Alcohol consumption and cigarette smoking pattern among brothel-based female sex workers in two local government areas in Lagos state, Nigeria

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Abstract

Background: Alcohol and tobacco use are known risk factors for non communicable diseases especially among women. Brothel based female sex workers may be at increased risk of exposure to these two substances.

Objective: To assess the pattern of alcohol and tobacco use among female sex workers in two selected local government areas in Lagos state, Nigeria.

Methods: A cross-sectional descriptive study was carried out among 323 brothel-based female sex workers in 39 consenting brothels. Data was collected by trained interviewers using a pretested structured questionnaire.

Results: Majority (67.8%) were current drinkers with 89.5% of these having their most recent drink less than a week ago. Most of them (89%) consumed more than the reference limits for alcohol use among women. Up to 20.7% were current smokers with (92.5%) having their most recent cigarette less than a week ago. More than a third (37.4%) were heavy smokers while 19% were dual users. Current drinking was associated with current smoking. Smokers consumed significantly more units of alcohol than non-smokers.

Conclusion: The prevalence of harmful alcohol use and cigarette smoking are very high among this group of female sex workers. Programs that address the use of these substances should be made available for these women.

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Introduction

Globally, tobacco use and the harmful consumption of alcohol (as defined by the World Health Organization) have been identified as two important shared risk factors for 80% of non-communicable diseases (NCD's).[1,2] Tobacco use is the second leading cause of death while the harmful use of alcohol is the third leading cause of morbidity.[3] In many cases, there is a synergism between tobacco and alcohol use. Studies in high income countries have found that people who smoke are much more likely to drink, and vice versa.[4] Dependence on alcohol and tobacco may also be correlated; people who were dependent on alcohol were three times more likely than those in the general population to be smokers, and people who were dependent on tobacco were four times more likely than the general population to be dependent on alcohol.[5]

Alcohol and tobacco use may lead to major health risks when used alone or together. In addition to contributing to traumatic death and injury, alcohol use is associated with chronic liver disease, cancers, cardiovascular disease, acute alcohol poisoning and fetal alcohol syndrome.[6] Tobacco use affects almost every organ in the human body. It is associated with lung disease, cancers, and cardiovascular disease[7] among others. A growing body of evidence suggests that these substances might be especially dangerous when they are used together; when combined, alcohol and tobacco use dramatically increase the risk of certain cancers[8] particularly those of the mouth and throat [9-11]. In fact, the combined risk may be greater than the risk associated with either substance when taken separately.[12]

Tobacco and alcohol use disproportionately affects the health of women. Tobacco use is a risk factor for osteoporosis, menstrual problems and some gynaecological cancers.[13] Women absorb more alcohol and metabolize it more slowly when

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compared to men. This makes women more vulnerable to alcohol's long-term health effects.[14] Women are also more likely than men to develop alcoholic hepatitis and to die from liver cirrhosis.[15] In addition, smoking and drinking in pregnancy may pose special problems for the woman and her child such as miscarriages, low birth weight, birth defects, fetal alcohol syndrome (FAS) and Sudden Infant death Syndrome (SIDS).[16, 17]

In 2004, the World Health Organization (WHO) Global Status on Alcohol Report stated that in Nigeria, the alcohol drinking rate was 34.9% in males and 23% in females. The rate of heavy and hazardous drinking among drinkers was however higher among women (36.1%) than men (27.8%).[18] This may indicate that even though the proportion of women consuming alcohol may be lower than men; among the women who do consume alcohol, the proportion of harmful drinking may be higher than for men. On the other hand, the prevalence of tobacco use among Nigerian women as a whole is said to be very low. The 2008 NDHS reported rates of less than one percent among Nigerian women.[19] The data on both smoking and alcohol use were however not stratified according to the womens' occupational profile particularly sex work.

As a hidden and lucrative industry, commercial sex is increasing globally[20] and has social characteristics that tend to influence both drinking and smoking.[21-23] Brothels may serve as outlets which promote the sale and use of alcohol and tobacco products.[24,25] Female sex workers (FSW) who live and work in these brothels may be at increased risk of exposure to these substances. A study reported that tobacco use was the commonest substance used by female sex workers with 45.8% using tobacco products.[26] Alcohol use has also been recognized as an important aspect of commercial sex and it is reported that FSW's who operate in alcohol-selling or alcohol-serving venues drink higher levels of alcohol.[25] In Nigeria, many health programs carried out for FSW's focus primarily on risky sexual behavior and the prevention of sexually transmitted infections with the exclusion of known NCD risk factors like alcohol and tobacco which may be prevalent among these women. There is limited information on the pattern of alcohol and tobacco use among Nigerian FSW's.

This study aimed to assess the pattern of alcohol and tobacco use among female sex workers in Lagos with a view of generating data for the effective primary prevention of tobacco and alcohol related NCD's among this group of the women.

Methods

Lagos state is located in the south western part of Nigeria with the southern boundary framed by a 180-kilometer long Atlantic coastline, northern & eastern boundaries by Ogun state while the Republic of Benin forms the western boundary. It is considered the commercial and economic capital of Nigeria with a population of 9,013,534 according to the 2006 national population census. The state is made up of twenty local government areas (LGA's). Two adjoining LGA's, one urban and the other rural (namely, Ojo and Badagry) were purposively selected for this study. This was because of their close proximity to the border with Republic of Benin which results in a high number of migrant population, traders, long distance drivers, youths and female sex workers.[27] An army cantonment and an international trade fair complex are also located in this area.

A cross sectional descriptive study was carried out between March and April 2011 to assess the alcohol and cigarette smoking patterns among brothel-based FSW's in the two LGA's. Community mapping was carried out and all the brothels (41 in number) with resident female sex workers were identified. Advocacy visits were conducted to all the brothels and meetings were held with the manager and the chairlady (female sex workers representative). Thirty-nine brothels agreed to participate in the survey (Brothel response rate was 95.1%). A list of all the female sex workers aged 18 years and above (383 in number) in the participating brothels was then prepared.

The sample size for the study was estimated using the formula for estimation of sample size for descriptive studies and considering the cluster design of the survey. Prevalence values for current smoking, current drinking and dual use were initially used to compute the sample size.[25,28,34] Of these, the prevalence that provided the highest sample size estimation was used for the study. Hence, a minimum sample size of 270 was calculated using a prevalence of current alcohol use of 33%, confidence level of 95%, alpha of 0.05, precision of 5% and a total population of 383 FSW's in the two LGA's. Considering a non-response rate of 10%, the final sample size was estimated to be 298; nevertheless all consenting and eligible FSW's were surveyed. Attempts were made to reach out to all the eligible female sex workers in each participating brothel for their consent to participate in the study. Out of the total 383 eligible female sex workers, 323 agreed to

participate in the study. (FSW response rate was 84.3%)

Data was collected by trained interviewers using a pretested structured questionnaire. The questionnaire elicited information on socio demographics, duration of sex work, age of initiation and the frequency and quantity of alcohol and cigarette use if any. To estimate the amount of alcohol consumed, respondents were asked to state the quantity and exact type of alcohol consumed within a 7-day recall period. This was converted into standard units of alcohol using the standard formula for conversion of alcohol content into units.[29] Ethical approval was obtained from the ethical board of the Lagos University Teaching Hospital.

Data was entered and analyzed using Epi-Info 3.5.1 and SPSS 16.0 (Chicago, IL, USA). Data analysis involved the use of frequency tables, student's T-test and chi-square tests as appropriate. P values of <0.05 were said to be statistically significant.

Results

All the respondents were female and aged between 18 and 48 years. The mean age was 28.1 ± 6.8 years. Most of them were single (62.5%) and had primary education or less (68.4%). About half of them (49.2%) had been engaged in sex work for over a year as indicate in table 1.

Table 1: The socio-demographic characteristics of the respondents (n=323)

Socio-demographic variable	Freq. (%)
Age group (years)	
15 – 24	108 (33.4)
25 – 34	159 (49.2)
35 – 44	48 (14.9)
45 and above	8 (2.5)
Marital status	
Married	16 (5.0)
Separated/Divorced	92(28.5)
Single	202 (62.5)
Widowed	13(4.0)
Highest level of education	
No formal education	25 (7.7)
Primary	196 (60.7)
Secondary education and above	102 (31.6)
Religion	
Christianity	307 (95.1)
Islam	16 (4.9)
Duration of sex work	
Less than six months	80 (24.8)
Six-twelve months	84 (26.0)
Above one year	159 (49.2)

Majority (67.8%) of the respondents currently consumed alcohol with 89.5% of these having their most recent drink less than a week prior to the study. The number of units consumed in the last week ranged from 0-416 standard alcohol units with a median of 69.3 units (IQR=23.1-138.6 units). Most of them (89%) consumed more than the reference limits for alcohol use among women (14 units per week).[30] Almost a quarter (22.6%) started drinking before the permissible age limit of 18 years but the median age at first drink was 21 years(IQR:18-25 years) as seen in table 2.

Table 2: Pattern of alcohol use among the respondents

Variable	Freq. (%)
Alcohol use (n=323)	
Current alcohol user	219(67.8)
Ex-alcohol user	24(7.4)
Never user	80(24.8)
Most recent drink (n=219)	
Less than a week ago	196(89.5)
A week to a month ago	14(6.4)
More than a month ago	9(4.1)
Amount of alcohol consumed per week in standard units (n=219)	
1-50	88(40.2)
51-100	63(28.8)
101-150	35(16.0)
151-200	5(2.2)
Above 200	28(12.8)
Median number of alcohol units per week	69.3 (IQR=23.1-138.6)
Age at first drink (n-243)*	
<18 years	55(22.6)
>18 years	188(77.4)
Level of drinking	
Within reference limits#	24(11.0)
Above reference limits#	195(89.0)

14 units of alcohol per week

*The minimum age allowable for alcohol consumption in Nigeria is 18 years.

Up to 20.7% of the respondents were current smokers and almost all of them (92.5%) had their most recent cigarette less than a week prior to the study. More than a third of the respondents (37.4%) were heavy smokers (>10 sticks per day). The age of smoking initiation ranged from 12-40 years with the median being 22 years, (IQR:18-22 years) Almost

18% started smoking before the permissible age limit of 18 years. As shown in table 3.

Table 3: Pattern of cigarette use among the respondents

Variable	Freq.(%)
Cigarette use(n=323)	
Current smoker	67(20.8)
Ex smoker	24(7.4)
Never-smoker	232(71.8)
Most recent cigarette (n=67)	
Less than a week ago	62(92.5)
A week to a month ago	4(6.0)
Greater than a month	1(1.5)
Number of cigarettes consumed per day(n=67)	
1-4 sticks per day	25(37.3)
5-9 sticks per day	17(25.4)
10-14 sticks per day	10(14.9)
15-19 sticks per day	2(3.0)
>20 sticks per sticks per day	13(19.4)
Age at smoking initiation (n=91)*	
<18 years	16(17.6)
>18 years	75(82.4)

*The minimum age allowable for cigarette consumption in Nigeria is 18 years

Among respondents who had ever consumed alcohol or smoked cigarettes (75.2%), 41.7% of them started drinking before starting to smoke, while 40.5% of them started drinking and smoking at the same age. Only 17.8% started smoking before they started drinking. Up to 19% were dual users (i.e. both current drinkers and smokers) as at the time of the study.

Current drinking was associated with current smoking. Also, smokers consumed significantly more units of alcohol than non-smokers. Neither age, marital status, education, religion nor duration of sex work was associated with either drinking status, smoking status or dual use as shown in table 4. A multivariate analysis was not carried out because only one variable was significant in the bivariate analysis (see figure 1).

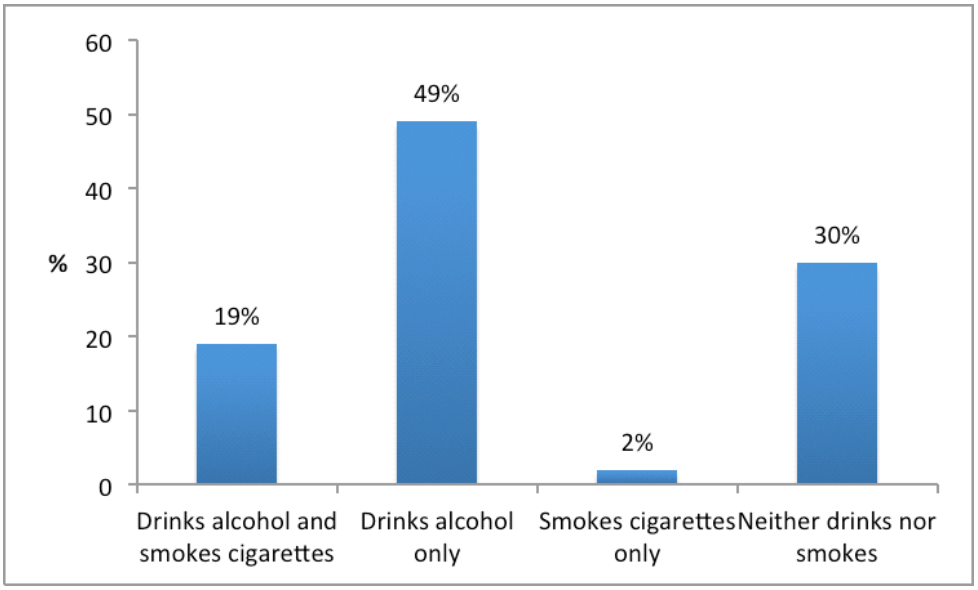

Figure 1: Pattern of alcohol, tobacco and dual use

Table 4: Factors associated with current cigarette use

Factor	Current-smoker Freq.(%) n=67	Non-smoker Freq.(%) n=256	P	Current drinker Freq.(%) n=219	Non-drinker Freq.(%) n=104	P	Dual user# Freq.(%) n=61	Not dual user Freq.(%) n= 262	p	Total Freq.(%) N=323
Age group (years)										
15 – 24	23(21.3)	85(78.7)	0.631	73(67.6)	35(32.4)	0.247	21(19.4)	87(80.6)	0.392	108(100)
25 – 34	35(22.0)	124(78.0)		113(71.1)	46(28.9)		33(20.8)	126(79.2)		159100)
35 and above	9(16.1)	47(83.9)		33(58.9)	23(41.1)		7(12.5)	45(87.5)		56(100)
Marital status										
Married	3(18.8)	13(81.2)	0.928	10(65.5)	6(37.5)	0.223	3(18.8)	13(81.3)	0.999	16(100)
Separated/Divorced/Widowed	23(21.9)	82(78.1)		65(61.9)	40(38.1)		20(19.0)	85(81.0)		105(100)
Single	41(20.1)	161(79.9)		144(71.3)	58(28.7)		38(18.8)	164(81.2)		202(100)
Level of education										
No formal education	5(20.0)	20(80.0)	0.968	14(56.0)	11(44.0)	0.299	5(20.0)	20(80.0)	0.988	25(100)
Completed primary	40(20.4)	156(79.6)		138(70.4)	58(29.6)		37(18.9)	159(81.1)		196(100)
Completed secondary and above	22(21.6)	80(78.4)		67(65.7)	35(34.3)		19(18.6)	83(81.4)		102(100)
Religion										
Christianity	61(19.9)	246(80.1)		210(68.4)	97(31.6)	0.310	56(18.2)	251(81.8))	0.195	307(100)
Islam	6(37.5)	10(62.5)	0.111!	9(56.3)	7(43.8)		5(31.3)	11(68.8)		16(100)
Duration of sex work										
Less than six months	15(18.8)	65(81.2)	0.834	57(71.3)	23(28.8)	0.748	15(18.8)	65(81.3)	0.999	80(100)
Six-twelve months	17(20.2)	67(79.8)		56(66.7)	28(33.3)		16(19.0)	68(81.0)		84(100)
Above one year	35(22.0)	124(78.0)		106(66.7)	53(33.3)		30(18.9)	129(81.1)		159(100)
Drinking status										
Current drinker	61(27.9)	158(72.1)	<0.001*							219(100)
Not current drinker	6(5.8)	98(94.2)								104(100)
Mean units of alcohol /week	110.39±109.8	83.79±72.7	0.038*				110.40±10 9.83	86.70± 77.16	0.071	91.2±85.2
Mean number of cigarettes per week n=67				8.31±6.7	7.0±6.5	0.648	8.31±6.7	7.00±6.48	0.647	8.19±6.2
Age at first drink	20.9±5.6	22.5±6.3	0.071				20.9±5.69	22.58±6.2	0.065	22.15±6.1
Age at first cigarette				22.87±5.9	24.57±7.5	0.343	22.7±5.8	24.1±6.9	0.294	23.13±6.1

#-Dual user is both a current drinker and smoker
!:Fisher's exact p value
*Statistically significant

Discussion

The prevalence of current alcohol use (67.8%) among this group of women clearly exceeds estimates from studies conducted among other groups of Nigerian women. For example, the results were much higher than the figures reported in a study in five states in Nigeria and the federal capital territory where 22% of women identified themselves as current drinkers.[31] Relatively higher rates of alcohol use have also been reported among FSW's in other settings. A systematic review of alcohol drinking patterns among female sex workers reported a range of 73.3% to 74.8% as current drinkers.[32]

The fact that almost all (89.0%) of the women in this study consumed more than the reference limits for alcohol intake for females is an indication that health risks other than sexually transmitted diseases (STI's) should be considered in this population. Our figures were much higher than those reported in a large community based study carried out among men and women in the western part of Nigeria where only 0.5% of respondents reported alcohol abuse.[33] The median amount of alcohol consumed per week in this study was 69.3 units. Our findings are in keeping with similar studies in Nigeria which report that Nigerian women who consumed alcohol were often frequent or heavy drinkers.[19,31] For the women in this study, exceeding the reference limits clearly put them at an increased risk of both the short and long term consequences of harmful alcohol intake. This should be a cause of concern to program planners and policy makers.

The prevalence of cigarette smoking among the study population, though much lower than alcohol use, was still considerably higher than the national average. The prevalence of smoking among the women in this study (20.8%) was almost 200 times

the figures reported for women (0.2%) and almost double the values reported for men (9%) in the 2008 NDHS.[19] One other issue of concern is the frequency and amount of cigarettes smoked by these women. More than a third of them (37.3%) smoked heavily (>10 sticks per day) putting them at increased risk for the many health effects of smoking. Comparatively, only 17% of men in the 2008 NDHS were heavy smokers.[19]

Almost one in five respondents was a dual user (i.e. current drinker and smoker). The health effects of smoking combined with alcohol use may be more severe among these dual users.[12] These values are higher than those observed in a similar study among Cuban women where only 4% were dual users.[34]

This is probably because the Cuban study was carried out in the general population as compared with this study carried out among sex workers. As with studies done in other populations,[35-37] Smoking was associated with alcohol consumption in this study. Smokers also drank significantly more units of alcohol per week than non-smokers. The age at drinking initiation also tended to be lower among current smokers when compared to non-smokers. Programs that combine alcohol and tobacco dependence treatment may be beneficial for this group of women.

Limitations

This study is one of the few studies that document the pattern of alcohol and tobacco use among commercial sex workers in Nigeria. It however has some limitations. The predictors of alcohol or tobacco use among these women could not be determined using a logistic regression model, as the significant variables on the bivariate analysis were low. Another limitation is the possibility of recall bias, which may be due to inaccurate recollection of the number of cigarettes consumed per day or the amount of alcohol consumed in the preceeding week. It nevertheless provides some evidence for the establishment of new programs or incorporation of alcohol and tobacco control into existing programs for female sex workers.

Conclusion

The prevalence of harmful alcohol use and cigarette smoking are very high among this group of female sex workers. Programs that address the use of these substances should be made available for these women.

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