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Effects of Intake of Aphrodisiac Drinks on Some Health Parameters of Commercial Bus Drivers in Ife-Central Local Government, Nigeria

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A – research concept and design; B – collection and/or assembly of data; C – data analysis and interpretation; D – writing the article; E – critical revision of the article; F – final approval of article.

Abstract

Background: The influx of herbal drinks acclaimed to have aphrodisiac activities into the Nigerian society is rising daily but there is dearth of scientific information on the beneficial and adverse effects of these drinks in their consumers.

Objectives: This study examined the usage and effects of aphrodisiac drinks on some human health parameters among commercial bus drivers in Ife-Central Local Government, Ile-Ife, Osun State, Nigeria.

Methods: Two hundred commercial bus drivers were used for the study, selected through random sampling method. The drivers' Body-Mass Indices (BMI), Blood Pressure (BP) and Random Blood Sugar (RBS) were measured through direct observation. Fifty samples of aphrodisiac drinks were purchased from a source in the open market.

Results: From the data collected, 87.5% have used aphrodisiac drinks before (treatment group) while 12.5% have not used it before (control group). 44% use these drinks every day; 26.9% use every other day, 21.1% use occasionally, 4.0% use once a week, 1.7% use on weekend while 2.3% use the drinks rarely. The rate of consumption of the aphrodisiac drinks in simple mean scores (14.14) was above the average (high). Rate of use had no significant effect on the drivers' BMI ($t = -1.97$, $p > 0.05$) but had significant effects on BP ($t = 3.562$, $p < 0.05$) and on RBS ($t = 7.631$, $p < 0.05$) respectively.

Conclusion: Consumption rate of aphrodisiac drinks by the commercial bus drivers in Ile-Ife, Nigeria is high and the rate has significant effects on the drivers' BP and RBS.

Keywords: Aphrodisiac effects, Herbal drink, Commercial Drivers

INTRODUCTION

Aphrodisiacs are substances that boosts sexual desire, enhance libido, promote sexual pleasure, or sexual behavior (Brunetti *et al*. 2020; Watcho *et al*, 2019; Swati and Sapna, 2012; Melnyk *et al*., 2011; Shamloul, 2010). Aphrodisiacs are primarily focused on males though they are beneficial to both males and females. This is due in part to the historical background of aphrodisiacs, which was primarily focused on men (Swati and Sapna, 2012).

Aphrodisiac substances include a variety of plants, spices, cuisines, and synthetic chemicals that are classified as natural, unnatural, plant-based and non-plant-based compounds (Lehmiller and Justin 2017; Bella *et al.*, 2014; Melnyk *et al*., 2011; Shamloul and Rany 2010). Plant-based aphrodisiac like herbs and are widely utilized by people to treat sexual dysfunctions because they are generally seen to be safer, more easily accessible, and less expensive than

orthodox medicine (Brunetti *et al*., 2020; Zhang *et al*., 2019; Watcho *et al*., 2019) and have a long history of use both as sexual stimulants for pleasure's sake and for the treatment of sexual debility (Bella and Shamloul, 2014).

The influx of herbal drinks acclaimed to have aphrodisiac activities into the Nigerian society is rising daily but there is dearth of scientific information on the perceived beneficial and adverse effects of these drinks in their consumers, and the effects of the use of these drinks on the blood pressure, random blood sugar and body mass indices of the users, hence, this study. (Bella and Shamloul, 2014; Shamloul, 2010). A need therefore exists for an investigation into their usage and effect on human health to safeguard the health of consumers; furnish empirical data that might contribute to policy on usage of aphrodisiac drinks in the country, and contribute to literature on use of aphrodisiacs and effects on human health. The research was also anticipated to stimulate further research into consumption of aphrodisiac drinks, their pharmacological activities and effects on health parameters of users.

The study specific objectives of the study were:

- To evaluate rate of use of aphrodisiac drinks among commercial drivers who form an obvious population of users of aphrodisiac drinks in the Nigerian society;
- describe the effect of rate of use of the aphrodisiac drinks on their Body Mass Indices (BMI), Blood Pressure (BP) and Random Blood Sugar (RBS).

The Null hypotheses raised for the research were:

$H0_1$ There is no significant difference on the drivers' BMI based on rate of use of aphrodisiac drinks.

$H0_2$ There is no significant difference on the drivers' BP based on rate of use of aphrodisiac drinks.

$H0_3$ There is no significant difference on the drivers' RBS based on rate of use of aphrodisiac drinks.

$H0_4$ There is no significant effect of rates of use of aphrodisiac drinks on the drivers' BMI.

$H0_5$ There is no significant effect of rates of use of aphrodisiac drinks on the drivers' BP.

$H0_6$ There is no significant effect of rates of use of aphrodisiac drinks on the drivers' RBS.

METHODOLOGY

The research was a descriptive quantitative study that used a cross-sectional survey and direct observation method. The target population for the research was the commercial bus drivers but because of the very large anticipated variability of the population of Commercial bus drivers in Nigeria, the research was carried out in Ife Central Local Government area, Ile-Ife, Osun State, Nigeria with a finite population of three hundred and fifty (350) registered drivers. The inclusion-exclusion criteria did not apply in drawing the research sample because the drivers were all males and adults of above 18years of age. Two hundred Commercial bus drivers were randomly selected for the study. Sample size was first computed using Taro Yamane's (1967) formula for known finite population

$$n = \frac{N}{1 + N(e)2}$$

Where, n = Sample size, N = Research population size, e = Tolerable error.

But, N = 350 (Number of commercial bus drivers in Ife Central Local Government Area) and, e = 5% (0.05).

Therefore,

$$n = \frac{350}{1 + 350(0.05)2} = 175$$

The computed sample size through the formular was 175, but the researchers decided to use 200 participants to get a better general representation output for the population.

The survey was through a Pre-tested questionnaire developed by the researchers while the direct observation of the respondents B.P., R.B.S., and B.M.I. were made through appropriate medical tools within six weeks to collect needed data for the study. The principal researcher and other researchers personally administered the questionnaires and conducted the direct observation of respondents' health parameters of BMI, BP and RBS. Samples of aphrodisiac drinks were bought from reputable sources and relevant information were obtained from the product packs.

Analysis of the data collected from the questionnaires were analysed through the Statistical Package for Social Sciences (SPSS) software version 20 using descriptive statistics of simple percentages, and mean scores; and inferential statistics using analysis of variance (ANOVA) to observe significant mean difference of the different rates of consumption on the three health parameters while regression analysis was conducted to describe effects of the rates of use of the aphrodisiac drinks on the drivers' BMI, BP and RBS. The drivers that take aphrodisiac drinks stood as the treatment group while those that do not take the drinks served as the control group. The One-Way ANOVA, using Newman-Keuls multiple comparisons test was

used to test significant diference among the BMI, BP and the RBS of these groups.

The following benchmark were used for mean score estimation of the the variables used to assess rate of use: the variable that shows whether the driver use aphrodisiac drink or not had maximum obtainable score of 2.0 derived from 2 items; the variable that shows the last time the drink was used had maximum obtainable score of 2.0 derived from 2 items; the variable that shows quantity of use per time had maximum obtainable score of 6.0 derived from 6 items and the variable that shows how often the drink is used by the drivers had maximum obtainable score of 6.0 derived from 6 items. Test of hypotheses; effect and mean difference for significance were all done at the p-value of ≤ 0.05.

RESULTS

Table 1 indicates the Socio-demographic characteristics of respondents. The table shows that majority (38.5%) were 37-47 years old, were all married (100%), were mostly with secondary education (59%) and were majorly Christians (72%).

The rate of use of aphrodisiac drinks by the drivers in simple percentages is presented in table 2. The table indicates that 87.5% of the 200 drivers examined (i.e.175) claimed to have used aphrodisiac drinks before. Of these 43% claimed to have consumed aphrodisiac drinks the previous day while 57% had used it within the last week. Thirty point eight percent (30.8%) claimed to use the drinks in sachets, 20% use tumbler full, 26.3% use 50 ml, 6.3% use 100 ml while 16.0% consume 250 ml bottles respectively. 2.3% claimed to consume these drinks on a rarely basis, 21.1% use occasionally, 4.0% use about once a week, 1.7% use on weekends, 26.9% use every other day while 44% use these drinks every day. Figures 1 to 4 give pictures of use of the aphrodisiac drinks by the respondents.

Table 1 Socio-demographic characteristics of respondents.

Variables	Distribution	Frequency	Percentage	Cummulative frequency
Age	18-25	17	8.5	8.5
	26-36	40	20.0	28.5
	37-47	77	38.5	67.0
	48-58	53	26.5	93.5
	59-69	11	5.5	99.0
	70-75	2	1.0	100.0
	TOTAL	200	100	
Marital Status	Single			
	Married	200	100.0	100.0
Highest	Primary	51	25.5	25.5
educational	education	118	59.0	84.5
status	Secondary	31	15.5	100.0
	education	200	100.0	
	Tertiary			
	education			
	TOTAL			
Religion	Christianity	144	72.0	72.0
	Muslim	54	27.0	99.0
	Traditional	2	1.0	100.0
	TOTAL	200	100.0	

Table 2: Rate of consumption of aphrodisiac drinks

Investigation	Response	Frequency	Percentage	Cummulative percentage
Have you taken aphrodisiac before?	No	25	12.5	12.5
	Yes	175	87.5	100.0
	Total	200	100.0	
When was the last time you used it?	A week ago	100	57.0	57.0
	Yesterday	75	43.0	100.0
	Total	175	100.0	
What quantity do you use per time?	Tablespoon	1	0.6	0.6
	Satchet	54	30.8	31.4
	Tumbler full	35	20.0	51.4
	Small plastic 50ml	46	26.3	77.7
	Big plastic 100ml 250ml	11	6.3	84.0
	Total	28	16.0	100.0
		175	100.0	
How often do you drink it?	Rare	4	2.3	2.3
	Occasionally	37	21.1	23.4
	Once a week	7	4.0	27.4
	Only on weekend	3	1.7	29.1
	Every other day			
	Daily	47	26.9	56.0
	Total			
		77	44.0	100.0
		175	100.0	

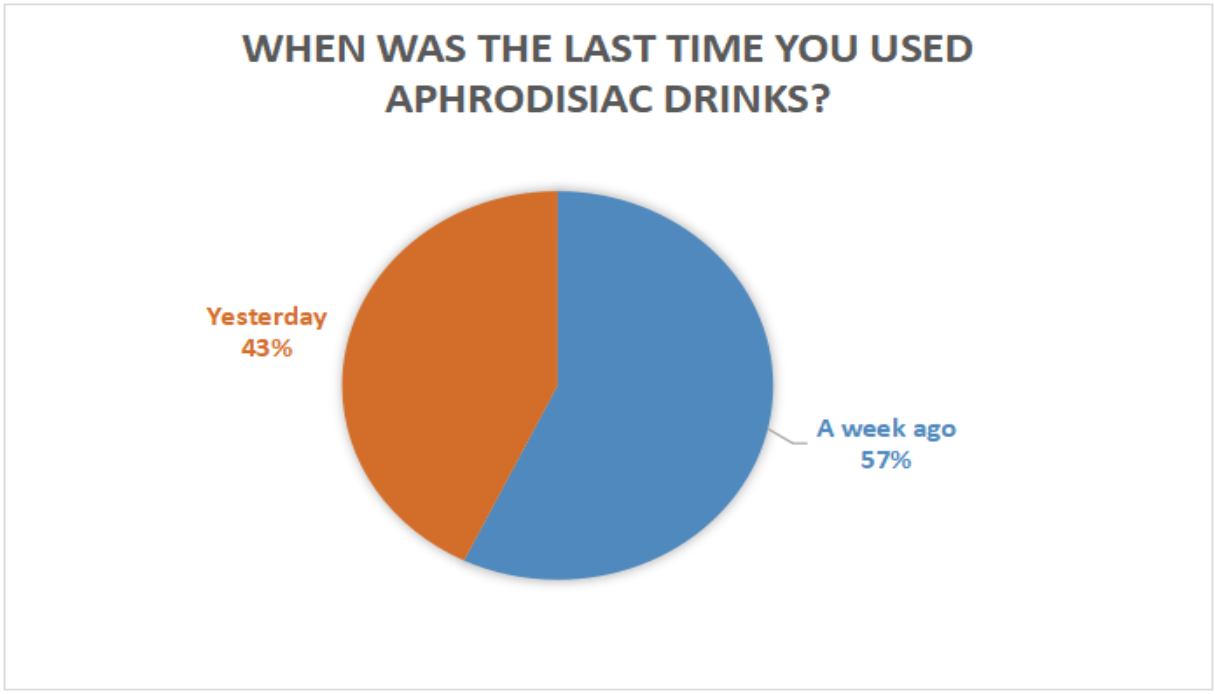

Figure 1: Prevalence of use of aphrodisiac drinks by the respondents

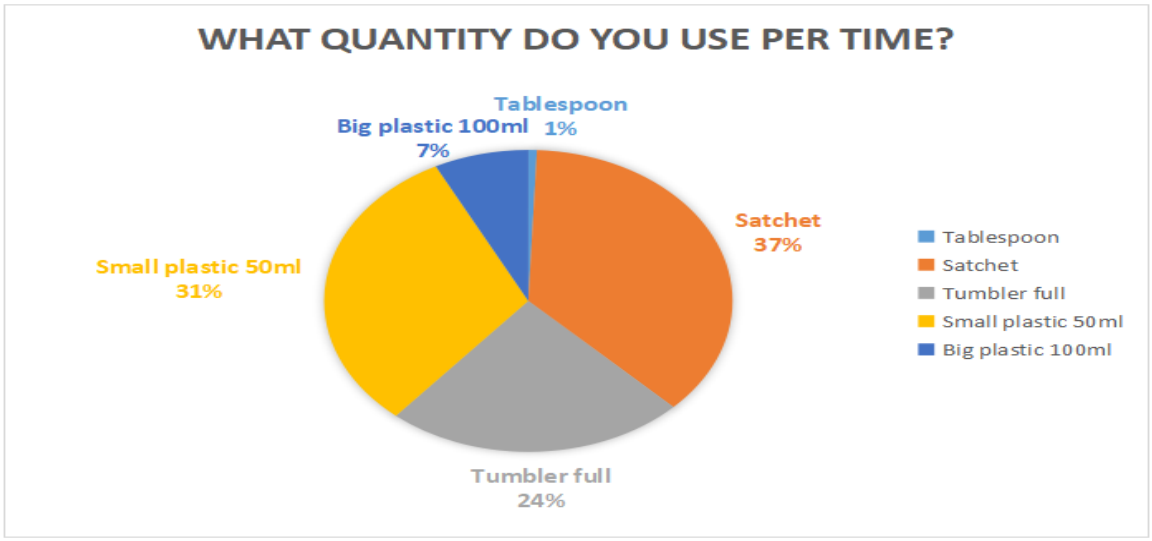

Figure 2: Quantity of use of aphrodisiac drinks per time by the respondents

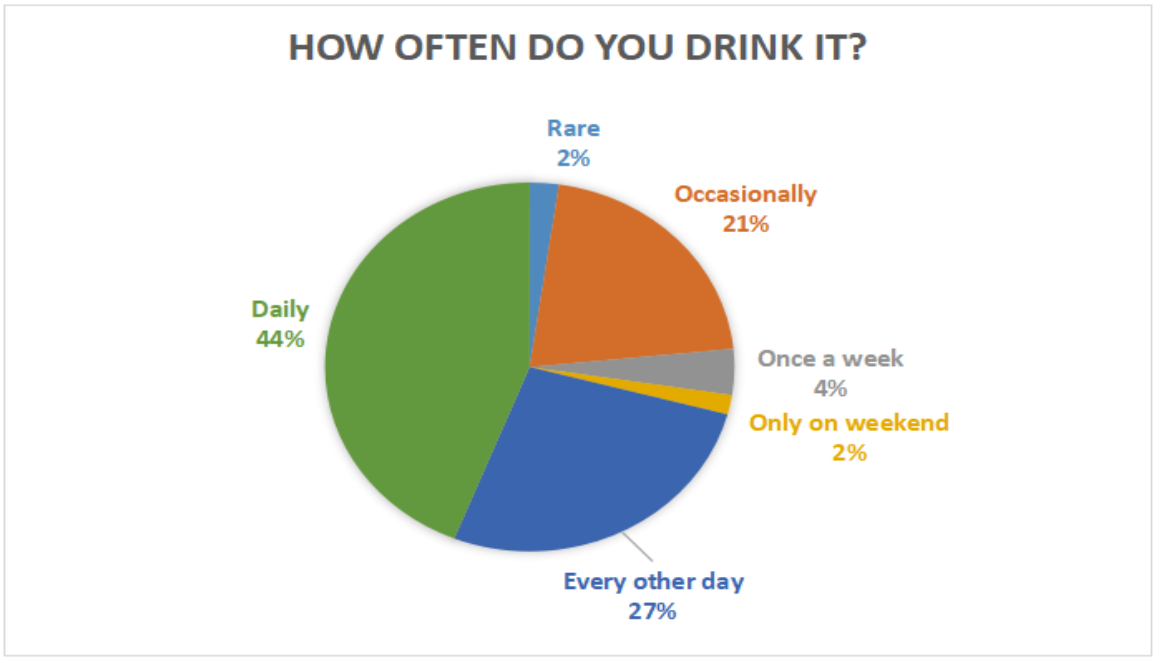

Figure 3: Frequency of use of aphrodisiac drinks by the respondents

Results illustrate in table 3 that there was a significant difference between the BP ($p<0.05$) and RBS ($p<0.05$) of those who take aphrodisiac drinks and those who do not take it but there was no significant differences in their BMI ($p>0.05$) and that there were significant differences based on rate of consumption of the drinks among the group that use the aphrodisiac drinks for BP ($p<0.05$) and RBS ($p<0.05$) while there was none for BMI ($p>0.05$).

The estimated consumption rate for the drivers is 14.14. This score indicates a high rate of consumption as the maximum mean score for the four variables used to assess rate of consumption for the respondents was 20. The first two variable has maximum mean score of 2 for each while the last two variables carried a maximum mean score of 6. A score > 10.0 therefore indicates a high rate of consumption.

In table 4, Daily rate of use of the aphrodisiac drinks recorded higher mean scores of 9.6 on BMI, BP and RBS, Every other day rate recorded 7.4, Only on weekend rate of consumption recorded 2.1, Once a week had 2., Occasionally had 5.8 while Rare rate recorded 2.3 and also shows that there were no significance difference ($F = 1.104$, $p >0.05$) in the respondents' BMI based on the rate of consumption of

the drinks but demonstrates significant differences on BP ($F = 4.237$, $p<0.05$) and RBS ($F = 4.964$, $p<0.05$) of the drivers based on consumption rate.

Results as demonstrated in the table help to support $H0_1$ which declares that there is no significant difference on the drivers, BMI based on rate of use of aphrodisiac drinks and refute $H0_2$ that says there is no significant difference on the drivers' BP based on rate of use of aphrodisiac drinks and the $H0_3$ that says there is no significant difference on the drivers' RBS based on rate of use of aphrodisiac drinks.

In table 6, rate of use of aphrodisiac drinks had no significant effect on the drivers' BMI ($t = -1.97$, $p > .05$) but rates of use of aphrodisiac drinks had significant effects on BP ($t = 3.562$, $p < .05$) and on RBS ($t = 7.631$, $p < .05$) respectively.

This result from the table helps to affirm $H0_4$ which says there is no significant effect of rates of use of aphrodisiac drinks on the drivers' BMI and refute $H0_5$ which says there is no significant effect of rates of use of aphrodisiac drinks on the drivers' BP and $H0_6$ which says there is no significant effect of rates of use of aphrodisiac drinks on the drivers' RBS.

Table 3: Differences in Health Parameters among Drivers who use and who do not use Aphrodisiac drinks

Parameter	Do not use Aphrodisiac drinks - Group A (Mean ± S.E.M)	Use Aprodisiac drink (Group B) (Mean ± S.E.M)
BMI	1.47±1.17	1.86±1.30
BP	2.03±1.34 *	2.48±1.14*,β
RBS	1.34±1.72 *	2.51±1.39 *, β

* = significant different between A and B, β = significant difference based on rate of consumption at $p< 0.05$, One-Way ANOVA, using Newman-Keuls multiple comparisons test.

Table 4: Respondents BMI, BP and RBS based on Rarely, Occasionally, Once a week, Only weekend, Every other day and Daily use of Aphrodisiac Drinks

Investigation	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Rarely	4	2.2857	.61125	.05316	1.9728	2.6386	2.00	4.00
Occasionally	37	5.7586	1.89431	.03316	2.4872	2.8935	2.00	5.00
Once a week	7	2.6596	.84320	.05316	1.3987	2.8249	2.00	5.00
Only on weekend	3	2.1261	.62127	.06429	1.6521	2.0537	2.00	4.00
Every other day	47	7.4153	2.09132	.02893	6.5068	8.9218	6.00	12.00
Daily	77	9.6176	2.13153	.01775	8.5152	9.7959	6.00	14.00

BMI ($F = 1.104$, $p >0.05$), BP ($F = 4.237$, $p<0.05$), RBS ($F = 4.964$, $p<0.05$)

Table 5: Effects of Rate of Consumption of Aphrodisiac Drinks on BMI, BP and RBS

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Standard Error	Beta	t	Significance
1	(Constant)	-214.038	29.700		-6.905	.000
	BMI	-.142	.109	-.132	-1.397	.135
	BP	.546	.158	.483	3.562	.002
	RBS	1.264	.159	.769	7.631	.000

From table 6, 70% claimed to be aware of the side effects of the aphrodisiac drinks, 30% claimed not to be aware of any side effect, 33.5% claimed not to have experienced any side effects when consuming the drinks, 66.5% (116) claimed to have experienced side effects when consuming these drinks, out of which 17.2% claimed to experience headache after consuming these drinks, 15.5% claimed to experience decreased sexual function, 7% claimed to have stomach upset, 38% claimed to be addicted to taking these drinks, 1.7% claimed to have hangover, 1.7% claimed to experience stomach upset, addiction and hangover, 0.9% claimed to experience addiction, and hangover, 1.7% claimed to experience headache and other side effects, 11.2% claimed to experience headache and hangover, 1.7% claimed to experience headache, stomach upset and hangover, 3.4% claimed to experience headache and addiction.

Table 6: Perceived side effects of aphrodisiac drinks

Investigation	Response	Frequency	Percentage (%)	Cummulative percentage (%)
Are you aware of the side effects of the aphrodisiac drinks?	NO	52	30.0	30.0
	YES	123	70.0	100.0
	TOTAL	175	100.0	
Do you experience any side effects when you take these drinks?	NO	59	33.7	33.7
	YES	116	66.3	100.0
	TOTAL	175	100.0	
What are the side affects you experience from the consumption of aphrodisiac drinks?	Headache	20	17.2	17.2
	Decreased sexual functioning	18	15.5	32.7
	Stomach upset	8	7	39.7
	Addiction	44	38	77.7
	Hangover	2	1.7	79.4
	Stomach upset, addiction & hangover	2	1.7	81.1
	Addiction and hangover	1	0.9	82
	Addiction and others	2	1.7	83.7
	Headache and hangover	13	11.2	94.9
	Headache, stomach upset and hangover	2	1.7	96.6
	Headache and addiction	4	3.4	100.0
	Total	116	100.0	

DISCUSSION

Better sexual performance, better self-esteem and good reproductive well-being that upshot a happy family and sexual life are starring reasons admist other factors why men seek to use aphrodisiacs (Enema *et al*., 2018). Findings of this study show that all the respondents were married and were mainly young people of 37-47 years old (38.5%). This perhaps affirms Enema *et al*., 2018 view as the age group falls within the sexually active group which are likely to be preoccupied with maintaining sexuality. Sumalathal *et al*., (2010) opines that many of such people use aphrodisiacs to solve sexuality problems and to maintain quality life.

Eighty seven point five percent (87.5%) of the respondents use aphrodisiac drinks from the result (table 2). This affirms submissions of authors (Ramlachan and Campbell, 2014; Danquah *et al*., 2011; Jones, 2010; Sumalathal *et al.*, 2010; Porst, 2004) that large number of men use aphrodisiacs. The 175 drivers who claimed to use aphrodisiac drinks all used it within the last one week of the survey and 44% of the lot used these drinks every day while 26.9% use them every other day with 30.8% using the drinks in sachets, 20% in tumbler full, 26.3% in 50ml and 6.3% in 100ml bottles (table 2). This high consumption rate was reflected in mean score for consumption rate (14.14) which was well above the average score. The

frequency and volume of consumption might be associated with the addictive nature of alcohol part of the drinks as Danquah *et al*. (2011) declare and also the very active sexual lives of many of the drivers.

Recent harmful herbal based traditional drug reactions have stirred up concern in profiling agents used to resolve health issue for safety of users (Kale *et al*, 2019). Findings indicates that there was significant effect of the rate of consumption on the BP ($t = 3.562$, $p < .05$) and on RBS ($t = 7.631$, $p < .05$) though none was observed for BMI ($t = -1.97$, $p > .05$) and also significant differences in the effects of the different rate of use of the drinks on BP ($F = 4.237$, $p<0.05$) and RBS ($F = 4.964$, $p<0.05$). Findings illustrate that the rate of consumption has 48.3% ($\beta = .483$) effect size on BP while it has 76.9% ($\beta = .769$) effect size on RBS (table 5). These findings affirm Zhang *et al*., (2019), Sabiu *et al*., (2016); Swati and Sapna (2012) arguments on the existence of side effects of aphrodisiac drinks.

The two health parameters, BP and RBS significantly affected are major health parameters that are vital to the health of people and anything that affects these vital signs predisposes them to ill health. The parameters can also serve as indices to measure the health of some internal organs like the heart, kidneys, pancreas etc. This is a matter of public health concern and it calls for the intervention of the government (relevant agencies and parastatals) and non-governmental organisations to ensure effective control on the quality and consumption of the drinks so as to reduce the rate scale of organ damages, cardiac problems and other related health issues in Nigeria and also lessen the burden on the grossly inadequate and already over stretched health facilities in the country.

Many of these side effects expressed by the respondents have been reported in the work of Ramlachan and Campbell, 2014. The reduction in sexual function reported by some respondents appeared ironical. Most of these aphrodisiac drinks contain high percentage of alcohol, up to 44 %v/v and alcohol has negative effects on sexuality. Excessive consumption of alcohol has been known to lower the testosterone levels in the body. This, in turn, lowers libido and prevents physical arousal in men (Obodeze, 2019).

It is the right of every consumer to know the constituents of what they are consuming; hence, it is binding on manufacturers to write the constituents of their products on the packaging. About 70% of the drinks have their constituents written on their packs while 30 % do not. The percentage of companies that did not stick to this standard practice is high, hence, it is imperative for the concerned regulatory bodies to ensure that companies stick to these standard best practices. Shelf-life of a product gives information on its suitability for consumption. An alarming 80 % of these products did not have expiry dates written on the product packages. This opens consumers up to great health challenges bearing in mind that majority of the people that consume these drinks do so regularly and they do not have information on the suitability of these products for consumption.

Only 28 % of these drinks are non-alcoholic, bringing the percentage of the alcoholic drinks to 64 %. The vehicles used in constituting 8 % of the drinks were not written on the product packs. Ten percentage of the drinks contained less than 30 %v/v alcohol, 54 % had percentage alcohol between 30 %v/v and 42 % v/v of alcohol. The alcohol content of many of these aphrodisiac drinks is high and this can predispose them to myriads of health conditions.

CONCLUSION

The research findings declare that consumption rate of aphrodisiac drinks by the commercial bus drivers in Ile Ife, Nigeria is high and that their consumption rate has significant effect on the drivers' blood pressure and random blood sugar.

A need exists for stakeholders such as government and non-government agencies to embark on a campaigns to create awareness on safe use of aphrodisiac drinks and effects of use, and discourage indiscriminate use through public education, advocacy via mass media, social media and face - to - face gathering. It is also necessary to find means to promote strong attitudinal alteration to reduce the frequency and volume of consumption of aphrodisiac drinks.

Regulatory bodies should embark on post-approval market surveillance to ensure compliance to manufacturing standards. The regulatory bodies can also look into the possibility of setting a limit to the percentage alcohol permissible in these drinks.

We also want to recommend the control of these aphrodisiac drinks. The fact that they contain plant extracts puts them in the category of drugs and access to them should not be indiscriminate. Most of the sellers are unqualified to handle such products, hence, there is need to devise modalities to ensure handling of the aphrodisiac drinks by professionals to safeguard the health of the Nigerian citizens.

ETHICAL CONSIDERATIONS

Ethical authorization was received from the Health Research and Ethics Committee of the institution for the research.

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