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Effect of Alcohol Consumption on the Nutritional Status of Male Diploma Students in The Federal Polytechnic, Ilaro

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Abstract

Two hundred (200) male of the Federal Polytechnic, Ilaro students randomly selected from the Schools of Pure and Applied Sciences, Engineering, Management Studies and Environmental Studies were used to study the effect of alcohol consumption on nutritional status of Diploma students. A validated structured questionnaire was used as research instrument to collect socio demographic and socio-economic characteristics, and alcohol consumption of the research subjects, while bodyweights and heights (anthropometric parameters) were measured using standard methods. The Body Mass Index (BMI) were estimated and used to define the nutritional status of the subjects. Data were subjected to descriptive (percent frequency, mean, and standard deviation) and inferential (chi-square and ANOVA) statistical analysis using Statistical Package for Social Sciences (SPSS) VERSION 20.0. The results indicated that alcohol consumption habit was developed by the male Polytechnic students at the early age of 15 to 20 and majority grow to become habitual drinkers consuming as much as thrice daily. The drinking habit spread among the students through peer pressure where alcohol consumption became 57.5% prevalence. Also, the alcohol consumption significantly affected their nutritional status expressed by BMI where 31.5% of them exhibited abnormal bodyweight (underweight and overweight), forms of malnutrition. Consequently, affected students are the risk of associated health complications relating to alcohol consumption if not curtailed.

Keywords: Adolescents; Alcohol consumption; Body Mass Index; Male students; Nutritional status.

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1. Introduction

The alcohol, a product of yeast fermentation of sugar and starch, is an intoxicating ingredient found in beer, wine and liquor. Also, it is a central nervous system depressant that is rapidly absorbed from the stomach and small intestine into the blood stream (NIAAA, 2007). Alcohol consumption is high among college students and abuse raising concern to college authorities. Excessive alcohol consumption by adolescents could result in permanent brain damage and intellectual development impairment as well as poor learning outcomes (Reynolds *et al*., 2003). Its consumption impair growth and the endocrine system upsetting the critical hormonal balance necessary for normal development of organs, muscles and bones (Dees *et al*., 2001). Besides, alcohol consumption has been associated with malnutrition, body mass index (BMI). It was reported that heavy alcohol intake is associated with an increased risk of weight gain and obesity, while light to moderate drinking does not have any effect (Wannamethee and Shaper, 2004). The findings of cross-sectional studies have not been as consistent, except that very heavy consumers (consumption of 49 g/day) have a low BMI (Suter & Tremblay, 2005).

Insecure and inadequate attachment, poor coping mechanism, parental figures, environmental trigger, easy accessibility, culture of drinking among university students, internal and external motives that prompt alcohol use, anxiety, and problematic relationship at home have been some of the causative factors among young adults (Goddard & Green, 2005). Locke & Newcomb (2004) have shown that parent-child relationship, lack of

nurturing, involved parenting, and broken family increase the risk for anti-social behaviour and later heavy alcohol consumption among adolescents.

The NHS Information Statistics on Alcohol (2008) reported that among the young people aged 16-24 years, that 26% and 24% of males and females, respectively drank above the recommended weekly limits of 21 and 14 units for low risk drinking in adult men and women, respectively. It was further reported that 9% of young males and 6% of young females drank over 50 units per week. However, it was observed in Nigeria that the proportion of young people aged between 11-15 years that have taken alcohol decreased from 62% to 54% between 1994 and 2007.

Concerned about the rising incidence of alcohol and drug abuse by the adolescence in the Nigeria tertiary institutions and the implication on their general wellbeing, this study aimed at assessing the effect of alcohol consumption on the nutritional status of male Diploma students in The Federal Polytechnic Ilaro. This work would provide useful information about the male student the Polytechnic Education sector, which could serve as a reference for any form of intervention program either by the institution, government or non-governmental organization.

2 Materials and Method

A cross-sectional research design was used to study the effect of alcohol consumption on the nutritional status of male students of Federal Polytechnic, Ilaro. Two hundred male students enrolled in various programmes at the National Diploma and Higher National Diploma levels were selected using multi-stage sampling technique were used for the study. A validated structured questionnaire was used as research instrument to collect socio demographic and socio economic characteristics, and alcohol consumption of the research subjects. Thereafter, their bodyweights (Kg) and heights (m) were measured using bathroom scale and height gauge, respectively. The Body Mass Index (BMI), which corresponds to the bodyweight divided by the square of the height and expressed as Kg/m^2 were estimated and used to define the nutritional status of the subjects. The subjects were classified underweight (BMI $<18.5kg/m^2$), normal (BMI $18.5 \leq 25.0kg/m^2$), overweight (BMI $25.0 \leq 30.0kg/m^2$) and obesity (BM $\geq 30.0kg/m^2$) according to World Health Organisation (WHO) recommendations.

Data collected were subjected to statistical analysis using SPSS (version 20). Descriptive and inferential statistics were used to analyze the data. Statistical significance was set at $p<0.05$.

3. Results and Discussion

Table 1 shows the socio-demographic and socio-economic characteristics of the respondents. Majority of the respondents (54.5%) were between the ages of 21-25 years, some of the respondents (41.5%) were between 16-20 years, (4.0%) were above 26 years. About a third of the respondents (37.5%) were students of School of Management studies, while about a quarter of the students belong to each of the School of Pure and Applied Sciences, (25.0%) the School of Engineering. The remaining (11.5%) were from School of Environmental studies. Nearly half of the respondents (48.5%) were ND 2 students, (33.0%) were ND 1 students, (13.0%) were HND 1 students while (5.5%) were HND 2 students. Two thirds of the students belong to the Christian faith, while about a third were Muslims. An insignificant 4% were traditionalists. Nearly all the respondents (82.0%) were Yoruba, (11.0%) were Igbo, (6.0%) were Hausa and (1.0%) belong to other ethnic. Majority (94.5%) of the respondents were single, (2.0%) were married, (3.5%) were divorced. In regard to the income (32.0%) earned below ₦5,000 monthly, (32.0%) earned between ₦6,000 - ₦10,000 monthly, (14.0%) earned between ₦11,000 - ₦15,000 monthly, (4.5%) earned between ₦16,000- ₦20,000 monthly and (17.5%) earned above ₦20,000 and above monthly. Half (50.5%) had 2-4 siblings, (19.5%) had one sibling while (30.0%) had more than five siblings. The age-group distribution reflected the admission requirement of the Polytechnic where age 17 is the minimum

acceptable for ND programmes. However, there is no age restriction for HND programmes. The skewness of the student population towards science and technology-based programme is due to the admission policy of technology (70%) : management (30%) ratio in the Polytechnic. Further, the dominance of Yoruba ethnic group is due to catchment area of the Polytechnic being the Southwest, Nigeria, which predominantly is of Yoruba ethnicity.

Table 1: Socio-demographic and socio-economic characteristics of the respondents

Variable	Frequency	Percentage	Variable	Frequency	Percentage
Age			**Ethnicity**		
16-20 years	83.0	41.5	Yoruba	164.0	82.0
21-25 years	109.0	54.5	Hausa	12.0	6.0
>26 years	8.0	4.0	Igbo	22.0	11.0
			Others	2.0	1.0
School					
Applied science	52.0	26.0	**Marital status**		
Engineering	50.0	25.0	Single	189.0	94.5
Management	75.0	37.5	Married	4.0	2.0
Environment	23.0	11.5	Divorced	7.0	3.5
Level of study			**Income**		
ND 1	66.0	33.0	<₦5000	64.0	32.0
ND 2	97.0	48.5	₦6000- ₦10,000	64.0	32.0
HND 1	26.0	13.0	₦11,000 - ₦15,000	28.0	14.0
HND 2	11.0	5.5	₦16,000-₦20,000	9.0	4.5
			Other	35.0	17.5
Religion					
Christianity	132.0	66.0	**Number of children in the family**		
Islam	60.0	30.0	1	39.0	19.5
Traditionalist	8.0	4.0	2-4	101.0	50.5
			>5	60.0	30.0

The alcohol consumption pattern and the nutrituinal status of the respondents are shown in Table 2. The results indicated that majority (68.5%) of the respondents had normal nutrittion status, that is, normal weight, whereas others exhibited abnormal nutritional status where (28.0%) of the them were underweight and 3.5% were overweight. However, there was no case of obesity.

More than half (57.5%) indicated that they consume alcohol while (42.5%) said they do not. Half (50.0%) of the respondents affirmed that they are normal drinkers while (50.0%) claimed they are not normal alcohol drinkers. Majority (60.0%) started consuming alcohol between the ages of 16-20 years, (34.5%) started before 15 years, (4.0%) between ages 21-25 years while (1.5%) started consuming alcohol after 26 years. More than half of the respondents (56.0%) started consuming alcohol as a result of peer pressure, (20.5%) as a result of addiction, (6.5%) due to boredom while (17.0%) said it is because of influence of an adult who consume alcohol around them. Not up to half of the respondents (35.0%) consume alcohol 3-5 times per week, (19.0%) consume alcohol every day, (22.5%) take alcohol once a week while (23.5%) consume alcohol only during weekends. The results implied that the students started the drinking habit as early as below 15 when they are yet to gain admission into the Polytechnic probably in their secondary schools. Then a third of them were already started the drinking habit.

The habit might have spread to their mates in the Polytechnic through peer pressure. More so, consumption of alcohol has been outlawed in the Polytechnic. Indeed, sale of alcohol on the Polytchnic campus has been prohibited almostly two decades ago. Unfortunately, the Polytechnic's on-campus hostel accomodation has been indequate resulting in over 75% of the student living off-campus and in the town where they can have unrestricted access to purchase and consumption of alcohol. Unfortunately, alcohol consumption at a very tender age of 15-20 years may result in the early onset of unintentional injuries than those who chose to drink at a later age (Hingson *et al.*, 2000). Besides, the high prevalence of alcohol consumption among the polytechnic students (57%) is similar to the study that reported 78.4% prevalence among male undergraduates in a university campus in Owerri, South-East Nigeria (Ebirim & Morakinyo, 2011). Survey and anecdotal data from countries around the globe suggest that a culture of sporadic heavy drinking may be spreading from developed to developing countries (Edwards et al., 1997).

Table 2. Alcohol consumption pattern and nutritional status of the respondents

Variable	Frequency	Percentage	Variable	Frequency	Percentage
Do you consume alcohol?			**Why did you start consuming alcohol?**		
Yes	115.0	57.5	Peer pressure	112.0	56.0
No	85.0	42.5	Addiction	41.0	20.5
			Boredom	13.0	6.5
Do you feel you are a normal drinker?			Influence of an adult	34.0	17.0
Yes	100.0	50.0			
No	100.0	50.0	**How often do you drink?**		
			Everyday	38.0	19.0
At what age did you start consuming alcohol?			3-5 times per week	70.0	35.0
< 15 years	69.0	34.5	Once a week	45.0	22.5
16-20 years	120.0	60.0	Only on weekends	47.0	23.5
21-25 years	8.0	4.0			
>26 years	3.0	1.5	**Nutritional Status**		
			Underweight	56.0	28.0
			Normal	137.0	68.5
			Overweight	7.0	3.5

The results presented in Table 3 showed the association between socio-demographic characteristics and the nutritional status of the respondents. It revealed that BMI values varied with all the socio-demographic characteristics investigated in the study. Also, it was significantly ($p>0.05$) associated with the characteristics excepting religion ($p<0.05$). Besides, BMI values revealed that more respondents (the Polytechnic) students maintained normal bodyweight regardless of age, course of study, level of study and religion they belong. However, with ethnicity, more Hausa students were underweight than those with normal bodyweight. Genetically the Hausa-Fulani ethnic group appear smallish, slimmer and lightweight compared with Yoruba and Igbo ethnic groups. Besides, their diets are characterized by high protein intake (i.e. milk and meat) with cereal as energy

source, unlike the high-carbohydrate (tubers) and high fat diets of the Yoruba and Igbo ethnic groups. Unfortunately, the diets of the Southern Nigeria ethnic groups support bodyweight gain.

Table 3: Association between BMI and socio-economic characteristics

Variable	Body Mass Index (BMI)			χ^2	p-value
	Underweight	Normal	Overweight		
Age					
16-20 years	32(16.0)	51(25.5)	0(0.0)	13.56	0.009*
21-25 years	21(10.5)	81(40.5)	7(3.5)		
>26 years	3(1.5)	5(2.5)	0(0.0)		
School					
Applied science	18(9.0)	30(15.0)	4(2.0)	10.25	0.115*
Engineering	10(5.0)	38(19.0)	2(1.0)		
Management	24(12.0)	51(25.5)	0(0.0)		
Environment	4(2.0)	18(9.0)	1(0.5)		
Level of study					
ND I	23(11.5)	43(21.5)	0(0.0)	13.31	0.38*
ND II	28(14.0)	65(32.5)	4(2.0)		
HND I	2(1.0)	21(10.5)	3(1.5)		
HND II	3(1.5)	8(4.0)	0(0.0)		
Ethnicity					
Yoruba	46(23.0)	111(55.5)	7(3.5)	10.25	0.114*
Hausa	7(3.5)	5(2.5)	0(0.0)		
Igbo	3(1.5)	19(9.5)	0(0.0)		
Not Response	0(0.0)	2(0.0)	0(0.0)		
Religion					
Christianity	37(18.5)	91(45.5)	4(2.0)	0.86	$0.93^{n.s.}$
Islam	17(8.5)	40(20.5)	3(1.5)		
Traditionalist	2(1.0)	6(3.0)	0(0.0)		
Income					
N5000	17(8.50	47(23.5)	0(0.0)	13.13	0.107*
N6000-N10,000	22(11.0)	39(19.5)	3(1.5)		
N11,000-N15,000	6(3.0)	22(11.0)	0(0.0)		
N16,000-N20,000	3(1.5)	6(3.0)	0(0.00		
No Response	8(4.0)	23(11.5)	4(2.0)		

***Significant (p>0.05); n.s = Not significant**

The results present in Table 4 shows the effect of alcohol consumption pattern on the nutritional status of the respondents. It revealed that alcohol consumption pattern significantly affected respondents' nutritional status (p>0.05Also, the results revealed that irrespective of rate of alcohol consumption, 68.5±2.25% of respondents had normal BMI, that is, they had good nutritional status. Among the respondents that had abnormal nutritional status, majority (28.0±4.71%) were underweight while only a few (3.5±0.85%) were overweight. The results of the current study contradict the findings of Wannamethee & Shaper (2004), which indicated that most prospective data support the conclusion that heavy alcohol intake is associated with an increased risk of weight gain and obesity, while light to moderate drinking does not have any effect. Also findings of cross-sectional studies have

not been consistent, except that very heavy consumers (consumption of 49 g/day) have a low body mass index (BMI) (Suter, 2005). The results of the current study appear to suggest that high incidence of underweight among the students must be due to poor feeding caused by alcohol consumption. The students' pattern could be determined by their income. In this case, majority (64%) of the student respondents were on a very low monthly income averaging less than ten thousand Naira (₦ 10,000) or twenty pound sterling (£ 20).

Table 4: Nutritional status of respondent as affected by frequency of alcohol consumption

Frequency of alcohol consumption	Percent of respondents:			Mean ±SD
	Underweight	Normal	Overweight	
Everyday	4.0	14.5	0.5	6.3^{e++}±7.29
3-5 times a day	14.0	20.0	1.0	11.7^{d}±9.71
Once a week	5.5	17.0	0.0	7.5^{e}±8.67
Only on weekends	4.5	17.0	2.0	7.8^{e}±8.04
Mean ±SD	28.0^{b*}±4.71	68.5^{a}±2.25	3.5^{c}±0.85	

*Significant (p>0.05);
$^{+}$Mean values in a row denoted by different superscripts (a – c) are significantly different (p>0.05).
$^{++}$Mean values in a column denoted by different superscripts (e – d) are significantly different (p>0.05)

The quantity and frequency of habitual alcohol was classified by Baker *et al.* (2002) as habitual drinkers (>5 bottles daily), very heavy drinkers (3-5 bottles daily), heavy drinkers (2-3 bottles daily), moderate drinkers (1-2 bottles daily) and light drinkers (<1 bottle drinkers daily). According to the classification, therefore, this study reflected that (35.0%) of male students of the Polytechnic are heavy drinkers, that is, they consume alcohol 3-5 times per week. The results imply that they are at risk of associated health complications relating to alcohol consumption. There could be early onset of some chronic illnesses and several health problems related to excessive consumption of alcohol (Aarons *et al*., 1999). Alcohol may also have a more immediate and severe effect on young people because their muscle is tender than that of adults (WHO, 2009).

4. Conclusion

It may be concluded that the alcohol consumption habit was developed by the male Polytechnic students at the early age of 15 to 20 and majority grow to become habitual drinkers. The drinking habit spread among the students through peer pressure where alcohol consumption became 57.5% prevalence. Also, the alcohol consumption significantly affected their nutritional status expressed by BMI where 31.5% of them exhibited abnormal bodyweight (underweight and overweight), forms of malnutrition. Consequently, affected students are the risk of associated health complications relating alcohol consumption if not curtailed.

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