (93.5)	3 (1.2)	13 (5.2)
By treating an HIV positive mother during pregnancy	204 (82.3)	4 (1.6)	40 (16.1)
By feeding an HIV positive mother's baby with substitute milk	189 (76.2)	13 (5.2)	46 (18.5)

and prevention. This is in agreement with the findings in studies conducted in Botswana (Fako et al., 2010) and Ghana (Agyemang et al., 2012) that reported education level as a predictor of adequate knowledge of HIV/AIDS. Majority of the respondents obtained information on HIV/AIDS through radio and television (45.2%), other important sources of information on the disease included health workers (29.4%) and friends/relatives (20.2%). Only 4.4% of the respondents obtained information on HIV/AIDS through newspaper/magazines, this could be due to the fact that most of them (77.3%) had primary education and below. An infinitesimally small proportion (0.8%) of the respondents obtained information on HIV/AIDS from church or mosque. This could be related to the perception of HIV/AIDS as a disease that afflict immoral people and as a punishment from God, not only by religious leaders but the Nigerian populace (Muoghalu and Jegede, 2013).

Awareness of consistent use of condom (85.1%), and limiting sexual intercourse to only one HIV negative partner (92.3%) as ways of preventing HIV infection was high among the respondents. This is in concordance with the findings in a study by Mugoyelaand and Charles (2009) that reported high awareness of condom use (84.3%) and faithfulness to one partner (75.5%) as preventive measures for HIV/AIDS. On the contrary, Singh and Joshi (2012) reported low awareness of faithfulness to one partner (49.7%) as a preventive

measure for HIV/AIDS among truck drivers in India; but the study reported low level of misconception of the transmission of the disease through mosquito bite (21.3%), which agrees with the low level of misconception of the transmission of HIV/AIDS through mosquito bite (18.5%) and spiritual attack (12.1%) that was obtained in this study.

HIV/AIDS risk perception was very poor (12.9%) and about 10.3% of the respondents had engaged in casual sex in the past 12 months. The low HIV/AIDS risk perception among the respondents in this study corroborates the submissions of Stratford et al. (2000) that, despite engaging in high risk behaviors, drivers consider themselves to be at low risk of contracting HIV/AIDS, thus neglecting HIV/AIDS preventive measures. Ironically, Atilola et al. (2010) reported high HIV/AIDS risk perception (68.1%) and high prevalence of high-risk sexual behavior (55.3%) in a study among long-distance truck drivers in South-Western Nigeria. Almost half (44.4%) of the respondents that had engaged in casual sex in the past 12 months reported doing so while drunk. This is similarly to the findings in a study by Gibney et al. (2003) that reported alcohol consumption as a predictor of high-risk sexual practices in Bangladesh's trucking industry.

Age below 40 years and not being currently married (single, separated or divorced), were the predictors of casual sex in the past 12 months in this study. This is in

**Table 4.** Predictors of casual sex in the past 12 months.

Variables	Odds ratio	Significance	95% CI
			Lower-Upper
Age 40 and below versus age above 40	2.119	0.035	0.006-0.175
Adequate knowledge of HIV/AIDS	0.210	0.834	-0.094-0.177
Single, separated and divorced versus married	2.848	0.005	0.055-0.304
Secondary and tertiary education versus primary education and none	1.819	0.070	-0.072-0.004

**Table 5.** Predictors of consistent use of condom.

Variables	Odds ratio (OR)	Significance	95% CI
			Lower-Upper
Age 40 and below versus age above 40	2.120	0.035	0.008-0.224
Adequate knowledge of HIV/AIDS	0.615	0.539	- 0.181-0.095
Single, separated and divorced versus married	1.559	0.120	- 0.292-0.034
Perception of HIV/AIDS as a threat	2.213	0.028	0.019-0.322
Belief condom use can reduce risk of HIV/STIs	1.024	0.307	- 0.059-0.186
Had casual sex in the past 12 months	1.896	0.371	- 0.098-0.262
Know where to obtain condom	3.216	0.001	0.070-0.292

concordance with the high prevalence of casual sex reported in a study among young people by Yang et al. (2012), and in another study among unmarried youths by Yip et al. (2013). The higher prevalence of casual sex among respondents that were single (41.2%) compared to respondents that were married (33.3%) in this study agrees with the findings in a study among drivers in Ilorin, Nigeria (Araoye et al., 1996) that reported higher prevalence of high risk sexual practices among those that were single (91%), compared to those that were married (72%).

Knowledge of condom source was low (36.4%), likewise consistent use of condom (19.7%) despite high awareness of HIV/AIDS preventive efficacy of condom (85.1%), belief in its ability to reduce the risk of HIV/AIDS transmission if used consistently (78.6%), and positive attitude towards condom education (92.7%). However, high prevalence of consistent use of condom (88.9%) was reported among respondents that had engaged in casual sex in the past 12 months. This is similar to the findings in a study by Sanjeev et al. (2009) that reported high prevalence of condom use (64.3%), although with a higher prevalence of high-risk sexual behavior (56.6%) compared to what was obtained in this study. A recent study in Sagamu, Nigeria, also reported high prevalence of consistent use of condom (57%) and high prevalence of high risk sexual practices (81.0%) among transport workers (Abiodun, 2013).

Knowledge of where to obtain condom was the strongest predictor of its consistent use in this study; this underscores the importance of physical and intellectual

accessibility to condom in promoting compliance with its consistent use. Similar to the findings in this study, a study among sexually active persons involved in compulsory national service in Ibadan (Sunmola et al., 2007) and another study among men in extramarital relationship (Ankomah et al., 2013) also reported availability of condom as an important predictor of its consistent use.

## CONCLUSION

This study demonstrated poor HIV/AIDS risk perception, unsafe sexual practices, and poor condom use among drivers in Sokoto, despite adequate knowledge of the disease. The findings in this study suggest the need for intensification of mass media campaigns and other public health measures aimed at discouraging unsafe sexual practices, stimulating appropriate risk perception and promoting consistent use of condom.

## Conflict of Interest

The authors declare that there are no conflicts of interests.

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