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Knowledge, Attitude and Consumption Pattern of Alcoholic and Sugar Sweetened Beverages among Undergraduates in a Nigerian Institution

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ABSTRACT

High consumption of alcoholic and sugar sweetened beverages (SSBs) remains a public health problem among the young adults. This study assessed the knowledge, attitude and consumption pattern of alcohol and SSBs among the undergraduate students. A pretested, self-administered questionnaire was used to obtain information on the socio-demographic characteristic, knowledge, attitude and consumption pattern of the students regarding the negative social and health implications of excessive consumption of alcohol and SSBs from 376 undergraduate students from the University of Ibadan. Data was analyzed using descriptive statistics and chi square at $P<0.05$ was considered significant. The mean age of the students was 22.5±2.3 years. Large proportion (83.0% and 86.7%) had adequate knowledge of the health implications of excessive consumption of alcohol and SSBs respectively. Majority (85.4%) had positive attitude towards intake of alcoholic drinks while 83.5% had negative attitude towards the intake of SSBs. Majority (83.0%) of the respondents considered high intake of alcoholic drinks as dangerous to health while only 32.5% considered regular consumption of SSBs as dangerous to health. Majority (75.0%, 63.3% and 79.3%) of the respondents abstained from intake of beers, alcoholic wines and spirits respectively. Significant relationship was observed between the knowledge of social and health implication of excessive consumption of alcohol and the abstinence of the participants ($p<0.05$). A significant relationship was also observed between frequent consumption of SSBs by the respondents and being overweight ($P<0.05$). Knowledge of the undergraduate students on the social and health implication of excessive consumption of alcohol and sugar sweetened beverages was adequate. Majority had negative attitude towards alcohol intake but positive attitude towards the intake of sugar sweetened beverages. Frequent consumption of sugar sweetened beverages could contribute to being overweight. Nutrition education to encourage healthful dietary practices regarding the intake of sugar sweetened beverages should be intensified.

Key words: Knowledge, Attitude, Consumption pattern, Sugar Sweetened Beverages, Alcoholic drink

INTRODUCTION

Alcoholic drinks are drinks that contain ethanol which is commonly known as alcohol. It includes drinks such as wines, beers and spirits while sugar-sweetened beverages (SSBs) are drinks with added sugar such as carbonated drinks, energy drinks, sport drinks soda, flavored juice drinks, non-diet soft drink and sugar sweetened beverages(Mark et al, 2006).

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Alcohol consumption has been in existence for thousands of years and the drinking of alcoholic beverages is a common feature of social gatherings globally (WHO, 2009). However, the rate of consumption of alcohol among the general population and heavy episodic drinking of alcohol among young adults are on the rise in many countries (WHO, 2009). Alcohol use during adolescence and young adulthood remains a prominent public health problem (Youth lens, 2012). Reports also indicate that consumption of sugar-sweetened beverages has increased both in the developed and developing countries in the last four decades (Duffey and Popkin, 2007).

Previous works have shown that the rate of consumption of alcohol and sugar-sweetened drinks is increasing among the general population, most especially among young adults in developing and developed countries. Excessive consumption of these drinks were reported to have health consequences such as nutrition related chronic diseases which include overweight, obesity, diabetes, hypertension and coronary heart diseases (Booth et al, 2003; Somerset, 2003; Bliech et al, 2009; Vartanian et al, 2010). Excessive consumption of alcohol has also been associated with alcoholism, social vices, oesophageal cancer, liver cirrhosis, liver cancer, epilepsy, vehicle accidents and other traumatic outcomes that results in disability and loss of life (WHO, 2004; Wang et al.,2008).

The World Health Organization Global Information System on Alcohol and Health (WHO, 2010) which is an essential tool for assessing and monitoring the health situation and trends related to alcohol consumption, alcohol related harm and policy responses recorded about 2.5 million deaths annually as a result of harmful use of alcohol in Nigeria (WHO, 2009). In 2005 only, the world total consumption of alcoholic beverages was an average of 6.13litres of pure alcohol per person which was mostly observed among people of ages 15years and older (WHO, 2009). The World Health Assembly, (2008) reported that harmful use of alcohol is a serious health burden; 2.5million people including 320,000 young people between the ages of 15 and 29 years die as a result of harmful use of alcohol yearly (WHO, 2010).
In Nigeria, misuse of psychoactive substance, especially alcohol has for many years been an issue of increasing health and social concern (Adelekan, et al., 2000). Studies in Nigeria carried out in the last decade have identified adolescents and young adults as major groups involved in the use of alcohol (Adelekan, et al., 2000). Wang and Blech (2008) report also indicated that adolescents and young adults consume more SSBs than other groups of individuals although the purpose as well as the pattern of consumption of these drinks varies widely among societies. This study was thus conducted to evaluate the knowledge, attitude and consumption pattern of alcohol and SSBs among young adults University undergraduate students to help develop measures to combat excessive alcohol and SSBs consumption among the students..

MATERIALS AND METHODS

A cross sectional survey involving undergraduate students (age 17-26 years) of the University of Ibadan, Nigeria was conducted. University of Ibadan is located in the South-West of Nigeria. It is the oldest university in Nigeria; it has a mixture of students from different ethnic backgrounds in Nigeria, however the major ethnic group is Yoruba.

Sample selection: A multistage random sampling technique was used to select the study population to provide a representative population. The first stage involved the use of simple random selection method (balloting) to select seven undergraduates' halls of residence out of the nine male and female halls of residence for the undergraduate students.

In the second stage, alternative blocks within the selected halls of residence were selected, the third stage involved systematic random selection of twenty-six rooms from the selected blocks of residence while the fourth stage involved the selection of two students who gave their consent to participate in the study from each room. In a situation where there were more than two eligible students occupying a room, ballots were cast to select two students.

Data collection: A pretested, self-administered questionnaire was used to collect information on the socio- demographic characteristics, knowledge and attitude of the students with regards to the health implication of frequent/excessive consumption of alcoholic and sugar-sweetened beverages (SSBs). Sugar-sweetened beverages were defined as all sodas, fruit drinks, energy drinks, low-calorie drinks, non-alcoholic wines/malt and cocoa beverages. Twelve questions item were designed to elicit "yes" or "no" answers to assess the students' knowledge of the health implication of frequent consumption of alcohol and SSBs respectively. Percentage scores were computed to evaluate the students' knowledge; those who had a percentage score of below 50.0% were classified as having inadequate knowledge while those who had a percentage score of 50.0% and above were classified as

having adequate knowledge on health implication of frequent/excessive alcoholic and SSBs consumption respectively. Habitual consumption pattern of alcohol and SSBs was assessed using a validated Food Frequency Questionnaire (FFQ). Participants were asked to report on how often they consumed drinks from each of the alcoholic and SSBs categories listed in the FFQ. Consumption pattern of three categories of alcohols which included: beers, alcoholic wines and spirits for alcoholic drinks; and five categories of SSBs which were: fruit juice; soft-carbonated and soda drinks; energy drinks, malt drinks and cocoa beverages were assessed. Consumption pattern was classified as follows: Abstainers (those who completely avoided intake of alcohol or SSBs), infrequent drinkers (those who drank alcohol or SSBs occasionally and ≤3 times per week) and frequent drinkers (those who drank alcohol or SSBs >3 times per week).

Data analysis: Data collected were analyzed using SPSS version 16.0. Quantitative variables were summarized as proportions, frequencies, mean with their standard deviations, range and percentages. Chi square test was used to evaluate the association between selected variables: knowledge of health implications of excessive intakes of alcohol or SSBs and their consumption pattern; Body Mass Index (BMI) and frequency of consumption of alcohol and SSBs. Level of significant was set at $P< 0.05$.

Ethical consideration: Study protocol was approved by the Joint University College Hospital and the University of Ibadan Ethical Review Committee.

RESULTS

Table 1 shows the socio-demographic characteristics of the respondents. Majority (70.5%) of the respondents were male while 29.5% were females, the age of the respondents ranged from 17 to 27years with a mean of 22.5±2.3 years. Only 20.0% were below 20years of age. More than half (58.5%) were between 20- 24 years. The majority (81.6%) were Yoruba from South-Western part of Nigeria, 14.1% were Igbo while a few (4.3%) were Hausa. Majority of the respondents' parents were civil servants.

Knowledge of respondents on the health implications of frequent or excessive consumption of alcohol and SSBs are summarized in tables 2a and b. Majority (83.0%) and 86.7% had adequate knowledge of the health implications of excessive intake of alcoholic drinks and SSBs respectively. Majority of the respondents (90.2%) and 80.6% also reported that frequent intake of alcohol or SSBs could lead to both physical and health hazards, 88.3% knew that excessive intake of alcohol could lead to emotional and psychological distress. Also, 84.8% knew that alcohol intoxication can fascinate negative antisocial behavior which may attract punitive sanction. A large proportion (86.2%) also claimed to know that excessive intake of SSBs could lead to overweight and obesity.

Table 1:
Socio-demographic characteristics of the respondents

	Frequency	**Percentage**
Sex		
Male	265	70.5
Female	111	29.5
Age group in years (X=22.5±2.3)		
<20	75	20.0
20-24	220	58.5
25 above	81	21.5
Religion		
Christianity	300	79.8
Islam	76	20.2
Ethnicity		
Yoruba	307	81.6
Igbo	53	14.1
Hausa	16	4.3
Highest Education level of household head		
Primary	27	7.2
Secondary	50	13.3
Post-secondary	47	12.5
Tertiary	252	67.0
Father's occupation		
Trading	68	18.1
Farming	37	9.8
Civil servant	207	55.1
Others	64	17.0
Mother's occupation		
Trading	147	39.1
Farming	23	6.1
Civil servant	186	49.5
Others	20	5.3

Table 3 presents the attitude of respondents towards consumption of alcohol and SSBs. There is an indication of negative attitude towards consumption of alcoholic drinks among the respondents.

Table 2a:
Knowledge of respondents on the health implication of excessive/frequent intake of alcoholic beverages

	Frequency (n)	%
Know what alcoholic beverages are		
Yes	345	91.8
No	31	8.2
Alcohol is a drug		
Yes	224	59.6
No	152	40.4
Do take alcohol		
Yes	75	19.9
No	301	80.1
Excessive intake of alcoholic beverages leads to social vices		
Yes	314	83.5
No	62	16.5
Excessive intake of alcoholic beverages can lead to both physical and health hazards		
Yes	339	90.2
No	37	9.8
Frequent intake of alcoholic beverages can lead to emotional and psychological distress		
Yes	332	88.3
No	44	11.7
Frequent intake of alcoholic beverages can lead to disability and death		
Yes	319	84.8
No	57	15.2
Intoxication attracted negative sanction		
Yes		
No	334	88.4
	42	11.6
Knowledge score of the participants		
Adequate	312	83.0
Inadequate	64	17.0

Majority (80.1%) was of the opinion that consumption of alcohol is bad and 79.5% disagreed on serving it to friends as social drinks. Most (83.0%) was of the opinion that drinking alcohol is very dangerous to health. With regards to SSBs, majority (78.2%) felt drinking SSBs is good and 81.6% felt they could be served to friends as social drinks. Half (50.0%) and 17.6% perceived SSBs as social drinks and beneficial to health respectively while 32.5% felt they were dangerous to health.

Table 2b:
Knowledge of respondents on the health implication of excessive/frequent intake of Sugar Sweetened beverages

	Frequency (n)	%
Know sugar sweetened beverages		
Yes	357	94.9
No	19	5.1
Do take sugar sweetened beverages		
Yes	351	93.4
No	25	6.6
Excessive consumption of SSBs has health implications		
Yes	310	82.4
No	66	17.6
High intake of SSBs has physical and health hazard		
Yes	303	80.6
No	73	19.4
Know the various types of sugar sweetened beverage		
Yes	316	84.0
No	60	16.0
Frequent consumption of sugar sweetened beverages can lead to overweight and obesity		
Yes	324	86.2
No	52	13.8
Knowledge score of the participants		
Adequate	326	86.7
Inadequate	50	13.3

Table 4 indicates the consumption pattern of alcohol and SSBs of the respondents. Large proportion (75.0%, 63.3% and 79.3%) of the respondents abstained from consuming beers, alcoholic wines and spirits respectively. A total of 17.6%, 33.0% and 15.2% were infrequent drinkers of beers, alcoholic wines and spirits while very few (7.4%, 6.2% and 3.5%) of the respondents were frequent drinkers of beers, alcoholic wines and spirits respectively.

Low proportion (17.3% and 18.3%) abstained from fruit juice and soft, carbonated &soda drinks respectively. Very few respondents (6.9%, 3.5% and 2.7%) abstained from the intake of energy drinks, malt drinks and beverages respectively. Also a total of 12.3%, 49.9%, 25.0%, 26.1% and 22.6% were infrequent drinkers of fruit juice, soft and carbonated drinks, energy drinks, malt drinks and beverages respectively. A large proportion (67.4%, 68.1%, 67.4%, 74.7%) of the respondents were frequent drinkers of fruit juice, energy

drinks, malt drinks, and beverages respectively while 59.8% were frequent drinkers of soft, carbonated and soda drinks.

Table 5 shows the relationship between consumption pattern of alcohol and SSBs and Body Mass Index of the respondents.

Table 3:
Attitude of participants toward alcoholic drinks and sugar sweetened beverages

Variables	Frequency (n)	(%)
ALCOHOLIC DRINKS		
It is not good to take alcoholic drink		
Agreed	75	19.9
Disagreed	301	80.1
It is wrong to entertain friends with alcoholic beverages		
Agreed	77	20.5
Disagreed	299	79.5
Alcoholic drinks are		
Social drinks	53	14.1
Good for health	11	2.9
Dangerous to health when taken excessively	312	83.0
Attitude score of the respondents		
Positive attitude towards alcohol use	55	14.6
Negative attitude towards alcohol use	321	85.4
SUGAR SWEETENED BEVERAGES		
It is good to drink sugar-sweetened beverages		
Agreed	294	78.2
Disagreed	82	21.8
You entertained friends with sugar-sweetened beverages		
Agreed	307	81.6
Disagreed	69	18.4
Sugar sweetened beverages are		
Social drinks	188	50.0
Good for health	66	17.6
Dangerous to health when taken excessively	122	32.5
Attitude score of the participants		
Positive attitude towards drinking SSBs	314	83.5
Negative attitude towards drinking SSBs	62	16.5

There was no relationship between being a frequent drinker of alcohol and being overweight among the respondents (P> 0.05). However, significant relationship was observed between being a frequent drinker of SSBs and being overweight (P< 0.05).

DISCUSSION

This study has revealed that a large proportion of the undergraduate students in University of Ibadan had adequate knowledge of the social and health hazards of excessive consumption of alcoholic and sugar-sweetened beverages. Although, many of them were not frequent drinkers of alcoholic drinks, a large proportion were taking sugar-sweetened beverages frequently. This observation is similar to the reports of Adelekan et al (2000), Tapart et al (2007), Duffey and Popkin (2007) and Chikere and Mayowa (2011) which indicates that drinking alcoholic beverages is a common feature in many societies and SSBs consumption is very high among the young adults and adolescents all over the world. Alcohol intake is known to be the world's third largest risk factor for diseases burden (Duffey and Popkin; 2007). Excessive alcohol intake is known to be common among adolescents and young adults which is associated with intoxication and many negative social and health consequences including violence, child neglect and abuse, absenteeism from workplace and chronic diseases (WHO, 2011). This suggests the need for intensive campaigns for this group of young individuals against alcohol use and excessive intake/frequent intake of SSBs. The information could be part of their curriculum at school or given as seminars. Recently, SSBs have been at the forefront of obesity- related debates.

Sugar- sweetened beverages has been implicated as one of the contributory factors to increased body weight and high risk of obesity observed among many population (Malik et al., 2006; Block, 2006). The high consumption of SSBs observed among the students in this study could be as a result of their perception of sugar sweetened beverages. For example, many of the respondents perceived SSBs as social drinks and it is alarming that majority consumed SSBs regularly despite their awareness of health implications of excessive consumption of these drinks. Although, majority perceived alcoholic drinks as dangerous to health and the prevalence of consumption was low among the respondents, the few that were still taking alcohol need continuous intensive counseling to make them realize the untoward effects of alcohol consumption and excessive(> 1 bottle/day) intake of SSBs .

Table 4:
Consumption pattern of alcohol and sugar sweetened beverages among the respondents

Variable	Abstainer n(%)	Infrequent Occasionally n(%)	drinkers ≤3x/wk n(%)	Total n(%)	Frequent 4-5x/wk n(%)	drinkers Daily n(%)	Total n(%)
ALCOHOL							
Beers	282(75.0%)	48 (12.8%)	18(4.8%)	**66(17.6)**	16 (4.3%)	12(3.1%)	**28(7.4)**
Alcoholic wines	238(63.3%)	90(24.0%)	34(9.0%)	**124(33.0)**	13 (3.5%)	10(2.7%)	**23(6.2)**
Spirits	298(79.3%)	43(11.7%)	13(3.5%)	**56(15.2)**	11 (3.0%)	2(0.5%)	**22(3.5)**
SUGAR- SWEETENED BEVERAGES							
Fruit Juice	65(17.3%)	30(8.0%)	16(4.3%)	**46(12.3)**	245(65.2%)	20(2.2%)	**265(67.4)**
Soft , carbonated & soda drink	17(18.3%)	52(27.8%)	81(22.1%)	**133(49.9)**	123(32.7%)	102(27.1%)	**225(59.8)**
Energy drink	26(6.9%)	15 (4.0%)	79(21.0%)	**94(25.0)**	125(33.3%)	131(34.8%)	**256(68.1)**
Malt drinks	13(3.5%)	10(2.7%)	88(23.4%)	**98(26.1)**	108(28.7%)	157(41.8%)	**265(67.4)**
Beverages	10(2.7%)	29(7.7%)	56(14.9%)	**85(22.6)**	120(31.9%)	161(42.8%)	**281(74.7)**

Occasionally = 1x/month; ≤3x/wk = less or equal to three times per week; 4-5x/wk = 4-5 times per week

Table 5:
Consumption pattern of alcohol & Sugar Sweetened Beverages and Body Mass Index of the respondents

Variable	Underweight	Normal	Overweight	Total	χ2-Value	P-value
Beer						
Abstainer	5(1.3)	178(47.3)	99(26.3)	282(75.0)	2.57	0.3282
Frequent drinkers	4(1.1)	10(2.7)	14(34.9)	28(7.5)		
Infrequent drinkers	7(1.7)	46(12.3)	13(3.5)	66(17.5)		
Alcoholic wine						
Abstainer	3(0.8)	158(42.0)	77(20.5)	238(63.3)	4.07	0.1311
Frequent drinkers	6(1.6)	77(20.5)	42(11.1)	23(6.1)		
Infrequent drinkers	3(0.8)	102(27.1)	10(2.7)	115(30.6)		
Spirits						
Abstainer	6(1.6)	198(52.7)	94(25.0)	298(79.3)	2.08	0.3521
Frequent drinkers	3(0.8)	8(2.1)	2(0.5)	13(3.5)		
Infrequent drinkers	4(1.1)	34(9.0)	27(7.2)	65(17.3)		
Fruit Juice						
Abstainer	5(1.3)	46(12.2)	14(3.7)	65(17.3)	17.28	0.0023*
Frequent drinkers	4(1.1)	75(20.0)	186()	265(70.5)		
Infrequent drinkers	3(0.8)	17(4.5)	26(6.9)	46(12.2)		
Soft, carbonated & soda drinks		7(1.7)	10(2.7)	17(4.5)	14.69	0.0013*
Abstainer	3(0.8)	53(14.1)	170(45.2)	225(59.8)		
Frequent drinkers	2(0.5)	110(29.3)	18(4.8)	134(35.6)		
Infrequent drinkers	6(1.6)					
Energy drinks						
Abstainer	2(0.5)	22(5.9)	2(0.5)	26(6.9)	12.38	0.0015*
Frequent drinkers	7(1.7)	98(26.1)	168(44.7)	256(68.1)		
Infrequent drinkers	9(2.4)	70(18.6)	15(4.0)	94(25.0)		
Malt drink						
Abstainer	3(0.8)	4(1.1)	6(1.6)	13(3.5)	25.66	0.0002*
Frequent drinkers	6(1.6)	44(11.7)	215(57.2)	265(70.5)		
Infrequent drinkers	6(1.6)	78(20.8)	14(3.7)	98(26.1)		
Beverages						
Abstainer	3(0.8)	3(0.8)	4(1.1)	10(2.7)		
Frequent drinkers	6(1.6)	33(8.8)	245(65.2)	281(74.7)	32.79	0.0001*
Infrequent drinkers	5(1.3)	49(13.0)	31(8.3)	85(22.6)		

With regards to the anthropometric indices of the undergraduate students, significant association was observed between frequent intake of SSBs and being overweight among the students. Similar observations have also been reported among adolescents and young adults by many researchers in other countries (Somerset et al., 2003; Bliech et al., 2009; Tordoff and Alleva, 2009; Norton et al, 1998; Vartanian et al., 2010; Han and Powel, 2013). These earlier reports highlighted that, as a result of plausible physiological mechanism, frequent or excessive intake of sugar-sweetened drinks could lead to overweight and obesity, due to imprecise and incomplete compensation for energy consumed in liquid form (Lawton et al., 1998; Vartanian et al., 2010). Consumption pattern of alcohol and sugar sweetened beverages for pleasure and in many other social gathering may be considered normal in many African traditions if taken in moderation, especially during ceremonies, however, there is likelihood of taking them in excess which could lead to social and health hazards. Also, the quantity and reasons for consumption of alcohol is changing from the role of fostering social cohesion to socio-political and economic structures, a means of showing off in public places, to feel high and feel sociable, to enhance sexual pleasures and other harmful use. All these have resulted in increased burden of alcohol- related problems which has been estimated to exceed those relating to tobacco consumption. Also, it has been reported that alcohol misuse could lead to increase in automobile accidents, disabilities and death in early years (Jernigan, 2001). It was also reported in a National survey data in the United States that, over the past 20 years, there has been an increase in rates of overweight and obesity due to high consumption of carbohydrates, largely in the form of SSBs (Kantor, 1998; Anand and Basiotis, 1998).

Thus, efforts to discourage overall consumption of alcohol and SSBs need to be intensified to create strong awareness on the importance of reducing the intake of these drinks. Government policy interventions could have the most visible effect on controlling SSBs consumption and obesity among adolescent and young adults.

It was revealed in this study that knowledge on health implication of excessive consumption of alcohol and sugar-sweetened beverages consumption was adequate among the undergraduate students however, high proportion were consuming sugar sweetened beverages frequently. Frequent consumption of sugar sweetened beverages could contribute to being overweight. Continuous campaigns and advertisements on the harmful effects of excessive consumption of alcohol and SSBs to discourage the overall consumption of these drinks among the undergraduate students need to be intensified. Also, the government needs to regulate the production and consumption of these drinks through policy to prevent the rising intake and the health-related harm caused by the misuse of these drinks.

REFERENCES

Adelekan ML, Ndom RJE, Makanjuola AB et al (2000): Trend analysis of substance use among undergraduates of the University of Ilorin. 1988-1998; African Journal of drug alcohol studies 1:39-52

Anand R, Basiotis P. (2008): Is total fat consumption really decreasing? Washington, DC: USDA Center for Nutrition Policy and Promotion. (Nutrition Insights 5.)

Booth ML, Chey T, Wake M, Norton K, Hesketh K, Dollman J, Robertson I (2003): Change in prevalence of obesity and overweight among young Australians'' 1969-1997, Am J Clin Nutr.77(1): 29-36.

Block G.(2006): Food contribution to energy intake in the US: Data from NHANES III and NHANES 1999-2000. J. Food Composition and Analysis. 17(3-4): 439-4

Bliech, S, Wang Y, Gorman S, (2009): Increasing consumption of sugar-sweetened drinks among us Adults - 1988 to 2004. Am J Clin Nutr (89): 372-81

Centers for Disease Control and Prevention (2009a): Adult BMI Retrieved February 12 2013, from http://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html

Duffey K and Popkin B (2007): Shifts in pattern and consumption of beverages between 1965 and 2002. Obesity 15(11):2739-2747

Han E and Powel LM (2013): Consumption pattern of Sugar sweetened beverages in United States. Journal of the Academy of Nutrition and Dietetics 113: 43-53

Kantor L (1998.): A dietary assessment of the US food supply: comparing per capita food consumption with Food Guide Pyramid service recommendations. US Department of Agriculture. Washington, DC: US Government Printing Office,

Lawton CL, Delargy HJ, Smith FC, Hamilton V, Blundell JE.(1998): A medium term intervention study on the impact of high- and low-fat snacks varying in sweetness and fat content: large shifts in daily fat intake but good compensation for daily energy intake. Br J Nutr 80: 149–61.

Somerset, S.M. (2003): Restricting access to palatable foods affects children's behavioral response, food selection, and intake. Am J Clin Nutr, 69(6): 1264-1272

Malik VS, Schulze MB, Hu FB (2006): Intake of Sugar sweetened beverages and weight gain: A systematic review. Am. J. Clin Nutr. 84(2): 276-289

Tapart SF, Aarons GA, Saddler GR, Brown SA (2001): Adolescent substance use and sexual risk-taking. Journal of Adolescent Health. 28(3): 181-189

Tordoff MG, Alleva AM (2009). Effect of drinking soda sweetened with aspartame or high –fructose on food intake and body weight. Am J Clin Nutr 90: 269-275

Vartanian, L, Schwartz B, Brownell K (2010): Effects of soft drinks consumption on Nutrition and health'': A systematic review and meta- analysis. Am J Public Health. 97(4): 667–675.

Wang YC, Bliech SN, Gormaker SL (2008): Increasing caloric contribution from sugar-sweetened beverages and 100% fruit juices among US children and adolescents, 1988–2004. Pediatrics 121: e1604–e1614.

World Health Organization (2009): Expert committee on problems related to Alcohol consumption, second Report. Geneva

World Health Organization (2004): Youth Violence and alcohol. Geneva.

World Health Organization (2010 & 2011): Global status report on Alcohol and Health (GISAH).

Zarzar P M, Jorge K.O, Okasanen T., Vale P.M, Ferrira E.F, Kwachi I. (2012): Association between binge drinking, types of friends and gender; a cross-sectional study among Brazilian adolescents. BMC Public Health, 12:257