Understanding the Influence of Substance use on Academic Performance

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Abstract: *Substance use creates emotional, social and economic burden to individuals, family and the society. It is consumed for pleasure sake with little or no regard for the consequences that follow. Most societies disapprove of its use among adolescents. It is observed to have detrimental effects on academic problems face by adolescent students; it influence the personality of adolescent students and influence the way they perceive the future. It is a problem, which must be checked and controlled to avoid a growing burden on the person directly or indirectly affected. This paper examines the effect of substance use on the academic performance of adolescent students. The adolescent group is targeted in this study because it is a transition group that suffers from identity confusion. Four hypotheses were developed and tested by collecting data from a sample of 250 respondents. The questionnaire was the main instrument used to achieve this. Results of the survey showed that substance use is an important determinant of academic problems face by adolescent students and consequently has a negative effect on their academic performance.*

Keywords: substance use, abuse, adolescent, student, academic performance

1. Introduction

Combs (1985) points out that the strengths and weaknesses of any educational enterprise cannot be properly assessed, nor, can education's future be rationally planned unless one takes into account the major forces in the world that strongly impinge on education and shaping its future. Despite societal restriction on the use of most commonly abused substances such as beer, cigarette, indian helm, etc, adolescent students have given a deaf ear to these restrictions. The beer selling points in Yaounde are increasing in number and most consumers of school age are found within the age bracket of 15 and 20 years. In June 2018, a group of educationists working on a school project invited some students, ages 14 to 21, to sensitize them on the project. To captivate their attention, they took them to a beer parlour, where they offered them drinks. Present were 15 adolescents, 4 girls and 11 boys. When asked to make a choice of the type of drink they will take, 10 boys and 3 girls took beer. The school and the society at large condemn the use of these substances by adolescent students. These institutions do not accept drinking and smoking during and after school hours by students, especially in their school uniforms. Although the entire society condemns the use of substances by young people, they do not have proper ways of responding to the social impact substance use has on the community. The responsibility for social action and decision-making remains within the formal sector like a school, where immediate action is taken to punish adolescent students involved in substance use.

2. Literature Review

WHO (n.d) presents 'Substance abuse' as the harmful or hazardous use of psychoactive substances, including alcohol and illicit drugs. They add that most commonly substance abused are alcohol, marijuana (ganja), bhang, hashish (charas), various kinds of cough syrups, sedative tablets, brown sugar, heroin, cocaine, tobacco (cigarette, gutka, pan masala) etc. Examining reasons why students abuse drugs, Amadi and Akpelu (2018) note that peer group influence contributes to drug abuse by students. Students who associate with other students who abused drugs, succumbed to the pressure or influence of taking drugs. They add that students are often cajoled or coerced to indulge in drug abuse by their school friends. Any student who associates with drug abusers is made or persuaded to take drugs. According to Jiloha, R.C. (2009) friends have the greatest influence on the young smokers. The initiation of tobacco smoker generally occurs in the company of a friend who is a smoker. Female adolescents with a best friend who is a smoker are nine times more at risk to become smokers. Joliha (2009) also add that Knowledge about the detrimental health effects has preventive effect on drug use. Gaffney, et al. (1998) further note that adolescent boys and girls drink for different reasons, which is evident by their general beliefs and their specific alcohol expectancies. Students with a subjective need for alcohol have low motivation for success.

Chukwu et al (2017) conducted a study on the effect of substance/drug abuse on the academic achievement of secondary school students in Mkar metropolis, Mkar, Gboko, Benue State using a sample size of 220 students. Findings revealed that poor academic performance is one of the effects of this substance /drugs on the student. Other effects includes truancy and decreasing their ability to concentrate. Looking at "Age-related smoking progression in China", Weis, et al. (2006) reported that upper school students (ages 15-18 years) were more likely than middle school students (ages 12-14 years) to be in the higher smoking stages, and males were more likely than females to be in these higher smoking stages.

In a study on "Sensation-seeking needs among 8th and 11th graders in the USA", Andrea, et al. (2001) reported that sensation needs are a potential risk factor for adolescent substance use. It was also noted that adolescents are at high risk of smoking cigarettes and at a fairly substantial risk of using marijuana. Amadi and Akpelu (2018) conducted a study on drug abuse and academic performance of secondary school students in Emohua Local Government

Area of Rivers State and reported students commonly abused drugs such as alcohol and hot drinks, tobacco, Indian hemp, marijuana; peer group influence contributed to abuse of drugs by students and students who abused drugs recorded poor academic performance. McLeod, Uemura and Rohrman (2013) conducted a study on "Adolescent mental health, behavior problems, and academic achievement. adolescent mental health, behavior problems, and academic achievement" and the results confirm evidence that regular substance use is associated with diminished academic achievement and conclude that cigarette use is the strongest predictor.

Arria et al. (2012) on their study on "academic consequences of marijuana use during college" reported that students using these substances have had problems in academic performance. They add that some of the problems include: skipping classes and ineffective studying, which in turn decreased GPA. Chukwu et al (2017) conducted a study on "effects of Substance/Drug Abuse on the Academic Achievement of Secondary School Students" and revealed that Substance/drug abuse and addiction have adversely affected the academic performance of students. More so, the social and psychological implications of substance/drug abuse and addiction have resulted into student lateness to class, exam malpractices, absenteeism and other form of criminality both within and outside the school environment and in the society (nation) as a whole.

3. Methodology

The target population of this study consisted of secondary school students in Yaounde 6 Subdivision. Four schools participated in the study. A sample of 250 students was selected from the target population, consisting of students in the last years of secondary school (Lower and Upper Sixth students). They fall within the age range of 15 – 20 years.

The purposive sampling technique facilitated the selection of schools and classes for the study. Chosen schools and classes were considered because they both have matured students who in one way or the other have been exposed to substance use.

To select the respondents, the researcher used volunteer sampling. Students who willingly accepted to complete the questionnaire were selected as respondents. Volunteer samples were used because researchers rarely get co-operation from all the respondents selected for the sample (Amin, 2005). Using a descriptive survey, data was collected from the respondents using a questionnaire. It was composed of a total of 30 items, divided into six sections.

3.1 Data analysis

Data collected from the field were analyzed using both descriptive and inferential statistics. The chi-square (χ^2) test of independence was used to analyze the data and verify the hypotheses of the study. The ages of the respondents sampled range from 15 to 20 years. One hundred and thirty-seven (54.8%) of the respondents were males, while one hundred and thirteen (45.2%) of the respondents were females.

3.2 Response Format and Weighting

The responses on the questionnaire range from positive to negative statements. A scale ranging from 1 to 4 was used to categorize the responses. For positive statements, any respondent who ticked a response such as "strongly agree" scored 4 points, "agree" scored 3 points, "disagree" scored 2 and strongly "disagree" scored 1 point. The scoring guide was reversed for negative statements. The total score per variable was summed on 20. Any respondents who scored 15 and above were classified under "very often", 12 - 14.9 were classified under "often", while below 12 were classified under "rarely". This classification was used for the independent variable. For the dependent variable with two scale modalities, any respondent who scored 13 and above was classified under "severe" academic problems, "satisfactory" personality and "positive" perception of the future. Below 13 they were classified under "not severe" academic problems, "unsatisfactory" personality and "negative" perception of the future.

3.3 Hypothesis testing

Hypothesis 1
Ho: Academic problems faced by students are not significantly influenced by the use of beer.
Ha: Academic problems faced by students are significantly influenced by the use of beer.

Table 1: Observed and Expected Frequencies Relating Academic Problems and Use of Beer

Use of beer	Academic Problems		
	Severe	Not Severe	Total
Very Often	67 (61.9)	7 (12.1)	74
Often	131 (114.5)	6 (22.5)	137
Rarely Often	11(32.6)	28 (6.4)	39
Total	209	41	250

Figures in brackets represent the expected frequencies while those without brackets represent the observed frequencies. Table 1 shows that, out of 74 respondents who indicated that they very often use beer, an evaluation of their responses on academic problems show that 67 were classified under severe academic problems and 7 under "Not Severe" academic problems. Out of 137 respondents who indicated that they often use beer, 131 had their responses classified as having said that their academic problems are severe, while 6 were placed under, not severe academic problems. Out of 39 respondents who rarely used beer, 11 were classified under severe academic problems, while 28 were classified under not severe academic problems.

Table 2: Calculation of χ^2 Value for Hypothesis 1

Observed Frequency (0)	Expected Frequency (E)	0 -E	(0 - E)	(0-E)²/E
67	61.9	5.14	26.4	0.43
7	12.1	-5.14	26.4	2.2
131	114.5	16.47	271.2	2.4
6	22.5	-16.47	271.2	12.1
11	32.6	-21.6	466.7	14.3
28	6.4	21.6	466.7	72.9
				$\sum$(0-E)²/E =104.33

Results

χ^2 calculated value	= 104.33
Alfa level of significance ($\propto$)	= 0.05
Degree of freedom (df)	= 2
χ^2 critical value	= 5.991

Interpretation of Results

Since χ^2 calculated value (104.33) is greater than χ^2 critical value (5.991) we reject Ho following the decision rule. Inference made leads us to the conclusion that, academic problems faced by students are significantly influenced by the use of alcohol. The magnitude of the influence is determined by comparing the contingency coefficient value (C.C) to the contingency maximum value (C_{max}). This is calculated using the formulae below.

$$CC = \sqrt{\frac{104.33}{104.33+250}} \quad 0.54$$

$$C_{max} = \sqrt{\frac{1}{2}} \quad 0.71$$

Table 3: Magnitude of Influence for hypothesis 1

Range	Magnitude	Cmax
0.4 – 0.71	High	
0.3 – 0.39	Moderate	0.71
0 – 0.29	low	

Since 0.54 lies within 0.4 and 0.71, the magnitude of the influence is high. This implies that, academic problems faced by students are highly influenced by the use of beer.

Hypothesis 2

Ho: Academic problems faced by students are not significantly influenced by the use of cigarette.
Ha: Academic problems faced by students are significantly influenced by the use of cigarette.

Table 4: Observed and Expected Frequencies Relating Academic Problems and Use of Cigarette

Use of Cigarette	Academic Problems		Total
	Severe	Not Severe	
Very Often	19 (25.6)	11 (4.4)	30
Often	37 (48.6)	20 (8.4)	57
Rarely Often	157(138.9)	6 (24.1)	163
Total	213	37	250

Out of 57 who often use cigarette, 37 indicated that the academic problems faced by students who reported use of cigarette are severe while 20 indicated that they are not severe. Out of 163 who rarely used cigarette, 157 responded that the academic problems caused by the use of cigarette are severe, while 6 indicated that they are not severe.

Table 5: Calculation of χ^2 Value for Hypothesis 2

Observed Frequency (0)	Expected Frequency (E)	0 -E	(0 - E)	(0-E)²/E
19	25.6	-6.6	43	1.7
11	4.4	6.6	43	9.8
37	48.6	-11.6	133.7	2.8
20	8.4	11.6	133.7	15.9
157	138.9	18.1	328.5	2.4
6	24.1	-18.1	328.5	13.6
			$\sum (0\text{-}E)^2/E =$	46.2

Results

χ^2 calculated value	= 46.2
Alfa level of significance ($\propto$)	= 0.05
Degree of freedom (df)	= 2
χ^2 critical value	= 5.991

Interpretation of Results

Since χ^2 calculated value (46.2) is greater than χ^2 critical value (5.991) we reject Ho following the decision rule. Inference made leads us the to conclusion that, academic problems faced by students are significantly influenced by the use of tobacco. The magnitude of the influence is determined by comparing the contingency coefficient value (C.C.) to the contingency maximum value (C_{max}).

$$CC = \sqrt{\frac{46.2}{46.2+250}} \quad 0.39$$

$$C_{max} = \sqrt{\frac{1}{2}} \quad 0.71$$

Since 0.39 lies within 0.3 and 0.39, the magnitude of the influence is moderate.

Hypothesis 3

Ho: Substance use has no significant influence on the personality of a student.
Ha: Substance use has a significant influence on the personality of a student.

Table 6: Observed and Expected Frequencies Relating Substance Use and Personality

Substance Use	Personality		
	Satisfactory	Unsatisfactory	Total
Very Often	17 (10.56)	43 (49.44)	60
Often	6 (24.99)	136 (11701)	142
Rarely Often	21 (8.45)	27 (39.55)	48
Total	44	206	250

The 3 by 2 contingency shows that, out of 60 respondents who very often use substance, 17 had their responses in relation to personality classified under satisfactory, while 43 were unsatisfactory. Out of 142 respondents who often use substance, 6 were classified under a satisfactory personality while 136 were classified under unsatisfactory personality. Looking at another group of 48 respondents who rarely use substance, 21 were classified under a satisfactory personality while 27 were classified under unsatisfactory personality.

Table 7: Calculation of χ^2 Value for Hypothesis 3

Observed Frequency (0)	Expected Frequency (E)	0 -E	(0 - E)	(0-E)²/E
17	10.56	-6.44	41.5	3.9
43	49.44	-6.44	41.5	0.84
6	24.99	-18.99	360.7	14.4
136	117.01	18.99	160.7	3.08
21	8.45	12.55	157.6	18.65
27	39.55	-12.55	157.6	3.96
			$\sum (0\text{-}E)^2/E =$	44.83

Results

χ^2 calculated value	= 44.83
Alfa level of significance ($\propto$)	= 0.05
Degree of freedom (df)	= 2
χ^2 critical value	= 5.991

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Interpretation of Results

Since χ^2 calculated value (44.83) is greater than χ^2 critical value (5.991) we reject Ho following the decision rule. Inference made leads us to the conclusion that, substance abuse has a significant influence on the personality of a student. The magnitude of the influence is determined by comparing the contingency coefficient value (C.C.) to the contingency maximum value (C_{max}). These are calculated using the formulae in chapter three.

$$CC = \sqrt{\frac{44.83}{44.83 + 250}} = 0.39$$

$$C_{max} = \sqrt{\frac{1}{2}} = 0.71$$

Since 0.39 lies within 0.3 and 0.39, the magnitude of the influence is moderate.

Hypothesis 4

Ho: Substance use has no significant influence on the way students perceive the future.

Ha: Substance use has a significant influence on the way students perceive the future.

Table 8: Observed and Expected Frequencies Relating Substance Use and Students' Perception of the Future

Substance Use	Perception of the Future		
	Positive About Future	Negative About Future	Total
Very Often	25 (19.7)	35 (42.32)	60
Often	26 (46.6)	116 (95.4)	142
Rarely Often	31 (15.7)	17 (32.3)	48
Total	82	168	250

The 3 by 2 contingency table above shows that, out of 60 respondents who very often use substance, 25 had a positive perception of the future while 35 had a negative perception of the future. Out of the 142 respondents who often use substance, 26 had a positive perception of the future while 116 had a negative perception of the future. Out of 48 respondents who rarely use substance, 31 had a positive perception of the future while 17 had a negative perception.

Table 9: Calculation of χ^2 Value for Hypothesis 4

Observed Frequency (0)	Expected Frequency (E)	0 -E	(0 - E)	(0-E)^2/E
25	19.7	5.32	28.3	1.4
35	40.32	-5.32	28.3	0.7
26	46.6	-20.6	423.4	9.1
116	95.4	20.6	423.4	4.4
31	15.7	15.3	232.7	14.8
17	32.3	-15.3	232.7	7.2
			$\sum$(0-E)^2/E=	37.6

Results

χ^2 calculated value   = 37.6
Alfa level of significant ($\propto$) = 0.05
Degree of freedom (df)   = 2
χ^2 critical value   = 5.991

Interpretation of Results

Since χ^2 calculated value (37.6) is greater than χ^2 critical value (5.991) we reject Ho following the decision rule. Inference made leads us the to conclusion that, substance use has a significant influence on the way students perceive the future. The magnitude of the influence is determined by comparing the contingency coefficient value (C.C.) to the contingency maximum value (C_{max}). This is calculated using the formulae in chapter three.

$$CC = \sqrt{\frac{37.60}{37.60 + 250}} \quad 0.39$$

$$C_{max} = \sqrt{\frac{1}{2}} \quad 0.71$$

Since 0.36 lies within 0.3 and 0.39, the magnitude of the influence is moderate.

4. Discussions

Substance use among students remains a great concern. It triggers a range of problems ranging from academic, social, and psychological. Most of the above problems are commonly found to affect students in Yaounde 6 Subdivision. The effect may be indirectly or directly on the education of the adolescent students. Parents as well as other institutions such as the school and the church do not approve of students' use of beer, cigarette as well as other substances. Their effects have been proven to be non-beneficial to mankind. It has been demonstrated on table 1 of this study that out of 74 respondents who very often use beer, 67 were classified under severe academic problems and 7 under not severe academic problems. The short-term pleasurable satisfaction students derive the use of beer has long-term detrimental effect on them. Students with subjective need for substances such as beer have a low motivation for success. This explains the reason why most students who drink beer encounter severe academic problems than students who do not drink beer.

The use of substances such as cigarette has remained a great threat to the academic achievements of the adolescents. The academic problems that arise from the use of cigarette could be direct or indirect. Most often students divert school funds into buying of cigarette. The smoking of cigarette may cause other problems such as ill health, lack of concentration and lowered cognition.

The personality of a student can determine the achievement of the student. The things that the student does equally can tell who the student is. In other words, one can say personality is the characteristic way of behaving. Students have often used beer or cigarette to have confidence in their actions. Boldness, harassment and even violence among students result from substance use. Substance use has a direct or indirect link with the readiness to maintain a stable state of mind and pleasure in life. Some of these pleasures replace the academic needs of a student. This is commonly observed in the change in behaviour of people who consume substances frequently at early ages. They grow with this habit and later in life become addicts. Newcomb and Betler (1989) note that substance use in childhood or early adolescence has more detrimental long-term effects on the development of responsible, competent behaviour than substance use that occur in late adolescence.

At any point in time we all think about "tomorrow". We often hope of how condition of life can be improved, and how success can be achieved. Every student thinks about

moving to the next class at the end of the academic year. Our hopes about the future depend on the meaning we attach to them. Perhaps students use substances to enable them achieve future expectations. Everyone has high future expectations. When people are unable to achieve their future expectations, they go into substance use. They do this because they often get so tired, exhausted, and fade up with the process of trying to achieve life's goals. People with high and low needs for achievements respond differently to task. Students who have a negative perception of the future are those who very often use substances. These students respond differently to task and have a low motivation for achievement.

5. Implications of the Findings

Most often, students want to satisfy their needs of security, well being and pleasure. When this happens they tend to model their peers and others' behaviours. All these influence their use of substances, which in turn influence their academic achievements and personality. Teachers and parents should always discuss with the adolescent students to know their needs. These needs when identified should be provided to the students. Teachers and other school authorities should avoid smoking and drinking on school campuses because students are likely to observe and imitate them as models.

6. Conclusion

Adolescents indulge into substance use because of the desire to fulfill certain needs. This move has a detrimental effect on different aspects of their life. Based on the findings of this study, it is fairly convincing that substance use is implicated either as a cause, or as a predisposing factor, in the poor academic achievements of adolescent students. It has a direct influence on student's personality and the way they perceive the future.

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