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PURPOSE AND SCOPE

The *African Journal of Drug & Alcohol Studies* is an international scientific peer-reviewed journal published by the African Centre for Research and Information on Substance Abuse (CRISA). The Journal publishes original research, evaluation studies, case reports, review articles and book reviews of high scholarly standards. Papers submitted for publication may address any aspect of alcohol and drug use and dependence in Africa and among people of African descent living anywhere in the world.

The term “drug” in the title of the journal refers to all psychoactive substances other than alcohol. These include tobacco, cannabis, inhalants, cocaine, heroin, prescription medicines, and traditional substances used in different parts of Africa (e.g., kola nuts and khat).

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CONTENTS

Roles of Background Characteristics in HIV and Alcohol Use
Prevention Among School Learners: The HAPS Project..... 79
Godswill N. Osuafor & Chinwe E. Okoli

Psychoactive Substance Use as a Predictor of Road Rage Behaviour
in a Sample of Commercial Drivers in Enugu, South-Eastern Nigeria..... 93
Philip C. Mefoh, Joy I. Ugwu, & Timothy E. Eze

Commercial Tricycle Riders' Perceptions of Psychoactive Drug Use
and the Risk of Road Traffic Accidents in Uyo, Nigeria 105
*Ediomo-Ubong E. Nelson, Okokon O. Umoh,
Nsidibe F. Essien & Aniekan S. Brown*

Some Neuropsychological Profiles of Cannabis Dependent Users
on Long-Term Abstinence in a Rehabilitation Centre in Nigeria 119
*Valentine A. Ucheagwu, Rita N. Ugwokwe-Ossai,
Paul D. Okoli, & Jesse P. Ossai*

Substance Use Among Youths: Roles Of Psychoticism,
Social Alienation, Thriving and Religious Commitment..... 133
*Steven K. Iorfa, Chinedu Ugwu, Chuka M. Ifeagwazi,
& Johnbosco C. Chukwuorji*

Community Perspectives on Cultural Practices and Belief Systems
Influencing Alcohol and Drug Use: A Qualitative Study in Anaang
Community, Nigeria 147
*Nsidibe A. Usoro, Dorothy N. Ononokpono, Ursula Ette,
& Nkereuwem N. James*

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ROLES OF BACKGROUND CHARACTERISTICS IN HIV AND ALCOHOL USE PREVENTION AMONG SCHOOL LEARNERS: THE HAPS PROJECT

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ABSTRACT

HIV and alcohol prevention programmes to delay sexual initiation and alcohol use by learners have been shown to be effective interventions in high schools. However, the interplay of the interventions and the background characteristics of learners in preventing sexual initiation and alcohol use have not been examined. In this study, we examine the contribution of background characteristics of learners in HIV and alcohol prevention programme. Data were drawn at two time points from a cohort of 1259 and 1076 grade 9 learners. Generalized linear mixed models were used to predict the effects of background characteristics on alcohol consumption and sexual initiation. The results show that alcohol consumption increased from 34.6% to 39.9% between the two points among the learners. Between the two time points, prevalence of sexual intercourse rose from 31.1% to 37.7%. Background characteristics such as increasing age, being a male, absenteeism from school, importance of religion and average grade point predicted alcohol use. Sexual intercourse was significantly associated with increasing age, being a male, absenteeism from school and importance of religion. The study concludes that HIV and alcohol prevention strategy targeting learners should take serious consideration of their background characteristics for a more effective intervention programme.

Keywords: Alcohol, HIV, sexual risk behaviours, learners, South Africa

INTRODUCTION

Sub-Saharan African has limited experiences with alcohol and HIV prevention programmes among the youth. Despite the fact that sub-Saharan African is the most affected region by HIV, few

countries have initiated HIV prevention programmes among youth (Morojele & Ranchod, 2011; Sani, Abraham, Denford, & Ball, 2016). The most important outcomes of intervention programmes were the needs to address a spectrum of interpersonal, cultural, structural factors

underlying adolescents alcohol use and HIV risk behaviour (Harrison, Newell, Imrie, & Hoddinott, 2010; Morojele et al., 2013). Of concern is the review of existing alcohol and sexual risk prevention programmes were limited (Morojele & Ranchod, 2011), and characteristics of successful interventions were not documented (Harrison et al., 2010). In addition, evaluation of intervention content and characteristics of successful intervention programmes on alcohol use and sexual risk behaviour have shown mixed results (Scott-Sheldon, Walstrom, Harrison, Kalichman, & Carey, 2013; Harrison et al., 2010; Mukoma et al., 2009).

Consumption of alcohol among South African adolescents is characterised by binge and /or heavy episodic drinking (Morojele & Ramsoomar, 2016; Reddy et al., 2013; Seggie, 2012), which has implications for sexual risk behaviour and HIV infection amongst the youth (Scott-Sheldon et al., 2013). The scourge of HIV in South African society has necessitated intervention and prevention strategy that targets school learners mainly because alcohol and substance use are the main drivers of risky sexual behaviour among high school learners in South Africa. In this era of escalated knowledge of sexuality, HIV prevention programme has become the main intervention strategy focussing on high school learners. Skilled-based intervention has been rolled out in schools to equip learners to deal with challenges associated with indulging in alcohol use and risky sexual behaviour. These programmes were multifaceted and well designed to address factors that expose learners to health risks.

Previous youth intervention programmes have highlighted the need for school-based programmes for high school

learners. School environment is perceived as the most accessible venue for dissemination of health information and ideal for knowledge exchange network (Flisher & Klepp, 2009). Review of school-based intervention programmes have documented substantive success in plummeting early sexual initiation and alcohol use (Harrison et al., 2010; Sani et al., 2016). However, researchers have critiqued school-based intervention programmes in South African societies on some of the following grounds. South African high schools have fidelity challenges, high level of staff and students absenteeism (Karnell, Cupp, Zimmerman, Feist-Price, & Bennie, 2006), violence and many school-level issues (Ahmed, Flisher, Mathews, Mukoma, & Jansen, 2009; Burton, 2008; Human-Vogel & Morkel, 2017) militating against learning and programme intervention. In addition, most of the schools where the intervention programmes were rolled out do not have boarding facilities (Cupp et al., 2008). Thus, raising a concern in achieving the objectives of school-based interventions programme. While the school based intervention programme have been effective to some extent, shortfalls due to after-school activities can be augmented through valuable information on background characteristics of the learners (Patrick, Schulenberg, & O'Malley, 2016).

UNISA Bureau Market Research, (2012) noted that intervention to adolescents' alcohol, substance abuse and subsequent risky sexual behaviour in South Africa should be addressed through educational programmes. They further emphasised that this educational programme should be a joint activity of the schools and the homes of the adolescents. This is because the local communities have influence on

substance abuse dynamics. They concluded that substance use and risky behaviour may not be addressed properly and effectively if all spheres of society are not involved. Since the existing intervention programme do not actively involve participation of the community in addressing alcohol and substance abuse, background characteristics of the learners remain the proxy for assessment.

Effective school-oriented intervention programmes from the western world have been adopted by South Africa high schools. However, given the socio-cultural differences between the west and Africa, the importance of background characteristics of the learners may have expediting effect on HIV and alcohol prevention intervention programmes (Cupp et al., 2008). Furthermore, school based skilled-oriented intervention can be effective on formative work that is built on background and cultural relevance of the recipients (Cupp et al., 2008).

Substance abuse and HIV prevalence among teenagers is a public health concern which socio-demographic determinants may account for a wide spectrum of inhibitory variations in harm reduction communications. Studies have shown that socio-cultural factors play diverse roles in preventing alcohol, substance use and risk sexual behaviour in societies. For instance, religion has an effect on socio-cultural factors that increase or decrease the risk of sexually transmitted infection in the society (Eriksson, Lindmark, Haddad, & Axemo, 2014; Ochillo, Van Teijlingen, & Hind, 2017). Eriksson et al., (2014) found that religious programme accounted for over four-fifth of pre-marital sexual abstinence among young people of age 15 to 24 years old in KwaZulu-Natal. Poverty which exposes youth to risky behaviours is still

widespread in Southern African societies (Pascoe et al., 2015; Plüddemann, Flisher, McKetin, Parry, & Lombard, 2012). Risk behaviours initiated as adolescents are often perpetuated into adulthood with dependence problem (Mason et al., 2010; McCambridge, McAlaney, & Rowe, 2011; Velleman, 2009). These demographic factors are often neglected in school-based substance use and sexual risk behaviour intervention programmes. The aim of the study was to clarify the effects of socio-demographic variables in HIV and alcohol prevention programmes in South Africa. The findings would improve school intervention programmes and offer considerable variation in learners needs.

METHOD

HIV and Alcohol Prevention in Schools (HAPS) is an integral prevention programme to delay onset of sexual initiation (Kirby, Barth, Leland, & Fetro, 1991) and Amazing alternative programme to prevent alcohol use in US (Perry et al., 2000). HAPS project was implemented at 8 high schools in Pietermaritzburg, the second largest city in Kwazulu-Natal Province. The schools had similar characteristics in terms of language, comparable school fees, no boarding facilities and co-educational system. The schools were randomly assigned to intervention and control groups comprising 4 schools each. The aim of the programme was to inculcate pertinent facts about consequences of alcohol and risky sexual behaviour on the learners. The intervention programme had 15-unit curriculum of which 40% and 60% of the contents dealt with alcohol related issues and reducing risky sexual activities respectively. Standard life

orientation classes supplemented with information on alcohol and HIV were offered to the control groups. Role plays were used to develop techniques for resisting peer pressures to either drink alcohol or have sex.

After the baseline data were collected, subsequent data were drawn from a cohort of 1259 and 1076 grade 9 learners of age range 13 to 18 years old. Second and third data collection were assessed at 6 months and 12 months respectively. Data collected on the background characteristics of the learners were age, gender, socioeconomic status measured on the frequency of hunger in the family in the last month before the survey, learners grade point average, future educational aspirations, numbers of times absent from school in the past one month and on importance of religion. The outcome variables were measured on two items: ever consumed alcohol and ever had sexual intercourse. Learners were asked to answer either "yes" or "no" to "have you ever consumed alcohol?". On the question, "have you ever had sexual intercourse?" Learners were to answer either "yes" or "no". At the baseline assessment, there were no differences between the intervention and the control groups.

Descriptive statistics were used to process the independent and outcome variables. Generalized linear mixed models (GENLIN) were used to adjust for longitudinal associations of the variables after data were restructured. Binary logistic regressions were used to predict the effects of the intervention and background characteristics on ever had sex and alcohol consumption among the learners. Data processing was carried out using IBM SPSS version 25.

RESULTS

Table 1 shows that distribution of the individuals by the number of observations in the study sample. Of the 2638 observation among the grade 9 learners, 47.2% received intervention programme. Distribution by age shows an inverted u-shaped. Slightly over half (55.1%) of the learners were males. Over half (52.0%) indicated that their educational ambition was to have higher degree, whereas less than a quarter (21.4%) aspire to have at most matric certificate. Over two-thirds (77.4%) reported average grade points of 50 or more in terms of academic performance. Nearly half (49.1%) have never been absent from school in the past one month. About 40.9% have experienced lack of food in the homes several times in the past one month. As expected, two-thirds (67.2%) of the learners stated that their religion is important in their lives.

Consumption of alcoholic and experience of sexual intercourse

Figures 1 and 2 show the patterns of alcohol consumption and engaging in sexual intercourse respectively among the grade 9 learners. The results show that at first wave 34.6% of the learners had consumed alcohol which then increased to 39.9% at the second wave. Similarly, 31.1% of the learners had experienced sexual intercourse at the first wave. The proportion of learner that had experienced sexual intercourse increased to 37.7% at the second wave.

Table 2 shows the association between alcohol consumption and background characteristics of the learners. Based on the reported alcohol consumption, the intervention group did

Table 1. Distribution of grade 9 learners by the number of observations

Characteristics	Number of observations	Percent
Treatment		
Intervention	1244	47.2
Control	1394	52.8
Current Age^a		
13	77	3.3
14	454	19.5
15	666	28.5
16	555	23.8
17	376	16.1
18+	206	8.8
Gender^a		
Male	1286	55.1
Female	1049	44.9
Educational aspiration^a		
=<Matric	500	21.4
Diploma/Degree	621	26.6
Higher Degree	1214	52.0
Average grade point^a		
<50	529	22.6
50-69	1137	48.7
70+	670	28.7
Absenteeism^a		
Never	1148	49.2
Once	490	21.0
Multiple times	697	29.9
No food at home		
Never	1560	59.1
Multiple times	1078	40.9
Religion importance		
Least important	864	32.8
Very important	1774	67.2
Total	2638	100.0

^aObservations may not add up to 2638 due to missing values

not show significant difference compared to those in control group. All the background characteristic showed significant association with consumption of alcohol. Consumption of alcohol increased consistently with age. The proportion of males (45.6%) reporting consumption of alcohol is nearly double that of their female (26.4%) counter-

parts. Learners whose educational aspiration was to obtain higher degree and those who had average grade points of at least 70 had the lowest percentages (32.9% and 31.9%) of reporting alcohol consumption. Alcohol consumption increased consistently with the reported number of times the learner was absent from school in the past one month. Also,

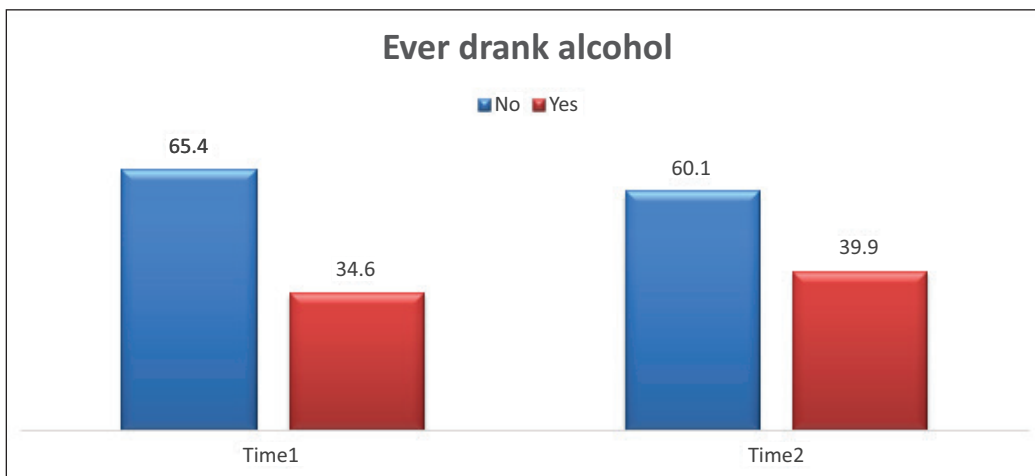


Figure 1. Ever consumed alcohol among the grade 9 learners

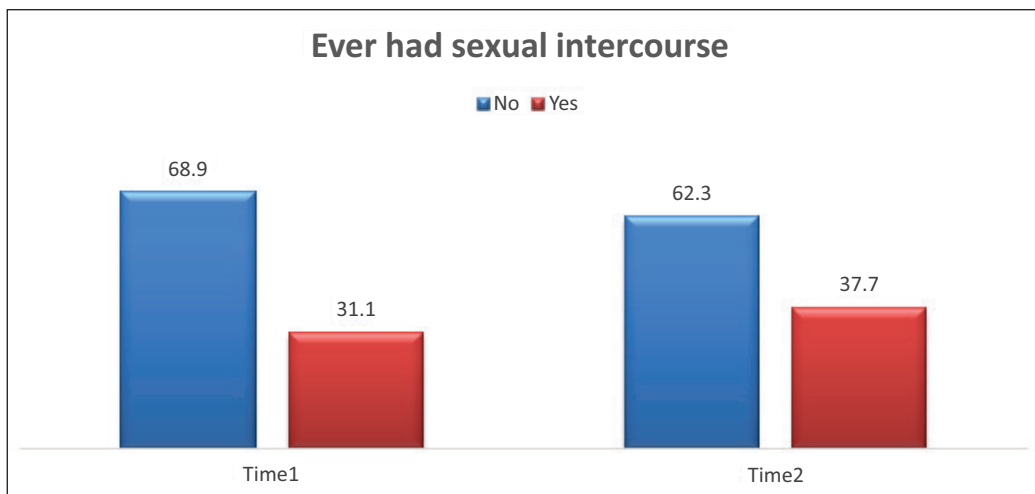


Figure 2. Ever had sexual intercourse among the grade 9 learners

learners who had experienced hunger in the family in the last month had higher percentage (42.2%) of reporting alcohol consumption than those who never lacked food (34.4%). Compared to learners who stated religion to be least important, learners who reported that religion is important in their life had lower levels of alcohol consumption.

Table 3 presents the distribution of sexual experiences by background characteristics. There is no statistical

difference between the intervention group and the control group in reporting engaging in sexual intercourse. Significant associations were observed between engaging in sexual intercourse and learners background characteristics. As expected, reporting engaging in sexual intercourse increase with age among the learners. Compared to females, males were more likely to report having sexual intercourse. A third (30.1%) of the learners whose educational

Table 2. Distribution of learners on status of alcohol consumption by background characteristics

Variables	N (Observation)	No % (N)	Yes %(N)	X ² ; P value
Treatment				2.4; p=0.122
Intervention	1087	64.7(703)	35.3(384)	
Control	1244	61.6(766)	38.4(478)	
Current Age (years)				144.1; p= 0.000
13	77	77.9(60)	22.1(17)	
14	454	75.6(343)	24.4(111)	
15	662	71.9(476)	28.1(186)	
16	555	58.0(322)	42.0(233)	
17	375	49.3(185)	50.7(190)	
18+	206	39.8(82)	60.2(124)	
Gender				91.7; p= 0.000
Male	1284	54.4(698)	45.6(586)	
Female	1046	73.6(770)	26.4(276)	
Educational aspiration				18.4; p= 0.000
<= Matric	498	59.6(297)	40.4(201)	
Diploma/Degree	620	57.7(358)	42.3(262)	
Higher Degree	1212	67.1(813)	32.9(399)	
Average grade point				31.9; p= 0.000
< 50	529	52.9(280)	47.1(249)	
50-69	1135	64.8(735)	35.2(400)	
70+	667	68.1(454)	31.9(213)	
Absenteeism				56.1; p=0.000
Never	1148	69.7(800)	30.3(348)	
Once	488	62.7(306)	37.3(182)	
2+	694	52.3(363)	47.7(331)	
No food at home				13.6; p= 0.009
Never	1559	65.6(1023)	34.4(536)	
Many	772	57.8(446)	42.2(326)	
Religion importance				28.2; p= 0.000
Least important	560	53.6(300)	46.4(260)	
Very important	1771	66.0(1169)	34.0(602)	

ambition was to have higher degree had experienced sexual intercourse. Also, a third (30.7%) of learners who stated their average grade points to be 70 and above had engaged in sexual intercourse. Learners with records of absenteeism from school and experiences of food shortage in the past month had highest percentages of reporting sexual intercourse. Compare to learners who

stated religion to be least important in their life, reporting religion to be very important showed lower proportions of engaging in sexual intercourse.

Modelling of alcohol consumption and sexual intercourse by learners' background characteristics

The results of GENLIN analysis, showing associations between alcohol

Table 3. Distribution of learners on ever had sexual intercourse by background characteristics

Variables	N (Observation)	No % (N)	Yes % (N)	X ² ; P value
Treatment				0.2; p=0.655
Intervention	1090	65.4(713)	34.6(377)	
control	1246	66.3(826)	33.7(420)	
Current Age (years)				268.5; p=0.000
13	77	85.7(66)	14.3(11)	
14	454	83.3(378)	16.7(76)	
15	666	75.7(504)	24.3(162)	
16	555	63.4(352)	36.6(203)	
17	376	44.1(166)	55.9(210)	
18	206	35.4(73)	64.6(133)	
Gender				84.9; p= 0.000
Male	1286	57.7(742)	42.3(544)	
Female	1049	75.9(796)	24.1(253)	
Educational aspiration				18.6; p= 0.000
<= Matric	500	61.8(309)	38.2(191)	
Diploma/Degree	621	61.2(380)	38.8(241)	
Higher Degree	1214	69.9(849)	30.1(365)	
Average grade point				10.9; p= 0.004
< 50	529	60.3(319)	39.1(210)	
50-69	1137	66.5(756)	33.5(381)	
70+	670	69.3(464)	30.7(206)	
Absenteeism				42.8; p=0.000
Never	1148	71.7(823)	28.3(325)	
Once	490	65.3(320)	34.7(170)	
2+	697	56.8(396)	43.2(301)	
No food at home				10.6; p= 0.001
Never	1560	68.1(1063)	31.9(497)	
Many	776	61.3(476)	38.7(300)	
Religion importance				9.5; p= 0.002
Least important	562	60.5(340)	39.5(222)	
Very important	1774	67.6(1199)	32.4(575)	

consumption and background variables are presented in table 4. The control group were 1.3 times more likely than the intervention group to have consume alcohol. Tendency to consume alcohol increased with learners age. The odds of consuming alcohol were reduced by 49.0% for females compared to their male counterparts. Compared to the

learners who had an average grade point of below 50, those scoring 70 and above were less likely to have consumed alcohol. Learners who were absent from school were 78.6% more likely to have consume alcohol relative to those who were never absent from school in the past one month. Reporting religion to be very important in their lives correlated

Table 4. Background variables of learners explaining alcohol consumption and engaging in sexual intercourse

Variables	Ever consumed alcohol		Ever had sexual intercourse	
	Odds ratio	95% CI	Odds ratio	95% CI
Treatment				
Control	1.295**	1.081-1.552	1.107	0.918-1.335
Intervention (ref)	1.000		1.000	
Current Age	1.374***	1.275-1.480	1.686***	1.555-1.828
Gender				
Female	0.510***	0.422-0.616	0.559***	0.461-0.677
Male (ref)	1.000		1.000	
Educational aspiration				
<= Matric (ref)	1.000		1.000	
Diploma/Degree	1.104	0.854-1.426	1.059	0.809-1.385
Higher Degree	0.907	0.719-1.142	0.863	0.678-1.100
Average grade point				
< 50 (ref)	1.000		1.000	
50-69	0.783	0.607-1.010	1.128	0.863-1.473
70+	0.740**	0.590-0.928	1.002	0.792-1.267
Absenteeism				
Never (ref)	1.000		1.000	
Once	1.254	0.995-1.582	1.243	0.977-1.582
2+	1.786***	1.443-2.210	1.571***	1.263-1.955
No food at home				
Never (ref)	1.000		1.000	
Many	1.143	0.943-1.384	1.054	0.865-1.283
Religion importance				
Least important (ref)	1.000		1.000	
Very important	0.615***	0.500-0.756	0.740**	0.597-0.918
Intercept	0.295***	0.187-0.467	0.094***	0.057-0.154

*p < 0.05; **p < 0.01; *** p < 0.001. ref= reference category, CI= confidence interval

with 38.5% reduced odds of consuming alcohol. However, educational aspiration and experiences of hunger in the family did not significantly predict alcohol consumption.

Table 4 further revealed association between sexual intercourse and learners background characteristics. As expected, engaging in sexual intercourse increase with age. Females were less likely than their male counterparts to have engaged in sexual intercourse. The odds of engaging in

sexual intercourse increased by 57.1% for learners who were absent from school for more than two times in the past month. Compared to learners who stated that religion had least importance in their lives, reporting religion as very important showed 26.0% reduction in the odds of engaging in sexual intercourse. However, the intervention programme, educational aspiration, average grade points, experiences of hunger in the family were not significantly associated with sexual intercourse.

DISCUSSION

The aim of the study was to examine the bearing of background characteristics in HIV and alcohol prevention programme among high school learners. The results demonstrated that the intervention alone did not portray a clear difference compared to the control group at bivariate analysis. However, at higher level analysis the intervention programme prevented alcohol use initiation. This suggest that the intervention programme operated through the background characteristics to mediate low alcohol use. The prevalence of alcohol use and sexual intercourse among the learners are worrisome given that abstinence is promoted for people below the age of 18 years old in South Africa. In agreement with previous studies in London (Mason et al., 2010; Bolland et al., 2016; MacArthur et al., 2012), alcohol use and sexual initiation increase with age. Early alcohol use and sexual initiating are both risk behaviours that can translate to alcohol disorder and contracting of sexually transmitted infections including HIV. Learners who consistently engage in behaviours that may reinforce the overburdened HIV scourge has multiple negative effects on health, education and economy of South Africa.

The findings that male learners were more likely to engage in sex and consume alcohol than their female counterparts is consistent with previous reports in America (Woolf-King & Maisto, 2011). Relationship between alcohol use and sexual risk behaviour is fluid such that alcohol enhances maleness, sexual encounters, sexual experience and often a defence for irresponsible behaviour such as risky sex. Considering the cultural setting of the study, risky sexual behaviour is common

to the Zulu-speaking people which is often interwoven in traditional appropriateness of casual and multiple sexual partners for men. It may be explained by the traditional norms on alcohol which promote casual sex as a masculine behaviour. Taken together, male learners may be at greater risk of developing alcohol-related problems and susceptible to sexually transmitted infection than female learners. This does not suggest that females are protected, as sexual activities in South African in educational institutions often takes concurrent patterns.

The results revealed that multiple absenteeism from school predicted both engaging in sex and alcohol use which is parallel to findings in Norway (Ingul, Klöckner, Silverman, & Nordahl, 2012). Absenteeism from school would mean that the learners were not in school to receive prevention and intervention messages designed for schools. Thus, absenteeism from school may have partially jeopardized the chances of delivering basic risk-reduction and risk prevention instruction. Prevention and intervention programme may be more effective if there is a strategy that offset truancy among the learners. This finding reiterates the need for Goal 25 of the South African Department of Basic Education's Action Plan for 2011 to 2014 which emphasises using the school as a location to promote children's access to services including public health services and psycho-social support. Previous studies (Flisher, Townsend, Chikobvu, Lombard, & King, 2010; Kearney, 2008; Le Roux & Mokhele, 2011) have noted truancy as a serious issue in South African high schools. Absenteeism will in no doubt impact negatively on learner's education and health matters.

The findings echoed the importance of religion as a veritable practice in

preventing sexual initiation and alcohol use. This is in line with studies among adolescents in South Africa (Amoateng, Kalule-Sabiti, & Arkaah, 2014; Eriksson et al., 2014) and USA (Dickens, Jackman, Stanley, Swaim, & Chavez, 2018; Patrick & Schulenberg, 2014; Salas-Wright, Vaughn, Maynard, Clark, & Snyder, 2017). Religion advocates for sexual abstinence and frowns at alcohol use among teenagers. Religion being important in the life of the study population would mean that the only strategy for HIV prevention is abstinence which parallels secular interventions. Given that religion is a belief that operates at individual and societal levels, integrating it in intervention programme may maximize desired effects.

CONCLUSION

Alcohol use and early sexual initiation were not expected to be static in the study population despite the intervention programme. Teenagers experimenting with alcohol and sex side by side with intervention programme are both inevitable developmental dimensions. However, the findings of the study suggest the need for additional inhibitory factors to be considered in designing school-based intervention programme. The results of the study are drawing attention of programme managers and researchers to design preventive programmes that are inclusive of the background characteristic of the recipient. Interventionist need to think critically on interventions that are tailored for males given their unprecedented involvement in risky behaviour at very tender age. Prevention and intervention programmes should consider incorporating religious components as it continues

to play a crucial role in delaying alcohol use and early sexual initiation. Strategies that ensures regular school attendance, will augur well for school-based HIV and alcohol use intervention programmes in South African society.

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PSYCHOACTIVE SUBSTANCE USE AS A PREDICTOR OF ROAD RAGE BEHAVIOUR IN A SAMPLE OF COMMERCIAL DRIVERS IN ENUGU, SOUTH-EASTERN NIGERIA

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ABSTRACT

Two objectives were examined in the present study. The first described the prevalence of psychoactive substance use in a sample of 208 commercial drivers; while the second examined whether psychoactive substance would predict road rage behaviour in the same sample. Purposive sampling technique, which targeted only drivers who were willing to participate at no fee, was utilized to select commercial drivers from 4 motor parks in Enugu, South-Eastern Nigeria. All the drivers were male; there were 102 (49.04%) married and 106 (50.96%) single drivers. Their ages range from 27 years – 52 years (Mean age = 33.52years; SD = 6.04). The years of driving experience of the commercial drivers ranged from 4 years – 29 years. The Psychoactive Substance Use Questionnaire and the Driving Anger Scale (DAS) were instruments used for the collection of data. Data were analyzed with preliminary statistics and a simple hierarchical multiple regressions and correlation (MRC). Results showed that alcohol was the most prevalently used psychoactive substance in the sample, and that alcohol, cocaine, and amphetamine, predicted road rage behaviour ($p < 0.001$) in the sample. These findings were discussed and the limitations of the study and recommendations were highlighted.

Keywords: Commercial driver; Driving Anger Scale (DAS); Psychoactive substance use; Road rage behaviour; South-Eastern Nigeria.

INTRODUCTION

Enugu is a town characterized by a huge population of about 3.2 million residents (National Population Commission, 2007). Although the town has a functional airport and a completely moribund rail

transport system; road transportation is the major form of transportation in and out of Enugu. Road transportation accounts for more than 92% of freight and passenger movement in the town (Onah, 2008). With more and more commuters on the road, many drivers are driving less

courteously and even more recklessly than other drivers seem to get angry at their driving. In general, when drivers become annoyed and frustrated on the road, they respond with aggression. A driver's underlying predisposition for anger is what people describe as road rage behaviour. Coleman (2003) defines road rage behaviour as grossly disproportional outburst of aggression by a driver of a motor vehicle in response to perceived discourtesy or transgression by another driver. Road rage has also been seen as a psychological disorder. Ayer (2006) argues that road rage is a psychological disorder where an individual experiences heightened levels of stress, anxiety, or hostility because of their driving environment.

Road rage behaviour or aggressive driving manifest in a variety of ways; there are at least three distinct forms of anti-social behaviour that is generally regarded as road rage behaviour. These are active-aggressive road rage behaviour, passive-aggressive road rage behaviour, and road hostility (Butters, Smart, & Mann, 2006). Active-aggressive road rage behaviour involves a grossly disproportional outburst of aggression by a driver of a motor vehicle specifically targeted at another driver. It often involves extreme punitive measures, such as intentionally causing a collision between vehicles or assaulting another motorist. When tempers rage out of control, the active aggressive road rager can become very angry that the individual can kill or injure somebody. Passive-aggressive road rage behaviour involves ignoring other road users or refusing to respond appropriately. The passive-aggressive road rage behaviour is not specifically targeted at any particular driver, the aggressing individual just want to cause obstruction. Stopping on the

road to have a conversation with a person in another vehicle or with a pedestrian on the sidewalk is a good example of passive-aggressive road rage. Finally, road hostility refers to driving-related non-violent but hostile behaviour, such as, yelling or making rude gestures, weaving a fist, shouting verbal abuses, spitting at another driver, or honking excessively, that are specifically targeted at another driver. The active-aggressive and the road hostility road rage behaviours are related in that both are actions deliberately targeted at another. However, in one case, the action is punitive, while in the other, it is simply hostile.

The frustration-aggression hypothesis (Berkowitz, 1989; Dollard, Doob, Miller, Mowrer & Scars, 1939) is the general theory of human aggression that best explains road rage behaviour. This hypothesis proposes that frustration leads to aggression – either against the source of frustration or against an innocent but vulnerable substitute, or “scapegoat”. The frustration-aggression framework is a general rule that aversive stimulation sparks aggression. Being trapped in a clogged traffic or being held up by a driver who obstinately observes the speed limit in the fast lane, despite the signaling by speeding drivers to go ahead, is likely to arouse anger and frustration. Because substance use increases arousal level by altering brain's normal activity, there is possibility that psychoactive substances use may predispose a driver to engage in road rage behaviour. Psychoactive substance use has been identified as possible risk factors for road rage behaviours (Butters, Mann, & Smart, 2006; Butters, Smart, Mann, Asbridge, 2005). Research (e.g., Harrison, Erickson, Adlaf & Freeman, 2001; Mann, Smart, Stoduto, Adlaf,

& Lalomiteanu, 2004) has broadly shown that heavy drinkers and consumers of alcohol and other psychoactive substances are often victims or perpetrators of aggression, as well as being “at fault” in traffic crashes.

Alcohol is the most readily available drug in Africa and it is by far the most widely used drug by all age group (Van Heerden, Grimsrud, Seedat, Mayers, Williams & Stein, 2009). Alcohol encourage users to take more risks on the road or to behave more aggressively, studies (Ejikeme, 2004;) show that even a moderate high in-take of alcohol inevitably lead to problems at home and at workplace either from after-effects of drinking or from actual intoxication. There are evidence that being a frequent drinker was strongly associated with quarrelling, engaging in risky behaviours and experiencing physical aggression (Tumwesigye & Kasirye, 2005), which are all veritable conditions for road rage behaviour to fester. Mann et al. (2004) found a significant relationship between the problem drinking of alcohol – measured by the National Use Identification Test (AUDIT) – and the experience of road rage victimization and perpetration. Fierro, Morales & Alverez (2011) argue that driving under the influence of alcohol is associated with being a perpetrator of road rage behaviour. Although alcohol has been recognized as hazard to road traffic safety, the greatest increase in risk of being injured was for alcohol combined with any other substances. Dassault, Brault, Bouchard, and Lamire (2002) examined the urine sample of 5931 drivers and found substances other than alcohol in 11.8% of the urine sample, in the following proportion: cannabis 6.7%; cocaine 1.1%; benzodiazepines 3.6%; opiates 1.2%; PCP 0.03%; amphetamines

0.1%; and barbiturates 0.5%. Alcohol was found in 5.9% of all substance cases.

Several laboratory investigations on other psychoactive substances, such as cocaine, heroin and amphetamines reveal that these chemical substances tend to increase the activity of the central nervous system by replacing the blues with feeling of well-being, masking symptoms of fatigue, creating a sense of self confidence and competence, and encouraging users to go beyond normal levels of confidence. However, problematic ingestion of psychoactive substances carries potentially several hazards. Cannabis use constitute a risk to traffic safety, Walsh, Gier, Christopher and Verstraete (2004) argue that the prevalence of cannabis among drivers involved in accidents indicates a substantial quantitative traffic safety. A study carried out in Ilorin, South-Western Nigeria found that cannabis use was positively associated with anti-social behaviours, such as risky sexual practices (Abiodun, Adelakan, Ogunremi, Oni, & Obaga, 1994). Most drivers who consume cannabis do so because of its mild euphoric properties, but the substances can have some immediate undesired side-effects such as, decrease in short-term memory, dry mouth, impaired motor skills, reddening of the eyes, and feeling of paranoia or anxiety (Hall & Pecula, 2003). Similarly, a meta-analytic study based on more than 120 experimental studies, including laboratory, driving simulator, and on-road experiments, showed that impaired performance was directly related to increasing cannabis use (i.e., increased tetrahydrocannabinol, THC) in the blood levels (Berghaus, Sheer, & Schmidt, 1995). The effects of amphetamine on driving as summarized by Logan (2002) concluded that methamphetamine increases the likelihood of

performance deficit on complex psychomotor tasks such as driving. Butters et al (2006) maintain that the use of stimulants (e.g., cocaine, heroin, amphetamine, etc) significantly increased the likelihood of victimization and being classified as a serious road rage perpetrator.

So far, there seems to be limited knowledge on the prevalence of psychoactive substance use other than alcohol in road traffic studies in Nigeria. This study is an early effort to bridge this lacuna in literature. Secondly, the study examines the roles of psychoactive substances, namely: alcohol, cannabis, tobacco, cocaine, heroin, and amphetamine, in predicting road rage behaviour. Thus, the study has two objectives: to describe the prevalence of psychoactive substances use and to examine whether those substances would predict road rage behavior. Two questions that guide the present study are: what is the level of prevalence of those psychoactive substances in the sample of commercial drivers in Enugu, South-Eastern Nigeria? Would those psychoactive substances predict road rage behaviour? Because psychoactive substance causes significant modification of mood and behaviour, the study hypothesized that the six psychoactive substances would predict road rage behaviour.

METHOD

Participants

Participants for the study comprised of 208 commercial drivers who plied major roads linking Enugu and other towns or states in Nigeria. The sampling technique used was purposive sampling technique, in which only the drivers who willingly agree to participate in the study were

given copies of the questionnaires to fill. All the 208 drivers were commercial drivers and all male. There were 102 (49.04%) married and 106 (50.96%) single drivers. The range of driving experience of the commercial drivers was from 4 – 29 years. Age of the drivers range from 27 – 52 years (Mean age = 33.52 years; SD = 6.04).

Instrument

Two questionnaires were used in the present study. These were the Psychoactive Substance Use Questionnaire (Eze, 2006) and the Driving Anger Scale (DAS) (Daffenbacher, Oetting, & Lynch, 1994). The Psychoactive Substance Use Questionnaire assesses frequency of use of psychoactive substance on a scale of four degrees: never used it; have not used it more than two times; uses it less than three times in one week, uses it more than three times in one week; and used it frequently in the past but has stopped. Specific substances included in the questionnaire were alcohol, cannabis, tobacco, cocaine, heroin and amphetamine. These were substances known to be abused in Nigeria by many youths and adults, and which cause significant modification of mood, cognition or behaviour at the dosage in which they are normally taken. Instructions on the questionnaire require a participant to give a rating between 0 and 4 to each of the substances according to the degree of their use of each of them. The instrument has a content validity, and test-retest reliability index of $r = .61$ ($N = 55$) (Eze, 2006).

The Driving Anger Scale (DAS) measures general driving anger. The DAS is a 33-item scale, which requires respondents to imagine that incidents of unruly behaviours on the road are happening to them, and to indicate the extent to which

that behaviour would provoke them to anger. Response options on the questionnaire range from 1 – 5 (i.e., “not at all angry” to “very much angry”). Samples of items on the Driving Anger Scale were as follows: “Someone in front of you does not move off straight away when the light turns green”; “Someone coming towards you does not dim their headlights at night”; “Someone shouts at you about your driving”; “A cyclist is riding in the middle of the lane and slowing traffic”. Mefoh, Ugwu Ugwu, and Samuel (2013) reported that DAS has a reliability coefficient of 0.93 among Nigerian commercial drivers (N = 150).

Procedure

Data were collected from commercial drivers at four motor parks in Enugu. The parks were: Enugu State Transport Company (ENTRACO) (51 commercial drivers), Peace Mass Transport Company (65 commercial drivers), Ifesinach Transport Company (43 commercial drivers), and Onitsha-South Transport Company (49 commercial drivers). Permission to conduct the study in the respective parks was given by the manager of each park. The managers gave the researcher stern warning not to interview any driver whose vehicle has started loading. This was a check to ensure that passengers are not kept waiting when the vehicle is fully loaded. In administering the instruments, the researchers gave the questionnaires only to drivers who freely agree to participate in the study at no cost and who also signed the researchers’ consent form. Many drivers were unwilling to participate in the study when they realized that no payment would be made for participation. The researchers were standby to answer any participant’s question and

to explain any item the individual did not quite understand. This culminated in the proper completion of the questionnaire items and in 100% return rate. Apart from responding to items on the Psychoactive Substance Use Questionnaire and the Driving Anger Scale (DAS), each respondent was required to supply demographic information on age, driver experience, and marital status. The permission to execute this study was given by the Ethics Board, Department of Psychology, University of Nigeria, Nsukka.

Design/statistics

The design of the present study was cross-sectional design, in which data collection procedure was done once. A descriptive statistics was used to describe the prevalence of the various psychoactive substances use among the sample. The major statically tool used in the analysis of data was a simple hierarchical multiple regression and correlations (MRC).

RESULTS

A preliminary analysis involving descriptive statistics was used to assess the prevalence of psychoactive substance use in the sample. Also, Pearson’s product-moment correlation was used to specify the degree of relationships among the studied variables. The results of the descriptive statistics in Table 1 indicated that alcohol was the most widely used psychoactive substance in South-Eastern Nigeria.

Of the 208 commercial drivers interviewed, 73 (35.1%) of the drivers declared that they had never used alcohol, implying that the rest 135 (64.9%) of the drivers have either used the substance more than three times a week, or use it

Table 1. Prevalence of psychoactive substance use among commercial drivers

Psychoactive Substances	Number of Users (%)	Number of Non-Users (%)
Alcohol	135 (64.9)	73 (35.1)
Cannabis	17 (08.2)	191 (91.8)
Tobacco	10 (04.8)	198 (95.2)
Cocaine	13 (06.2)	195 (93.8)
Heroin	10 (04.8)	198 (95.2)
Amphetamine	17 (08.2)	191 (91.8)

less than three times in one week, or use it more than three times in one week. Similar investigations were made for other psychoactive substances – cannabis, tobacco, cocaine, heroin, and amphetamine. These psychoactive substances were not so frequently used by the drivers as alcohol. However, all of them have been used to some extent. The prevalence of other psychoactive substances – cannabis, tobacco, cocaine, heroin, and amphetamine, were 17, 10, 13, 10, and 17, respectively.

As mentioned, Pearson *r* was conducted with the hope that given one variable, the other can be predicted. The results of the Pearson *r* are presented on Table 2. Schwartz, Wilson, and Goff (2015) proposed that a strong relationship is

declared if Pearson *r* is +/- 0.50 or beyond; a moderate relationship is depicted by a Pearson's *r* value of approximately +/- 0.30 or above; and a weak relationship is illustrated by an *r* value of less than +/- 0.30. Following this classification, alcohol has a strong positive correlation with road rage ($r = 0.52, p < 0.001$). The Pearson *r* for cannabis ($r = 0.42, p < 0.001$), tobacco ($r = 0.34, p < 0.001$), cocaine ($r = 0.40, p < 0.001$), heroin ($r = 0.40, p < 0.001$), and amphetamine ($r = 0.43, p < 0.001$) showed that these were all positive and moderately associated with road rage. Also, aside alcohol, all the other psychoactive substances strongly and positively correlated with each other. Of all the demographic variables examined in the study, only marital status showed a

Table 2. Pearson's correlation matrix showing the correlation scores of the studied variables and the dependent measure

Variables	1	2	3	4	5	6	7	8	9	10
Road rage	-									
Age	-.06	-								
Driver experience	.07	-.17*	-							
Marital status	-.28**	-.01	-.40**	-						
Alcohol	.52**	-.03	.05	-.13	-					
Cannabis	.42**	-.11	-.09	.01	.04	-				
Tobacco	.34**	-.09	-.01	.04	-.16*	.74**	-			
Cocaine	.40**	-.10	.02	-.02	-.10	.73**	.95**	-		
Heroin	.35**	-.09	.01	.03	-.15*	.76*	1.0**	.96**	-	
Amphetamine	.43*	-.12	-.14*	.09	.05	.94**	.74**	.71**	.75**	-

Table 3. A simple hierarchical multiple regression

Variables	Step 1			Step 2		
	B	β	t	B	β	t
Age of driver	-2.86	-.07	-1.08	.31	.01	.16
Driver experience	-.18	-.07	-.87	-.05	-.18	-.38
Marital status	-8.14	-.30	-4.12**	-6.32	-.24	-4.27**
Alcohol				7.44	.48	9.69**
Cannabis				-4.08	-.11	-.73
Cocaine				7.01	.43	2.59*
Heroin				-2.48	-.15	-.81
Amphetamine				5.36	.34	2.22
R square	.08			.54		
R square change	.08			.46		
F change	6.18			39.30		
F value	6.18			29.06		

Keys: * = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$

negative weak relationship with road rage ($r = 0.28$, $p < 0.05$).

The result of the simple hierarchical multiple regressions and correlation (MRC) showed that among the control or demographic variables, namely: age, driver experience, and marital status, that only marital status significantly and negatively predicted road rage behaviour ($t = -4.27$, $p < 0.001$). This finding implies that road rage behaviour increases if a driver of a vehicle is married rather than if is single. Marital status was coded '0' for single and '1' for married in the analysis. Age (of driver) and drivers experience did not significantly predict the dependent measure. Overall, the control variables in step 1 of the regression model explained an insignificant proportion of 7% of the variance in road rage behaviour. In step 2, marital status continued to negatively predict road rage behaviour ($t = -4.27$, $p < 0.001$), while the other two control variables did not. With regards to the psychoactive substances examined in this study, only alcohol, cocaine, and amphetamine,

were found to be significant positive predictors of road rage behaviour. These psychoactive substances predicted road rage behaviour as follow: alcohol significantly (and positively) predicted road rage behavior ($t = 9.69$, $p < 0.001$); similarly, cocaine ($t = 2.59$, $p < 0.01$) and amphetamine ($t = 2.22$, $p < 0.05$) significantly and positively predicted road rage behaviour. The other three, namely: cannabis, tobacco, and heroin, were not significant predictors ($p > 0.05$) of road rage behaviour. However, all the psychoactive substances combined to explain 52% of the variance on road rage behaviour.

In summary, results show that alcohol is the most prevalent psychoactive substance that is frequently used by commercial drivers in South-Eastern Nigeria. Alcohol is closely followed by the use of cannabis and amphetamine, then cocaine; tobacco and heroin were the least used psychoactive substances reported by the commercial drivers. On the specification of the relationship between psychoactive substances use, alcohol showed a

strong positive association with road rage behaviour, while cannabis, tobacco, cocaine, heroin, and amphetamine were all moderately correlated with road rage behaviour. Finally, the results of the simple hierarchical multiple regressions showed that alcohol, cocaine and amphetamine significantly and positively predicted road rage behaviour, but cannabis, tobacco and heroin did not.

DISCUSSION

This study examined two objectives. First, was to describe the prevalence of psychoactive substances, namely: alcohol, cannabis, tobacco, cocaine, heroin, and amphetamine, among a sample of commercial drivers in Enugu, South-Eastern Nigeria. Descriptive statistics revealed that alcohol was the most prevalently used substance among commercial drivers in the region. This is consistent with the report by Van Heerden et al (2009) that alcohol is the mostly widely used drug in Africa. This is especially true for people in Enugu; one of the biggest brewery plants in Nigeria is located at 9th mile corner in Enugu and this makes availability and excessive use easy. Other psychoactive substances like cannabis, tobacco, cocaine, and so on, are not so widely used as alcohol, but they have been used to some extent. Converging evidence in literature (e.g., Abiodun, et al., 1994; Walsh, et al., 2004) showed that communities should be worried about the use of psychoactive substances by vehicle drivers, because the psychoactive substances pose safety risks to road users.

The second objective was to investigate whether those psychoactive substances would predict road rage behaviour. The

result on this objective indicated that alcohol, cocaine, and amphetamine predicted road rage behaviour. In other words, driving under the influence of these three substances is related to road rage behaviour. This finding partially supports the hypothesis that psychoactive substances would predict road rage behaviour. The finding is somewhat consistent with previous related studies (Butters, et al. 2005; Fierro, et al. 2010; Mann, et al. 2004), which consistently reported that substances and road rage are associated. However, that cannabis, tobacco, and heroin failed to predict road rage behaviour in this study is difficult to explain, because most psychoactive substances, including these three, are generally known to predisposes a driver to excessive speeding, reckless driving, and impatience, which are all associated with perpetration of serious road rage behaviour, as well as experiencing road rage victimization (Gjerde, Normann, Christophersen, Samuelsen, Morland, 2011). The moderately positive correlation that cannabis, tobacco and heroin shared with road rage behaviour in this study makes it more plausible to argue that driving under the influence of any of those psychoactive substances would be associated with road rage behaviour. This conclusion can be explained on the grounds that since psychoactive substances generally produce a change in conscious experience by altering brain's normal activity, they would likely disrupt normal daily activity, such as driving. Commercial drivers do not use psychoactive substances for medical reasons; rather they use them for increased alertness, to experience pleasure, and to mask symptoms of fatigue, which allow them to go beyond normal level of performance. Drivers under the influence of psychoactive substance usually see

driving as a contest or as a thrill, and drivers who view driving as an opportunity for thrill-seeking usually drive recklessly and in style. Such a behaviour has been found to correlate with aggressive driving (Krashe & Fenske, 2002). The thrill-seeking drivers often engage in potentially rapidly escalating conflict with other drivers; they drive aggressively, which pits them with other drivers, and which in turn feeds a tendency to react in a more aggressive manner (Forward, 2004).

Limitations and suggestion for future research

Although the explanatory power of correlational research is often enhanced by using a complex correlational procedure like the MRC, many of the assumptions underlying such correlational study are questionable (Rogosa, 1980). This implies that casual statement made on the basis of correlational evidence is suspect. The researchers therefore propose that future research in road traffic studies in Nigeria should employ experimental design, which would present results that researchers can accept with greater confidence.

Conclusion and recommendations

Identifying factors which are likely to engender unruly behaviours on the road is a major step towards reducing harmful outcomes associated with road rage behaviour. The present study was designed to meet this goal, its major research question is: would psychoactive substances predict road rage behaviour? Results showed the answer to be in the affirmative, psychoactive substance use are indeed possible risk factors for road rage behaviour (Butters, et al. 2006). The motor parks are frequently safe heavens

for the distribution and consumption of illicit and licit psychoactive substances, and these accounts for most of the road rage incidents or its predictable consequences – violence, injury, and traffic accidents. There is urgent need therefore to put up effective policies and strategies that would help clean up motor parks of psychoactive substances. Road safety matters in Nigeria have often been treated with disregard and a tendency to bear the loss, instead of taking preventive measures. This need to change; psychologists and allied professionals should join hands with government agencies, such as the Federal Road Safety Corps (FRSC) to organize general driver education to teach drivers the dangers or related harm in the use of psychoactive substances, especially without a doctor's prescription. More importantly, it is the responsibility of government to institute effective regulations to the extent that on no account should banned substances finds their way to the motor parks. Also, substances not banned should attract more taxation in motor parks to discourage excessive use.

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**COMMERCIAL TRICYCLE RIDERS' PERCEPTIONS OF PSYCHOACTIVE DRUG USE
AND THE RISK OF ROAD TRAFFIC ACCIDENTS IN UYO, NIGERIA**

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ABSTRACT

This article reports qualitative interview study on commercial tricycle riders' perceptions of psychoactive drug use and the risk of road traffic accidents in Nigeria. A purposive sampling method was used to recruit ninety-four (n=94) commercial tricycle riders in Uyo, Nigeria. Data were collected through in-depth, individual interviews. Inductive and thematic analyses were undertaken on the interview transcripts. The tricycle riders reported frequently consuming significant quantities of licit and illicit drugs, including alcohol, cannabis, cocaine and heroin. They attributed drug use to occupational hazards such as stress, fatigue and exhaustion. They recognized the effects of psychoactive drug use on tricycle riding, including impairment of vision, coordination and navigational abilities, and how these increase the risk of traffic accidents. Education, routine screening for drug use, curbing bribery and corruption among road safety officials, and curtailing availability of psychoactive drugs were recommended as measures for preventing drug use and road traffic accidents. Findings indicate significant overlap between lay and expert views on the risk factors for traffic accidents and counter-measures, highlighting the need to integrate lay perspectives into policy and action on road safety to improve outcomes.

Keywords: Commercial tricycle riders, psychoactive drugs, road traffic accidents

INTRODUCTION

Globally, road traffic accidents constitute a major, though poorly recognized, public health problem. They are

a leading cause of death and disability, and contribute significantly to the global burden of disease (Ameretunga, Hajar & Norton, 2006; Hazen & Ehiri, 2006; Nantulya & Reich, 2002). The Global Status

Report on Road Safety states that about 1.3 million people die from road traffic crashes annually, and another 50 million suffer severe injuries (World Health Organization, 2015). Ninety percent (90%) of road traffic deaths occur in low and middle-income countries (WHO, 2015), and the burden is fast increasing in these countries due to urbanization and rapid motorization (Jacobs, Aaron-Thomas & Astrop, 2000). Africa accounts for the highest rate of road traffic deaths in the world, estimated to be 26.6 per 100, 000 population (WHO, 2015). In 2000, the economic cost of road traffic accidents in Africa was estimated to be US\$3.7 billion, translating to approximately 1-2% of each country's gross national product (Jacobs, Aaron-Thomas, & Astrop, 2000). Pedestrians, passengers and motorcyclists bear a disproportionate burden of road traffic deaths in Africa, estimated to be forty three percent (43%) of all road traffic deaths (WHO, 2015).

The profile of road traffic deaths and injuries in developing countries should inform the development of domestic policies to improve prevention and control. Furthermore, policies should be based on local evidence and research, and tailored to the peculiar social, political and economic conditions of developing countries (Nantulya & Multi-Musiime, 2001). The importance of qualitative research for deepening understanding of the local context of road traffic accidents have been recognized (Ameretunga, Hajar, & Norton, 2006). But there is a glaring paucity of qualitative research on road traffic accidents in Africa, particularly those that interrogate the direct perspectives of transport workers on human risk factors such as driving under the influence of alcohol and other psychoactive drugs.

This article reports a qualitative study of commercial tricycle riders' views on psychoactive drug use and the risk of road traffic accidents in Nigeria. Our focus aligns with current global emphasis on local evidence for informing domestic policies and responses. The findings are significant in the context of global and national efforts to reduce road traffic accidents and to promote road safety, notably the UN Decade of Action for Road Safety (2011-2020). In this article, we show that occupational hazards are major determinants of psychoactive drug use among commercial tricycle riders. Drug use has negative effects on riding and increase the risk of traffic accidents. Our findings highlight the need to integrate lay views into policy and programs to improve outcomes.

The Nigerian context

Nigeria is the most populous country in Africa, with a population of over 190 million people. It is considered a 'motorising' country in terms of vehicle population and ownership (Trinca et. al., 1988). The WHO ranked road traffic accidents as the 11th leading cause of death and the 6th leading cause of disability adjusted life years (DALYs) in Nigeria in 2000 (WHO, 2004). Nigeria has the highest accident fatality rate in Africa at 33.7 per 100, 000 population (WHO, 2013). There is paucity of reliable data on accidents in Nigeria due to under-reporting and lack of efficient system of documentation and data retrieval (Asogwa, 1992). In 2016, the Federal Road Safety Commission (FRSC) reported 5, 053 fatalities, although the actual figures could be higher (ITF, 2017). The WHO estimates that the actual number of road fatalities could be up to 7 times higher than the figures reported by FRSC (WHO, 2015).

Adults and young adults account for a disproportionately high percentage (93%) of fatal accident victims. The implications of the loss of the productive segment of the population on a developing country like Nigeria are far reaching. Although road traffic crashes have complex and multi-factorial aetiology, human factors, either alone or in combination with other factors, contribute to about 95% of all crashes (Ayinde et al., 2018). This indicates the importance of studying human factors in road traffic accidents. Psychoactive drug use is an important human factor contributing to road traffic accidents. In 2016, about 1% of fatal crashes in Nigeria were due to drink-driving, while other psychoactive drugs accounted for an additional 0.5%. Together, they accounted for more fatal crashes than other human factors such as distraction (0.3%) and fatigue (1.3%) (ITF, 2017). Welcome and Pereverzev (2010) reported that approximately 50% of accidents on Nigerian roads are linked to alcohol consumption.

Studies have investigated psychoactive drug use among commercial transporters in Nigerian cities (Abikoye, 2012; Omolase et al., 2012; Iribhogbe & Odai, 2009; Makanjuola, Oyeleke & Akande, 2007; Abiona, Aloba & Fatoye, 2006). The bulk of these studies are social surveys, which provides data mostly on the prevalence of alcohol use among commercial transporters. Omolase et al. (2012) reported that 32.2% of their respondents admitted using alcohol before driving in the previous year. Iribhogbe and Odai (2009) reported regular alcohol use by 39.8% of commercial motorcycle riders in their study. Abiona, Aloba & Fatoye (2006) reported alcohol use prevalence rate of 67.2% among commercial transport workers in south-western Nigeria. Lacking are qualitative

investigations of commercial transport workers' views on psychoactive drug use and the risk of road traffic accidents. As a result, road safety policies scarcely intersect with lay views on the determinants of road traffic accidents and how they may be addressed. But in addition to expert views, policies and interventions should also integrate the views of the target population in order to improve outcomes.

METHODS AND MATERIALS

The study setting

The study was conducted in Uyo, which doubles as the largest city and administrative capital of Akwa Ibom State in Nigeria. The city lies between latitudes 5° 05' North and longitude 8° East, within the equatorial rain forest belt. The city has grown tremendously within the past couple of decades, attracting people from different ethnic nationalities, particularly the three major ethnic groups in the country (Igbo, Hausa and Yoruba). According to figures from the 2006 national census, Uyo has a population of 309, 573 inhabitants. The estimated annual growth rate of the population is 3.2%. Spatial expansion is not matched by the development of infrastructure and provision of basic social amenities, including health-care, housing, electricity, sanitation, water, telecommunication and transportation. Commerce, services and white collar jobs, a variety of low-level office, administrative, or salaried positions mostly in the civil service, are the mainstay of the local economy. The city has a significant level of poverty. Available figures indicate that over a third of the population live below the national poverty line (FERT, 2004). A large segment of the population earns a

precarious living from various economic activities in a poorly regulated informal sector where the boundary between legal and illegal is blurred. In recent times, there has been a proliferation of commercial tricycle riding. This means of public transportation was introduced under the National Poverty Eradication Programme (NAPEP) of the Nigerian government to create employment for a teeming population of youths; especially in urban centres. Tricycles were introduced to replace motorcycle transportation because of the danger of head injury associated with the later. It is fast replacing automobiles as the major means of commercial transportation in cities, partly due to the high cost of spare parts and maintenance of automobile vehicles. A growing number of young men in Uyo are engaged in commercial transportation as a means of livelihood, and most of them ride tricycles (popularly known as 'Keke').

Participants and Interviews

Qualitative data were collected through in-depth, individual interviews. Interviews involved open-ended questions, which were revised in the course of data collection and analysis (Glaser, 1978). Recruitment and data collection lasted for four months (from April to August, 2016). A non-systematic survey was adopted since the study is qualitative by design and did not involve a specific and specified field location other than Uyo city. The participants were recruited from across the city through purposive sampling. The researchers located one hundred and three (103) commercial tricycle riders in different parts of the city, explained the purpose of the study to them, assured them of confidentiality and requested their voluntary participation in the study.

Nine (9) tricycle riders refused to participate in the study, bringing the sample size to ninety-four ($n=94$). They were all male between 24 and 67 years of age. They were single (31%), married (57%) and divorced or separated (11%). Majority had only secondary education (49%). Only a small proportion had completed tertiary education (11%). The average duration of engagement in commercial tricycle riding was three (3) years. Each participant gave verbal consent to participate in the study. Interviews elicited the participants' views on psychoactive drug use among commercial tricycle riders, including types, quantity and frequency of drug use, drug use initiation, determinants of drug use, effects of drugs use on riding, the risk of traffic accidents and counter-measures. Interviews were conducted in English and recorded with a digital device with the consent of each interviewee. The duration of interviews was between 45 minutes and 1 hour. Recorded interviews were transcribed by paid research assistants and analyzed by the principal researcher.

Data analysis

The transcripts were subjected to thematic and inductive coding and analysis. Data coding was undertaken based on prior themes reflected in the interview guide and inductive codes generated through immersion in the transcripts (Braun & Clarke, 2006; Borkan, 1999). Codes were based on key concepts and descriptions, particularly those emerging from immersion in the transcripts (O'Leary, 2014). The deductively and inductively developed themes formed the basis of data coding, which was done manually and involved assigning primary and secondary codes to relevant portions of each

interview transcript (Campbell et. al., 2013). The coding process was repeated many times and some of the codes were revised while others were condensed or expanded (Braun & Clarke, 2006). To enhance inter-coder reliability and validity of findings, two experts in qualitative research independently read samples of the interview transcripts and assessed the coding scheme (Syed & Nelson, 2015). The authors discussed the assessments, including discrepancies and confusions in the codes. As a result, unreliable codes were dropped or merged, while definitions of the codes were clarified. This process continued until a good measure of reliability was achieved.

RESULTS

Psychoactive drug use among commercial tricycle riders

Interview data shows that the use of psychoactive drugs is common among commercial tricycle riders in the city. The bulk of participants said that many commercial tricycle riders regularly consume psychoactive drugs while driving. Those who said psychoactive drug use was uncommon were in the minority (11.6%). None of the participants outrightly denied the use of psychoactive drugs among commercial tricycle riders. Asked to provide a rough estimate of the proportion of tricycle riders who take drugs while driving, the participants said it ranged from 60% to 85%. The bulk of participants (82%) reported personal use of psychoactive drugs while riding and most (67%) use regularly. A participant stated:

If you know anything about transport workers, you should know that they

use drugs. They use them a lot. It is not only tanker drivers and long distance drivers who take drugs. Keke riders (tricycle riders) also use drugs. They use it every time they go out on the road.

Another participant opined:

Many of us (tricycle riders) take hard drugs. I will not tell you lie, I use drugs. Some people will tell you they don't use. It is not true. Most of the people you see driving Keke use drugs. Only few Keke riders can truly say they don't use drugs.

Commercial tricycle operators consume a variety of licit and illicit psychoactive drugs. The most commonly used drug was alcohol. The different beverages used include commercial beer, palm wine, and imported and locally distilled gin (*ogogoro*). Participants also reported the increasing popularity of caffeinated drinks, popularly known as 'energy drinks', among transport workers. We learnt that commercial tricycle riders consume caffeinated drinks to replenish energy and stamina depleted in the course of tricycle riding. They also consume tobacco, cannabis (*Ikpo*), crack cocaine (*Charlie*), heroin (*Thailand*) and pharmaceuticals, including tramadol, rohypnol and codeine. Cannabis is either smoked or soaked in local gin for drinking. Like the energy drinks, cannabis is said to provide needed strength and stamina for the energy-sapping work of tricycle riding. A participant said:

Transport workers take all kinds of things: ikpo (cannabis), cigarette, cocaine and beer. There is no hard drug that transport workers do not use.

Some people will tell you they do not use these drugs. The reason they tell such lie is fear. The truth is that most of us take these drugs.

Interview accounts reveal the determinants of psychoactive drug use among commercial tricycle riders. Many participants said that they were influenced by fellow tricycle riders to start using psychoactive drugs. Occupational hazards such as fatigue, stress and exhaustion were the major reasons tricycle riders use psychoactive drugs. Participants reported that they use drugs to counteract stress and replenish stamina. Stress and exhaustion are common problems among transport workers (Bekibele et al., 2007). Interview accounts also show that psychoactive drugs are often recommended to new entrants into the occupation as remedies for stress and fatigue. A participant stated:

When I entered this work (commercial tricycle riding) newly, I complained to some friends about tiredness. Many of them encouraged me to take cannabis. They said that it will give me strength. I started from using cannabis. Latter I moved to other drugs like cocaine.

Drug use, tricycle riding and the risk of accident

The participants recognized that consumption of psychoactive drugs is a risk factor for road traffic accident. They stated that the use of psychoactive drugs contributes to accidents because of the negative effect they have on driving behaviour. Asked what these effects were, most participants pointed out that psychoactive drug affect the tricycle rider's ability to navigate the road effectively. They stated

that drugs alter the normal functioning of the human body which in turn affects the rider's ability to ride well on the road. We were told:

Drugs affect transport workers when they are on the road. What I mean is that drugs affect how you ride on the road. When you take drugs and ride Keke on the road, you will not be able to ride very well. It will be difficult to ride because at that time you are controlled by drugs. You are not your normal self.

Another participant added:

The issue is that drugs change the way people act. The way you act normally (i.e without drugs) is different from the way you act after you have taken drugs. It is the same thing with riding. You cannot ride normally. You are not normal because of the drugs you took.

The above comments capture participants' view of the physiological effects of psychoactive drugs. They further noted that drugs, particularly alcohol, induce various physiological changes, including weakness, shivering, trepidation and nervousness, which compromise the ability to ride. Participants told us that under such conditions the likelihood of being involved in an accident on the road was very high since the rider will not be able to navigate traffic effectively. A participant stated:

Drinking can make your body weak. You will notice that your hand will be shaking while you are holding the steering. If you ride when you

are feeling like that, you are going to have accident. Nobody should be allowed to ride Keke under that condition.

Accounts also highlight the effect of drugs on vision. Participants opined that psychoactive drugs affect a rider's ability to visualize the road and to ride well. They pointed out that accurate vision of the road is essential to successful riding; therefore, a rider whose vision is impaired is at grave risk of being involved in an accident. Commenting from personal experiences, some of the participants told us that when a rider is under the influence of psychoactive drugs he may not clearly see road signs, pedestrians or on-coming vehicles. This was said to lead to accidents since the rider will not be able to navigate effectively under this condition. A participant opined:

If you take drugs and go out on the road, you will find it difficult to see the road. When I take drugs and ride out, I find it difficult to see bends on the road or see other vehicles that are coming towards me. When it happens like that you can collide with another vehicle or hit those who go on foot.

It was also pointed out that drugs affect the rider's cognition and coordination. Participants told us that tricycle riding is a delicate activity that requires utmost concentration. They said that the rider must constantly calculate his moves to ensure that he is involved in an accident. Psychoactive drugs compromise the rider's ability to think and calculate his moves while riding. Participants opined that when the capacity to calculate and navigate is

compromised by the use of psychoactive drugs, the rider is at risk of being involved in traffic accident. A participant stated:

There is no way you take drugs and ride on the road and it will not affect your riding. That is why they are called drugs. They affect human beings. When you take drugs and ride, you will not be able to think and analyse things very well because of the way the drugs affects your mind. You may make wrong moves that can lead to accident on the road.

Asked which drug had the strongest effect on a rider, the participants rated alcohol (68%) and cannabis (49%) as the most potent. They also observed that the effect of drugs depended on the quantity taken ('if you take a little, it may not give you trouble, but taking much is dangerous'). Consumption of significant quantities of psychoactive drugs increases the risk of traffic accident. A sizeable proportion of the participants (21%) reported that they had been involved in an accident in the past because of driving under the influence of psychoactive drugs, mostly alcohol. A participant narrated:

Once I sat with some friends and took some bottles of beer. When I stood up I felt the effect in my body so I decided to ride home and rest. On the way I lost control and had accident. I thank God that it was not a serious one.

Curtailling psychoactive drug use and road traffic accidents

Interviews also elicited participants' views on ways of tackling drug use and road accidents involving commercial

transport workers. The participants were verbose about the importance of taking measures to reduce psychoactive drug use among commercial transport workers. They variously pointed out that this was the most effective step towards preventing traffic accidents. They were confident that consumption of psychoactive drugs is a major risk factor for traffic accidents and that prevention of drug use by transport workers, among other measures, would result in reduction in the rate of road traffic accidents. A participant commented:

Drug use by transport workers is one of the reasons why we have many accidents on the road. Something should be done about it. Transport workers, like those of us who ride Keke (tri-cycle), should not be allowed to take hard drugs and drive. If that is done, accidents on our roads will reduce.

Another participant stated:

Government should stop the use of drugs by transport workers. They should do something about it. The use of hard drugs is a major problem. Transport workers should not be allowed to take hard drugs. That is one thing we should do to prevent accidents.

Participants stated that ignorance of the dangers of psychoactive drugs was a major reason transport workers use them. They said that the use of drugs by transport workers could be prevented by educating them on the negative consequences of drug use on their health and well-being and those of others, and that

emphasis should be placed on the risk of traffic accidents. They further stated that transport workers should be encouraged to abstain from the use of drugs or to reduce the quantity and frequency of drug use, especially when they are on the road. A participant stated:

Transport workers should be educated on the dangers of drugs to their health and the consequences of driving under the influence of drugs. Most transport workers do not know the dangers of using drugs. That is why they continue using them. If they are told, some of them will change their behaviour.

Another participant expressed confidence in the power of increased knowledge to produce behavioural change. He stated:

The first thing is to let transport workers know that using drugs while driving can result in accident on the road. There is a saying that 'knowledge is power'. It means that when you know something, you can use that knowledge for your benefit.

Participants also recommended that transport workers be screened regularly for drug use, and those found to be driving under the influence of drugs should be punished. They reported that officers of the Federal Road Safety Commission (FRSC) do carry out random screening for drug use on transport workers, but they felt it should be done more regularly since transport workers use drugs regularly. Enforcement of laws on driving under the influence of alcohol and other drugs was said to be compromised by bribery and

corruption. Participants intimated that road safety officials habitually collect bribes from offenders and allow them to go unpunished. They said that such practices encouraged violation of traffic laws. A participant narrated:

I have seen road safety people collect money from drivers and they allowed them to go. Such practices will encourage transport workers to continue to take drugs and cause accidents on the road. Road safety should do their work and keep people who use drugs from driving on the road.

Many participants expressed the view that the availability of psychoactive drugs contributed to their consumption by transport workers. They said drugs are widely available on the streets and that this was a contributory factor to widespread use. They suggested that the availability of psychoactive drugs should be controlled. They called on law enforcement agencies such as the Nigeria Police Force (NPF) and the National Drug Law Enforcement (NDLEA) to adopt effective measures to curtail availability of psychoactive drugs on the streets. They expressed optimism that measures to reduce the availability and consumption of psychoactive drugs will have a positive impact on the prevalence of road traffic accidents.

DISCUSSION

This study explored the views of commercial tricycle riders on psychoactive drug use and the risk of road traffic accidents. Findings indicate a significant level of drug use among commercial tricycle

riders. This resonates with the existing literature on road traffic accidents in Nigeria. Previous studies reported the use of alcohol among commercial transport workers (Abikoye, 2012; Omolase et al., 2012; Iribhogbe & Odai, 2009; Makanjuola, Oyeleke & Akande, 2007; Abiona, Aloba & Fatoye, 2006). A body of international literature identified psychoactive drug use as a risk factor for fatal road traffic accidents, with emphasis on the possible impairment of the driver (Barbone et al., 1998; Lowenstein & Koziol-McLain, 2001; Drummer et al., 2004; Holmgren et al., 2007; Woratanarat et al., 2009). Driving under the influence of drugs elevates the risk of involvement in road crash, crash severity and severity of crash injuries (Pereden, Scurfield, Sleet et al., 2004). Exploring psychoactive drug use and the risk of road traffic accidents among commercial tricycle riders is the contribution of our study to the existing literature, which mostly report findings from motorcyclists and bus drivers. Our findings suggest that drug use pervades all sectors of road transport workers and should be given priority in road safety policy.

The tricycle riders in our study reported frequent consumption of significant quantities of different types of licit and illicit psychoactive drugs, most of which have documented negative impacts on driving behaviour. Alcohol is a well documented contributor to road traffic accidents. It is recognized as a principal risk factor for road crashes. Alcohol use is associated with increased risk of accident involvement and increased risk of responsibility for the accident (Robertson & Drummer, 1994; Longo et al., 2000). Other substances such as cannabis, caffeine and opioids have negative impacts on driving ability, especially when vast quantities are

consumed or when they are used in combination (e.g. cannabis and alcohol) as reported by the tricycle riders in this study. The pharmacological effects of these substances impair cognitive and psychomotor skills necessary for driving and elevate the risk of accidents (EMCDDA, 2014). The pattern of psychoactive drug use reported by the tricycle riders in this study has critical implications for road safety, especially in view of the reported prevalence of frequent and poly-drug use.

The findings also show that common occupational hazards such as stress, exhaustion and fatigue are risk factors for psychoactive drug use among commercial tricycle riders. Driving (and riding) is a strenuous and rugged physical activity which is associated with stress and fatigue (Taylor & Dorn, 2005). Commercial transportation in Nigerian cities involves commuting a vast and unremitting number of people (Fasakin, 2001; Ogunbode, 2008). Since profit mostly depends on the number of passengers commuted and distance covered (Fasakin, 2001), commercial transporters make incessant and energy-sapping journeys in order to maximize profit. They use psychoactive drugs to medicate the conditions associated with their arduous work. Drug use is therefore a form of self-medication, where drugs are used intentionally to treat the conditions which commercial tricycle riders suffer (West, 2006).

Initiation of psychoactive drug use among commercial tricycle riders is mediated by peer influence. Psychoactive drug use plays an important function in the occupational sub-culture, serving as a mechanism of social and psychological functioning for tricycle riders. Such contextual understanding of psychoactive drug use among commercial transport

workers is essential for the development and implementation of effective programs for prevention and control. They highlight the importance of peer-based education and behavioural change programs which seek to address the problem of psychoactive drug use among commercial transport workers.

The key insight emerging from the study is tricycle riders' views on the physiological and psychological effects of psychoactive drugs and how these elevate the risk of road traffic accidents. They mentioned weakness, shivering, nervousness, and impairment of vision and coordination as the effects of drugs. These compromise the individual's ability to navigate traffic effectively and increase the risk of road traffic accident. Lay accounts of the impact of psychoactive drugs on driving/riding behaviour resonate with existing literature, especially in relation to visual and mental impairments. Psychoactive drugs such as alcohol, cannabis, cocaine and heroin impair driving performance by altering mood, perception, concentration, coordination and responses to external stimuli, especially when high doses are taken and when they are used in combination (Kelly, Darke & Ross, 2004; EMCDDA, 2014). There is a convergence between scientific and lay understanding of the effects of drugs on driving and how these increase the risk of road traffic accidents. This finding has important implications for road safety policy. Lay views on the effects of psychoactive drugs on driving provide an entry point for behavioural change interventions. Integrating lay views into the development of interventions has the potential to foster acceptance and improve outcomes.

The tricycle riders recommended education, routine drug use screening of

transport workers, curbing bribery and corruption among road safety officials, and controlling the availability of psychoactive drugs as measures for reducing drug use and preventing road traffic accidents. Their recommendations resonate with internationally recognized measures for the prevention and control of traffic accidents. In Nigeria, educational campaigns should be implemented. These campaigns should build on lay understanding of the link between psychoactive drug use and road traffic accidents. They should engage tricycle riders as peer educators to maximize effectiveness. They should also provide accurate information, discourage driving under the influence of alcohol and other psychoactive drugs and promote adoption of safe driving behaviours. It is also important to enact and enforce appropriate legislations on driving under the influence of alcohol/drugs. These include routine blood alcohol screening and drug use screening, which is recognized as an effective measure for reducing road traffic accidents (WHO, 2015). There is no maximum blood-alcohol concentration (BAC) in Nigeria (Welcome & Pereverzev, 2010). This makes the implementation of the Federal Traffic code on drink-driving problematic. A legal blood alcohol concentration should be established to make it possible to prosecute drivers involved in impaired driving.

The tricycle riders' recommendations support the need for a multi-level, combination strategy for promoting road safety. They highlight the importance of complementing individual-behavioural interventions (educational programs and routine drug use testing) with structural-environmental interventions. The latter include enactment and enforcement of relevant road safety legislations, curbing

corruption among road safety officials and curtailing the supply of psychoactive drugs. Bribery and corruption is a contributory factor to ineffectiveness in the enforcement of traffic laws by enforcement agents (Asogwa, 1992). It is therefore necessary to adopt measures to reduce the level of corruption among road safety officials. Relevant measures include training and provision of adequate incentives. Measures should also be taken to control the supply of psychoactive drugs, including enacting and enforcing laws on alcohol advertising and marketing. But supply reduction strategies have not been very successful in reducing drug use. Although these measures should not be abandoned, their complement should be developed: policies and interventions to reduce demand for drugs and alcohol. Primary prevention programs on drugs and alcohol, including public education campaigns incorporating culturally-meaningful and factual information on the dangers of alcohol and drug abuse should be mounted. Treatment services should also be provided for people with alcohol and drug use disorders.

CONCLUSIONS

The majority of Nigerian people rely on commercial transportation for their daily activities. The safety of commercial transportation is affected by human factors, particularly impaired driving owing to the consumption of alcohol and other psychoactive drugs. Driving under the influence (DUI) of alcohol and other drugs increases the risk of road traffic accidents. But policy and interventions addressing road traffic violations such as DUI are mostly based on expert views. Little consideration is given

to the views of the transport workers themselves. Lay views could enrich and optimize the effectiveness of policies and programs. The views reported in this article indicates that psychoactive drug use among commercial tricycle riders is linked to occupational hazards such as stress, fatigue and exhaustion, and affects riding through impairment of vision, judgement and coordination. These elevate the risk of road traffic accidents. The views also highlight the importance of education, law enforcement and routine drug use screening, curbing corruption among enforcement officials and controlling availability of psychoactive drugs as measures for stemming drug-impaired driving and preventing road traffic accidents. These views overlap with scientific evidence on risk factors for traffic accidents and counter-measures. It is important to integrate lay views into road safety policy and interventions to bolster acceptance and improve outcomes.

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SOME NEUROPSYCHOLOGICAL PROFILES OF CANNABIS DEPENDENT USERS ON LONG-TERM ABSTINENCE IN A REHABILITATION CENTRE IN NIGERIA

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ABSTRACT

The present study examined some neuropsychological profiles of cannabis dependent users on long abstinence in Nigeria. Ninety participants were recruited for the study. Their ages ranged from 27 – 35 years with a mean age of 30.78. Five neuropsychological instruments were used for the study: Symbol Digit Modality Test (SDMT), Digit Symbol Modality Test (DSMT), Trail Making Tests A & B (TMT – A/B), Rey Auditory Verbal Learning Test (RAVLT) and Rivermead Post Concussion Syndrome questionnaire (RPC). The findings of the study showed significant differences on verbal learning; RAVLT Trial 5: $F(2,81) = 15.20$, RAVLT Total Trial: $F(2,81) = 11.06$, Delayed verbal memory, $F(2,81) = 10.94$ all at $P \leq 0.05$ level of testing with cannabis users performing worse than the psychiatric and healthy controls. Significant differences were also seen on processing speed: DSMT: $F(2,81) = 3.53$ with cannabis users performing worse than the healthy control but better than the psychiatric group. Drug users had significant less performance than the healthy control on TMT A; $F(2,81) = 8.04$ and TMT B; $F(2,81) = 7.41$ as measures of executive function. Also, drug users had significant worse complaints of somatic, cognitive and emotional symptoms following brain injury as measured by RPC; $F(2,81) = 7.11$ all at $P \leq 0.05$ level of testing. Discussions of the study was based upon long term effects of cannabis use on neuro-cognition even after prolonged abstinence and reasons for the mixed findings surrounding this area of study. Implications of the study were also examined.

Keywords: Neuro-cognition, Cannabis Users, Abstinence, Processing Speed, Memory

INTRODUCTION

Addiction is generally defined as compulsive and persistent use of drugs despite negative consequences (Pascoli, Terrier, Hiver & Cuscher, 2015). Ideally dependent drug users will continue drug consumption despite negative consequences typically related to social and psychological defects that are often delayed in time (Pascoli et al., 2015). Neurobiological explanations of addiction have shown various areas of the brain to be involved in compulsive drug seeking. Pascoli et al. (2015) using optogenetic self stimulation show that the Dopamine (DA) neurons of the ventral tegmental area (VTA) are implicated in drug addiction. Consequently their study implicated the D₁ receptor expressing neurons of the nucleus accumbens (NAc) as involved in cue induced relapse after weeks of abstinence while resistant to punishment was associated with enhanced neural activity in the orbitofrontal context (OFC) of mice addicted to drugs. In humans similar neural areas have been identified as addictive brain areas. Everitt and Robbins (2016) described the transition from ventral to dorsal striatum involving the DA neurons as major pathways of drug use to drug compulsion. Taken together all the evidences on drug addiction based on neurobiology, it becomes clear that neural plasticity occurs during addiction and such plasticity accounts for drug addiction.

Aside the neural plasticity leading to addiction, drug users also show relative cognitive impairments (Cadet & Bisagno, 2016). Accumulating evidence suggests that dependent and recreational cocaine use is associated with broad neuropsychological impairments (Goldstein, Leskovjan, Hoff, Hitzeman, Bashen, Khalsa &

Colleagues, 2004; Jovanovski, Erb & Zakzanis, 2005; Vonmoos, Hulka, Preller, Jenni, Baumgartner, Stohler et al, 2013; Soar, Mason, Potton & Dawkins, 2012).

Vonmoos, Hulka, Preller, Mander, Baumgartner and Quednow (2014) studied cognitive impairment in cocaine users and its possible reversibility. Their findings showed that increased cocaine use within 1 year was associated with reduced cognitive performance primarily in the working memory. By contrast, decreased cocaine use was linked to small cognitive improvements in all domains studied (attention, working memory, declarative memory and executive functions). Importantly, users who ceased taking cocaine seemed to recover completely, attaining a cognitive performance level similar to that of control group. In addition, recovery of working memory showed correlation with the age of onset with early onset users showing hampered recovery. Studies have shown deficits in attention, working memory and declarative memory in chronic cocaine users whereas the heterogeneous concept of executive functions have yielded mixed results (Jovanovski, et al. 2005; Vonmoos et al. 2013). Other studies have equally demonstrated that cocaine users additionally display inferior social cognition including prosodic and cross modal emotion recognition, emotional empathy, mental perspective taking and social decision making (Hulker, Eisenegger, Preller, Vonmoos, Jenni, Bendrick and Colleagues, 2014; Hulker, Preller, Vonmoos, Broicher & Quednow, 2013; Preller, Hulka, Vonmoos, Jenni, Baumgartner, Oziobek and Colleagues, 2014).

Becker, Collins, Schultz, Urosevic, Schmaling and Luciana (2018) studied longitudinal changes in cognition in young adult cannabis users. Their study

examined associations between chronic use (CU) and cognition over time in chronic daily adolescent onset chronic users (CUs) as compared to normal controls. Both groups completed a neuropsychological battery at study intake and again 2 years later. Their baseline group differences indicated deficits in verbal learning and memory, motivated decision making, planning and working memory in CUs. At the longitudinal follow-up, the majority of CUs continued to report regular and heavy cannabis use. Relative impairments in the domains of working memory, planning and verbal memory remained stable suggesting that these are enduring vulnerabilities associated with continued CU during young adulthood. However impairments in motivated decision making were evident in both groups. In addition, CUs demonstrated relatively better performance in short duration speeded tasks, while an earlier age of CU onset was associated with poorer verbal learning and memory and planning performance over time. Other studies have equally supported the effects of cannabis on neurocognitive functions both the acute (Grady, 1999; Morrison, 2015; Mckeown, Lee, Holt, Powell, Kapur & Murray, 2009) and residual effects of cannabis (Herman, Sartorius, Welzel, Walter, Skopp, Ende & Mani, 2007; Solowji, Stephens, Roffman, Bator, Kadden, Miller, Christiaonsen, McRee, Vendetts, 2002).

Crean, Crane and Mason (2011) reviewed some evidence of long term effects of cannabis use on executive cognitive functions. According to the authors this area of research has been fraught with inconsistencies in findings and is complicated by discrepant definition of what constitutes long term effects. Crean et al asserted that only a handful of researchers have examined the long term

effects of cannabis use in executive functions. In seven studies reviewed by Crean et al. (2011), five found no attention or concentration impairments in participants who had remained abstinent from 28 days to one year (Lyons, Bar, Panizon, Toomey, Eisen, Xian & Tsuang, 2004; Pope, Gniber, Hudson, Huestis, Yurgelun-Toos, 2001, 2002, 2003, Verdejo-Garcia, Lopez-Torrecillas, Aguillar de Arcos, Perez-Garcia, 2005). Other areas of neuropsychological abilities have equally been examined among abstinent cannabis users including working memory, verbal fluency, inhibition and impulsivity, decision making and risk taking (see Crean et al 2011 for exhaustive discussion). Overall cannabis appears to continue to exert impairing effects in executive functions even after 3 weeks of abstinence and beyond. While basic attentional and working memory abilities are largely restored, the most enduring and detectable deficits are seen in decision making, concept formation and planning (Crean et al 2011).

The present study was an examination of some neuropsychological abilities among cannabis users in a rehabilitation centre in Anambra State. The neurocognitive abilities examined were verbal learning/memory, processing speed and executive functions of the participants. To the researchers best of knowledge, no studies have been carried out in Nigeria on neuropsychological profiles of cannabis users particularly those on abstinence for over 3 months. The problems of paucity of literature on this area of long term cognitive effects of cannabis following abstinence may affect post detoxification management. Crean et al (2011) had earlier stated the benefits of neurocognitive assessment on rehabilitation of drug addicts. The gap in knowledge and treatment

created by such lack of studies on neuro-cognition of cannabis dependents is what the present study seeks to fill.

Thus the following hypotheses were proposed to guide the research:

- i. Cannabis users on abstinence will differ significantly on verbal learning and memory from healthy controls and psychiatric patients.
- ii. Cannabis users on abstinence will differ significantly from the healthy controls and psychiatric patients on test of processing speed.
- iii. Cannabis drug users will differ significantly from health control and psychiatric patients on test of executive functioning as well as post concussive symptom reports.

METHOD

Participants

Ninety participants took part in the study. They were recruited from the population of psychiatric patients, drug users and healthy controls. The psychiatric samples were thirty (30) inpatients recruited from the government neuropsychiatric hospital in Anambra State Nigeria. They included 22 males and 8 females diagnosed with psychotic disorders by the attending psychiatrists. The psychiatric group was receiving treatment in the mental health facility during the study. All

the participants were on newer forms of antipsychotic medications as at the time of the study and have stayed in the hospital for at least 3 months. On the other hand, the drug users were recruited from the inpatient rehabilitation facility owned by the Nigeria Drug Law Enforcement Agency in Anambra State. They included 30 participants identified to be cannabis users. Twenty five (25) of the participants reported that they also take codeine and alcohol and sparingly cocaine. However the predominant drug of usage was cannabis. All the cannabis participants reported that they had had used cannabis for over 5 years and had for the past one year been using cannabis on a near daily basis. The reason for choosing the Drug Rehabilitation centre was its strict rules on inpatient admission. Patients are not allowed to assess drugs neither were there rooms for drug smuggling into the patients' wards. This to a large extent assures abstinence as soon the drug user is still in admission. The normal controls were recruited from the population of undergraduate students and secondary school leavers who reported no use of drugs (cannabis, cocaine, codeine, tramadol, etc.) and no symptoms of psychotic disorder based on Symptom Checklist 90 R self report. They were matched on age and education with the addiction group.

Table 1 shows no significant differences among the groups on age and length of education respectively.

Table 1. Summary Table of Education and Age of the Participants

Group	Mean Age	Mean Length of Education	F (age)	F (edu)
Drug users	30.52	7.65		
Psychiatric patients	31.68	7.08	0.85 ^a	1.34 ^a
Normal Controls	30.75	8.03		

a = No Significant difference at $P \leq 0.05$.

Instrument

Five neuropsychological tests were used in the study. The Symbol Digits Modalities Test (SDMT, Smith, 1991) is a speeded task that has been used extensively with diverse clinical groups for the assessment of processing speed (Martin & Bush, 2008). This requires an examinee to look at a series of nine geometric figures that have each been paired with a number. The test items present the geometric figures that have each been paired with a number. Test items present the geometric figure only and the examinee must quickly write in the target number that goes with each figure (Martin & Bush, 2008). The score is the number of correct substitution completed within 90 seconds. However the present study allowed the participants to work as fast as they could and the score was the time it took the participants to complete the task. Similar to the SDMT was the Digit Symbol Modality Test (DSMT). The DSMT (WAIS III: Psychological Corporation, 1957) shares the same features with the SDMT other than the examinee looks at a series of nine numbers that have each been paired with a geometric figure. In DSMT, test items present the numbers only and the examinee must quickly write in the target figures that go with each number (Lezak, et al 2012). The Trial Making Test (TMT; Army Individual Test Battery, 1944) is a commonly used neuropsychological assessment instrument (Arbuthnott & France, 2000; Reitan & Wolfson, 1983) that consists of two subtests. TMT – A involves drawing a line that connects consecutive numbers from 1 to 25 while TMT – B involves drawing a line connecting alternating numbers and letters in sequence (1 – A – 2 – B etc). Traditional scoring is the time in seconds required to complete each part of the

test. The present study included the number of errors made on the task. The TMT provides information regarding attention, visual scanning, speed of eye-hand coordination and information processing (Miltrushina, Boone & D'Etia, 1999). The Rey Auditory Verbal Learning Test (RAVLT) affords an analysis of learning and retention. It involves a five-trial presentation of a 15 – word list (List A), a single presentation of an interference list (List B), two post interference recall trials (one immediate, one delayed) and recognition of the target words presented with distracters (RWL) (Lezak, Howieson, Bigler & Tranel (2012). RAVLT has been shown to be reliable and valid in neuropsychological assessment of memory in various disorders including multiple sclerosis (Brown, Kinsella, Ong & Volvels, 2000) and Alzheimer type dementia (Bigger, Rosa, Schultz et al, 1989, Ferman, Smith, Boone et al, 2006). RAVLT has been shown to have adequate reliability and divergent validation using Nigeria samples (Ucheagwu, Ugokwe-Osai, Okpaleke & Ugokwe, 2017). The Rivermead Post Concussion Symptoms questionnaire (King, Crawford, Wenden, Moss & Wade, 1995) is designed to assess the presence and severity of post concussion syndrome (PCS) which is a set of somatic, cognitive and emotional symptoms following traumatic brain injury. The authors show that RPQ had good reliability both for test – retest and inter-rater reliability.

Procedure

The psychiatric sample were tested in the psychiatric hospital where they were inpatients receiving treatment. All the psychiatric participants were taking newer forms of antipsychotic medication. Because of their medication, they were all tested in the afternoon. This was to allow

for sometime after taking the medication the previous night. Because of antipsychotic side effects, some patients eligible for the study did not participate. Only patients that reported no or fewer signs of motor retardation and dizziness were recruited for the study. They were tested individually after adequate rapport and written consent were obtained from the patients and care-givers respectively. Conversely the drug users were equally tested at the drug rehabilitation centre where they were admitted for rehabilitation. As at the time of the study, none of the participants were on antipsychotics. The only medication known to be administered was multivitamins. The drug addicts were tested individually after adequate consent was obtained from the participants and authorities of the rehabilitation centre. The normal controls were invited to the psychology laboratory of the university (Lead Author's University) where they were equally tested individually after obtaining written consent from the participants. The research ethical committee of the Madonna University Department of Psychology approved the study which follows the Helsinki declaration on involvement of human participants in research.

Design and Statistics

The between group design was used for the study while the multivariate analysis of variance was used for data analysis.

RESULTS

The statistical estimations were to establish neuropsychological differences among cannabis drug dependents, psychiatric patients and healthy controls. The analysis did not include the female

participants because only eight participants were involved and they were from the psychiatric group only.

The findings of the study showed significant differences on the Rivermead Post Concussion Questionnaire (RPQ) $F(2, 81) = 7.11$ at $P \leq 0.001$, RAVLT Trial 5: $F(2, 81) = 15.20$ at $P \leq 0.001$; RAVLT Total Trial: $F(2, 81) = 11.06$ at $P \leq 0.001$; RAVLT Interference: $F(2, 81) = 7.89$ at $P \leq 0.001$; RAVLT Delayed Trial: $F(2, 81) = 10.94$ at $P \leq 0.001$; TMT A (TIME) $F(2, 81) = 8.04$ at $P \leq 0.001$; TMT B (TIME) $F(2, 81) = 7.41$ at $P \leq 0.001$; TMT A (ERROR) $F(2, 81) = 25.21$ at $P \leq 0.001$; TMT B (ERROR) $F(2, 81) = 7.46$ at $P \leq 0.01$; SDMT: $F(2, 81) = 10.68$; DSMT: $F(2, 81) = 3.53$ at $P \leq 0.03$. However no significant differences were seen on RAVLT Trial 1 and RAVLT Recognition at $P \leq 0.005$ respectively.

Table 2 shows the mean scores of the groups as they reflect the neuropsychological behaviours. Equally Table 3 shows the pair wise comparisons of the 3 groups on neuropsychological behaviours that show significant differences.

DISCUSSION

The findings of the study showed significant differences among the groups studied on verbal memory and learning using the Rey Auditory verbal learning test (RAVLT). Trial 5 of the RAVLT has been shown to identify the number of words learnt during the verbal learning tasks (Lezak et al, 2012). The analysis of the present data showed that cannabis users on abstinence had the least score on verbal learning and pair wise comparisons of the three groups showed significant learning differences between the cannabis addicts on one hand and health

Table 2. Mean Scores of Neuropsychological Profiles of the Participants

Dependent	Variable	Mean	Std Error
RPQ	Psychiatric patients	17.15	2.06
	Drug Users	26.04	1.96
	Normal	16.87	1.10
RAVLT Trial 1	Psychiatric patients	6.62	0.51
	Drug Users	5.77	0.49
	Normal	6.95	0.47
RAVLT Trial 5	Psychiatric Patients	9.08	0.54
	Drug Users	5.62	0.51
	Normal	9.07	0.50
RAVLT Total Trial	Psychiatric Patients	39.63	2.13
	Drug Users	28.07	2.02
	Normal	39.77	1.95
RAVLT Interference	Psychiatric Patients	7.75	0.59
	Drug Users	5.40	0.56
	Normal	8.35	0.54
RAVLT Delayed Trial	Psychiatric Patients	7.84	0.57
	Drug Users	4.83	0.54
	Normal	7.96	0.52
RAVLT Recognition Trial	Psychiatric Patients	14.08	0.66
	Drug Users	12.67	0.63
	Normal	12.62	0.61
TMT A (TIME)	Psychiatric Patients	112.27	9.07
	Drug Users	109.19	8.61
	Normal	68.87	8.33
TMT B (TIME)	Psychiatric Patients	168.68	13.35
	Drug Users	156.51	12.67
	Normal	103.91	12.26
TMT A (ERROR)	Psychiatric Patients	0.15	0.91
	Drug Users	0.82	0.08
	Normal	0.14	0.08
TMT B (ERROR)	Psychiatric Patients	3.34	0.66
	Drug Users	2.50	0.62
	Normal	0.06	0.60
SDMT	Psychiatric Patients	371.29	22.45
	Drug Users	255.35	21.31
	Normal	238.17	20.63
DSMT	Psychiatric Patients	326.37	51.55
	Drug Users	300.32	48.92
	Normal	156.43	47.35

controls and psychiatric patients on the other hand. Equally the RAVLT total trial score (ie: scores total scores of trials 1-5

of the RAVLT) showed that cannabis addicts performed significantly worse than the other 2 groups.

Table 3. Summary Table of Pair Wise Comparison

Defendant Variable	Group	Group	Diff	Sig.
RPQ	Normal	Psychiatric Patients	-0.28	0.92
		Drug Users	-9.17	0.001
RAVLT Trial 5	Normal	Psychiatric Patients	-.013	0.97
		Drug Users	3.45	0.001
RAVLT Total Trial	Normal	Psychiatric Patients	0.14	0.96
		Drug Users	11.70	0.001
RAVLT Interference	Normal	Psychiatric Patients	0.61	0.45
		Drug Users	2.96	0.001
RAVLT Delayed Trial	Normal	Psychiatric Patients	0.12	0.86
		Drug Users	3.13	0.001
TMT A (TIME)	Normal	Psychiatric Patients	-43.40	0.001
		Drug Users	-40.32	0.001
TMT B (TIME)	Normal	Psychiatric Patients	-64.77	0.001
		Drug Users	-52.64	0.004
TMT A (ERROR)	Normal	Psychiatric Patients	0.15	0.24
		Drug Users	-0.67	0.001
TMT B (ERROR)	Normal	Psychiatric Patients	-3.28	0.001
		Drug Users	-2.43	0.005
SDMT	Normal	Psychiatric Patients	-133.12	0.001
		Drug Users	-17.19	0.56
DSMT	Normal	Psychiatric Patients	-169.94	0.02
		Drug Users	-143.89	0.04

This finding show that cannabis users on abstinence for over 3 months still show impairments on verbal learning performance. Previous studies show verbal impairment in cannabis chronic users when compared with health control (Becker et al 2018) both at acute intoxication and long term chronic use. However studies relating to abstinence of heavy chronic users show that at 28 days, no difference is seen between chronic users on abstinence and control group (non heavy users) on verbal fluency and verbal information (Pope et al, 2001, Crean et al., 2011). These findings were in contrast with our present finding that chronic heavy users on abstinence for over 3 months still showed impairment on verbal learning. However differences may

be as a result of diverse neuropsychological tests used by various researchers. The present study used the RAVLT while Pope et al study used measures dealing more on verbal fluency. Equally previous studies recruited cannabis users (light users) as control group while our control groups were persons that were cannabis naive. This may have contributed to differences in our findings. Thus our findings showed relative lasting residual effect of cannabis on verbal learning even after 3 months of abstinence. Conversely, the same significant difference was observed on delayed task of RAVLT which measures verbal memory. Cannabis users on abstinence still showed significant poor performance than other groups on delayed verbal memory task

of RAVLT. Our finding was in line with those of Solowji et al. (2002) and Solowji and Battisti, (2008), who showed that long term cannabis users performed significantly less well than the short term users and controls on tests of memory and attention using the RAVLT and time estimation tasks. According to them long term users show impairments in memory and attention with increasing years of regular cannabis use. However our study was little different from theirs because our cannabis participants were abstinent for over 3 months but still showed decreased verbal memory when compared with healthy controls.

On the other hand, significant differences were only seen on the processing speed performance using the digit symbol modality test (DSMT) between the healthy controls and cannabis participants. Importantly cannabis users performed better than the psychiatric participants on DSMT and also on another task of processing speed the symbol digit modality test (SDMT). Similarly cannabis users show significantly less performance than the healthy controls on measures of executive functions using the TMT A and B. Mixed findings have trailed the residual effects of cannabis on executive function following some days (maximum 20 days) of abstinence. Pope et al (2001, 2002) as well as Jager, Kahn, Ven Den Broken Van Reea and Ramsey (2006) on all five studies found no significant differences on executive functions of heavy cannabis users, former heavy cannabis users and control subjects on 28 days abstinence. Contrary to this, Solowji et al (2002) and Herman et al (2007) reported positive significant differences on abstinence between chronic users and healthy controls. These differences may

as well be attributed to the nature of neuropsychological tests used to assess executive functioning, the nature of participants recruited for the study as well the length of abstinence.

Implication for Treatment

Cognitive impairments have been generally associated with poorer drug abuse treatment outcome (Aharonovich, Brooks, Nunes & Hasin, 2008; Abboth & Gregson, 1981) and those impairments have been found to impede acquisition of new coping behaviours (McCrary & Smith 1986), learning and retention of new material (Alternman & Hall, 1989) and also increases the likelihood of treatment dropouts (Teichner, Horner, Routzch, Herron & Theros, 2002). This suggests that incorporating the standard cognitive remediation into the rehabilitation of cannabis users will optimize treatment outcome. It is therefore important to equally include standard neuropsychological assessment in the protocols for assessment and treatment of cannabis dependent users.

Since the present study suggests long term effects of cannabis use on neuro-cognition, intermediate neuropsychological assessment of cannabis users under rehabilitation will help determine cannabis users still affected with cannabis neuro-cognitive effects over long term rehabilitation and abstinence and possibly improve on their neuro remediation.

Our present study has certain limitations. We were not able to divide the cannabis users into months of abstinence like 3 months, 5 months, 1 year, although all our participants have had at least 3 months of abstinence and were still in the rehabilitation centre. Future studies including different abstinence time may

further tell us more about abstinence and neuro-cognition. Although our present study to the author's best of knowledge was the first to assess the neuro-cognitive status of cannabis users on 3 months of abstinence in a rehabilitation centre, we believe that neuro-plasticity following cannabis use may still improve based upon time. Equally our study failed to categorize the users under duration of exposure and quantity of cannabis abused. However, we reported that all participants had used cannabis for over 5 years prior to admission and based upon self report have been using cannabis on everyday basis at least 1 year before admission into rehabilitation. These description criteria have ideally covered bases for dependence and heavy use, but further categorization could have given more credence to the study. Equally we did not involve any biological test to ensure total abstinence among the drug addicts. We had simply relied on the nature and security of the centre for abstinence. Future studies involving such measures will give better credence to the results obtained.

Psychiatric patients were included into the study also as a form of control to the cannabis participants. Some cannabis users from clinical experience show some signs of psychotic features when first admitted in a rehabilitation centre. This was also reported in 25 participants from our study. Thus to cushion the effect of psychotic features on the findings, we decided to recruit the psychiatric participants with psychotic features under remission undergoing psychiatric rehabilitation. Overall, our study shows that cannabis users have impairments in verbal learning and memory when compared to healthy and psychiatric controls. Equally

they showed significant impairment in processing speed and executive functions when compared with the healthy control but performed better than the psychiatric participants.

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SUBSTANCE USE AMONG YOUTHS: ROLES OF PSYCHOTICISM, SOCIAL ALIENATION, THRIVING AND RELIGIOUS COMMITMENT

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ABSTRACT

The rising levels of drug abuse among youths in the world require evidence-based, cost effective and research-informed intervention strategies. These strategies will need to be formulated around observed socio-demographic and psychosocial characteristics of youths who abuse drugs. This paper presents reports of two studies which investigated the roles of psychoticism, social alienation, religious commitment, and thriving in drug abuse among secondary school students ($n = 293$, 53% males) and undergraduates ($n = 300$, 76% males) students in southeastern Nigeria. The emerging psychoactive substances of abuse among the students were also explored. Participants completed measures of the relevant variables and provided their demographic information. Psychoticism and social alienation were positively significant predictors of substance abuse among secondary school students, while thriving and religious commitment were negatively significant predictors of substance abuse among university undergraduates. It was suggested that psychological factors such as psychoticism, social alienation, thriving and religious commitment be considered in drug use policies and intervention programmes for young persons in Nigeria.

Keywords: adolescents, drug abuse, intervention, prevention, psychoticism, thriving

INTRODUCTION

Substance abuse is the improper, excessive, irresponsible or self-damaging use of addictive substances (Reber & Reber, 2001). Such substances when taken by a person modify perception, mood,

cognition, behavior, or motor functions (The American Psychiatric Association, APA, 2000). Substance abuse has become one of the most serious challenges and threats to the life and wellbeing of young persons in several parts of the world, including Nigeria (UNODC, 2018; Uwakwe

& Gureje, 2011). Williams (2016) posited that over 6 million bottles of codeine are sold and available on a daily basis in the North-West part of Nigeria. Even as the government has placed sanctions on the importation or production and sale of some of these commonly abused drugs (e.g. codeine), the long term effects of exposure to and abuse of these drugs are still evident in the Nigerian society. Moreover, imposing sanctions and making some drugs illegal and medically unauthorized may not be the immediate solution to the menace. Drug abusers have shifted from the abuse of conventional drugs such as codeine, tramadol, cannabis, cocaine, nicotine and phencyclidine, to a mixture of volatile solvents and a wide range of pharmaceutical preparations which go by varying names across different regions of the country.

Research has shown that abuse of drugs is influenced by several underlying psychosocial factors: peer pressure, perceived recreational value of drug abuse, neglect, depression, curiosity and force (Khan & Shah, 2014). It is therefore important that the underlying predispositions to drug abuse among young persons be investigated. These will not only help curb the abuse of drugs, but may help inform better intervention strategies for addicts. This paper reports results from two studies examining the relationships between psychoticism, social alienation, religious commitment, thriving and drug abuse. The first study examined psychoticism and social alienation among college students as predictors of substance abuse. The second study examined religious commitment and thriving as predictors of substance abuse among university undergraduates. Although the two studies were conducted using different samples of

young persons, we believe that the unifying factor for these studies is the investigation of psychosocial factors that predict substance abuse among young people.

Psychoticism is a personality pattern typified by aggressiveness and hostility towards others (Eysenck, 1993). More common traits that may be characteristic of psychoticism include impulsivity, sensation seeking, risk taking, and liveliness. Previous research (e.g., Farren, Hameedi, & Rosen, 2000; Johns et al., 2004; Verdoux, Sorbara, Gindre, Swendsen & Vans Os, 2002) established that psychoticism is implicated as a predisposing factor to drug abuse among addicts in experimental populations.

Social alienation is a social condition characterized by distance and isolation between an individual and other members of a society or group. Socially alienated persons perceive meaninglessness if they do not have fulfilling social encounters or lack group ties and social roles that reflect such ties (Ifeagwazi, Chukwuorji, & Zacchaeus, 2015). When looked at subjectively, social alienation refers to a psychological state where alongside feeling isolated and detached from society, an individual feels powerless and meaningless. An alienated individual is only weakly attached to the goals of belonging to a given society and may not be particularly motivated to follow generally accepted norms (Israel, 1994). Social alienation has been implicated to be another predisposing factor to drug abuse (e.g. Shedier & Block, 1990; Murray, 2014; Johnson, Pagan, Lee, & Post, 2015). Nevertheless, there is paucity of literature on psychoticism and social alienation in relation to drug abuse in the sub-Saharan African setting. To fill this gap in knowledge, the present study examines the role of social

alienation in substance abuse among students in Nigeria.

Religious commitment sometimes referred to as religiosity is conceptualized as a reflection of a social entity entailing particular beliefs, customs and boundaries (Miller & Thoresen, 2003). It is the extent to which an individual adheres to his or her religious values, beliefs and practices and uses them in his or her daily living (Worthington et al., 2003). Religious commitment may also include the amount of time an individual spends in private religious involvement and religious affiliation. It is important to note that religious commitment (beliefs, practices and behaviors associated with organized religious groups) is distinguishable from spirituality (a more personal and abstract beliefs and practices such as a sense of the divine in daily life or communication with a transcendent power which may or may not be associated with organized religious practices). Alaedein-Zawawi (2015) reported that religious commitment may influence all areas of an individual's life either positively or negatively depending on the level to which the individual is committed. Research has consistently identified religious commitment as a protective influence against youth substance abuse (e.g., Bahr, Hawks & Wang, 1993; Nonnemaker, McNeely, & Blum, 2003; Ritt-Olson, et al., 2004).

Thriving as a psychological construct refers to the integrative perspective of positive psychological health which cuts across subjective wellbeing, happiness, purpose and meaning in life. Research has established a link between substance abuse and various aspects of thriving. For instance, Khan and Shah (2014) reported an effect of substance abuse on subjective wellbeing of young persons. Visser and Routledge

(2007) found that adolescents who abused substances had significantly lower levels of psychological wellbeing and life satisfaction. In the second study, we aim to investigate whether religious commitment and thriving predict substance use in a Nigerian sample of undergraduate students. Research in this part of the world on the issues of interest in the present study are relatively scarce. Hence the need for this study. It was hypothesized that psychotism and social alienation will positively predict substance abuse, while religious commitment and thriving will negatively predict substance abuse.

Study 1

METHOD

Participants and procedure

Two hundred and ninety three participants (53% (155) males, $M_{age} = 15$ years, $SD = 1.2$) were drawn from a secondary school in Enugu State. The first author visited the school and obtained the approval of the school principal in order to conduct the study. With the permission of the principal, the researcher moved to the classes to recruit the participants for the study. Two teachers in the school served as research assistants who accompanied the researcher to the classrooms. After the introduction of the purpose of the visit, students were requested to take part in a study on wellbeing of students. Those who agreed to participate in the study were given the questionnaire packs and asked to indicate their informed consent by signing on the front page of the questionnaire form. A total of three hundred copies of questionnaire forms were administered at three different classrooms. Participants took an average

of 13 minutes to respond to all the items on the questionnaire form. All questionnaire forms were collected by the first author and the research assistants on the spot. The first author and research assistants examined each questionnaire before collecting and urged those that had incompletely filled theirs to complete it before returning. However, seven copies of the questionnaire forms were discarded due to incomplete filling. A return rate of 97.6% was therefore observed.

Measures

Data for the first study were gathered via self-report inventories. Respondents completed a questionnaire form containing the Psychoactive Substance Abuse Scale (PSAS, Eze, 2006), The psychoticism subscale of Eysenck Personality Questionnaire Revised-Short Form (EPQR-S) (Eysenck, Eysenck & Barrett, 1985), Social Alienation Scale (SAS) (Jessor & Jessor, 1977) and a demographic section requesting them to indicate their age, gender, and list number of substances they abuse and those they knew friends and others abused.

Psychoactive Substance Use Questionnaire (PSUQ): PSUQ, developed by Eze (2006), is a 6-item measure of the frequency of substance use. The items are scaled on a 4-point Likert format as follows: never used it = 0, used it not more than twice in a week = 1, used it less than thrice in a week = 2, used it more than thrice in a week = 3, used it frequently in the past but stopped = 4. Substances included in the instrument were alcohol, tobacco, heroine, cannabis, cigarette, kola-nut and amphetamine. Provision was also made for participants to specify other substances they used that are not among the listed ones. Sample items in the scale

are; “how often do you take alcoholic drink”, and “how often do you smoke cannabis”. High scores on the questionnaire represent high substance abuse. As reported by Eze (2006), the instrument has content validity and test – retest reliability index ($r = .61$). Reliability analysis and confirmatory factor analysis yielded good fit for the present study (see Table 3).

The psychoticism subscale of Eysenck Personality Questionnaire Revised-Short Form (EPQR-S): The psychoticism subscale of the EPQR-S (developed by Eysenck, Eysenck & Barrett, 1985) consisting of 12 items was used to assess participants’ levels of psychoticism. Each question has a binary response of ‘yes’ or ‘no’ and is scored 1 or 0 for each dichotomous item. Sample items on the psychoticism subscale include, ‘do you take much notice of what people think?’, ‘Would being in debt worry you?’ ‘Would you like other people to be afraid of you?’ etc. An earlier version of the scale had yielded acceptable reliability and validity in Nigeria (see Eysenck, Adelaja, and Eysenck, 1977). Abiola, Udo-fia and Yunusa (2012) reported that the EPQ psychoticism domain correlated negatively with agreeableness and conscientiousness as evidence of its construct validity. Eysenck, Eysenck and Barrett, (1985) reported an internal consistency of .68 for males and .51 for females. In interpreting the test, higher scores indicate a manifestation of the typical personality characteristic of psychoticism. Reliability analysis and confirmatory factor analysis yielded good fit for the present study (see Table 3).

Social Alienation Scale (SAS): The Social Alienation Scale was developed by Jessor and Jessor (1977). The scale measures

generalized alienation with respect to uncertainty about the meaningfulness of daily roles, activities and the belief that one is isolated from others. It is made up of 15 items that have a Likert-type response format of 'strongly agree', 'agree', 'disagree' and 'strongly disagree'. Scores range from 15 to 60 with higher scores indicating higher alienation. Sample items include, 'I sometimes feel that children I know are not too friendly', 'I often feel alone when I am with other people', and 'Hardly anyone I know is interested in how I really feel inside'. Safipour, Tessma, Higginbottom & Emami (2010) reported an internal consistency using Chronbach's alpha of .81. Reliability analysis and confirmatory factor analysis yielded good fit for the present study (see Table 3).

Statistical Analysis

Confirmatory factor analysis and item analysis were first conducted to validate the measures. Thereafter, Pearson's correlation (*r*) analysis was conducted among the study variables while hierarchical multiple regressions was employed to statistically test the hypotheses for the study.

RESULTS

Table 1 showed the intercorrelations among study variables. Significant

positive correlations were observed between psychoticism, social alienation and substance abuse. As evident from Table 1 above, there are significant associations between the study variables. The positive correlations suggest that higher levels of psychoticism and social alienation in respondents are associated with higher substance abuse.

Result of the hierarchical multiple regression in Table 2 in which substance abuse was entered as the criterion variable indicates that the demographic variables entered in the equation as controls collectively accounted for a 2% variance in substance abuse. However, only age ($\beta = .16$, $t = 3.72$, $p < .05$) significantly and positively predicted substance abuse. This means that for every one unit increase in age of respondents, substance abuse increased by .16 units. Thus, older students reported abusing drugs more often than younger students. When psychoticism was entered in step 2 of the equation, it contributed a significant 12% variance observed in substance abuse. Psychoticism positively and significantly predicted substance abuse ($\beta = .21$, $t = 6.23$, $p < .01$). This means that for every one unit increase in psychoticism, substance abuse increases by .21 units. Social alienation entered in the last step of the equation raised the variance observed in substance abuse to 17%. Social alienation also significantly and positively

Table 1. Intercorrelations between variables in Study One

Variables	1	2	3	4
1. Age	1			
2. Gender	.01	1		
3. Psychoticism	.16	.04	1	
4. Social Alienation	-.13*	-.06	.28*	1
5. Substance Abuse	.37**	.08	.54**	.33**

Note. $N = 293$, * = $p < .05$ (two-tailed), ** = $p < .01$ (two-tailed), *** = $p < .001$ (two-tailed). Gender was coded 0 = female, 1 = male.

Table 2. Hierarchical multiple regression predicting substance abuse by psychoticism and social alienation

Variable	Step 1 B	Step 2 β	Step 3 B
<i>Controls</i>			
Age	.16*	.15*	-.15*
Gender	.04	.03	.02
<i>Predictors</i>			
Psychoticism		.21**	.21**
Social Alienation			.29**
Adjusted R ²	.02	.12**	.17**
ΔR ²	.03	.10**	.15
ΔF	7.09	32.46**	26.6**

* = $p < .05$, ** = $p < .01$, *** = $p < .001$.

Table 3. Goodness of Fit indicators for the measures used in studies 1 & 2

Scale	α	χ ²	Df	χ ² /Df	CFI	TLI	RMR	GFI	RMSEA(90% CI)
EPQ-R (P)	.67	491	170	2.8	.83	.88	.05	.95	.06(.07-.08)
SAS	.82	491	169	2.9	.88	.87	.05	.91	.04(.03-.05)
RCS-10	.80	133.5	35	3.8	.85	.72	.04	.92	.07(.08-.09)
BIT	.93	256	143	1.8	.90	.89	.04	.96	.04(.03-.05)
PSAS	.78(.71)	247.8	20	12.3	.70(.76)	.60(.80)	.10(.06)	.81(.87)	.19(.17-.22)

Note: α=Cronbach’s alpha (>0.6 suggests adequate internal reliability, <0.6 suggests poor internal reliability) CFI: comparative fit index (>0.95 suggests good fit, >0.9 suggests adequate fit, <0.9 suggests poor fit); TLI: Tucker Lewis Index (> 0.95 indicates good fit, >0.9 suggests adequate fit, <0.9 suggests poor fit); RMR: root mean residual (<0.05 suggests good fit, <0.08 suggests adequate fit, >0.08 suggests poor fit); GFI: Goodness of fit Index (> 0.95 indicates good fit, >0.9 suggests adequate fit, <0.9 suggests poor fit) RMSEA: root mean square error of approximation (< 0.05 is good fit, <0.08 is adequate fit, >0.08 is poor fit) CI: confidence interval. Values for PSAS in bracket represent indices obtained from study 2; RMSEA for study 1 and 2 were the same.

predicted substance abuse ($\beta = .29$, $t = 4.18$, $p < .01$). This means that for every unit increase in social alienation, substance abuse or proneness to substance abuse increases by .29 units. It was therefore observed that age, psychoticism and social alienation are predictors of substance abuse among secondary school students.

Study 2

Participants and Procedures

Three hundred (76% (228) males, $M_{age} = 17$, $SD = 2.3$) undergraduate students

of the University of Nigeria, Nsukka participated in this study. Respondents were majorly Igbo (82.3%) while others were Yoruba (4.3%), Hausa (6%) and other ethnic groups (7.3%). With respect to religious affiliation, 90.7% of the respondents reported being Christians while 5% reported being Muslims and 4.3% belonged to the African Traditional Religion. Forty-two percent had stayed in the boarding houses during their secondary school education while 58% attended secondary schools from homes. As regards to accommodation in the University, 49%

of the participants were living off campus, 26% in the University hostels, 12.7% were living either with their parents or grandparents and 12.3% lived within the University Staff quarters. They were conveniently sampled by the first author and some research assistants at three different times; during a sports event at the Stadium, University of Nigeria Nsukka, during a social psychology class and at their apartments. Informed consent was got by asking respondents to indicate willingness to participate in the study. Those who indicated by signing were administered the questionnaire individually. They were informed that they were free to withdraw from the study at any point without facing any consequences. A total of three hundred copies of questionnaire forms were administered and retrieved at the different occasions giving a return rate of 100%. Response time varied from 7-14 minutes for the different occasions. All questionnaire forms were collected on the spot. The first author and some research assistants examined each questionnaire form before collecting and urged those that had incompletely filled theirs to complete it before returning.

Measures

Data for the second study were gathered via self-report inventories. Respondents completed a questionnaire form containing the Psychoactive Substance Abuse Scale (PSAS, Eze, 2006), Religious Commitment Inventory, RCI-10 (Worthington et al., 2003), the Brief Inventory of Thriving (BIT, Su, Tay, & Diener, 2013) and a demographic section requesting them to indicate their age, gender, religion, ethnic group, type of secondary school attended, type of accommodation in school and list number of substances

they abuse and those they knew friends and others abused.

Religious Commitment Inventory, RCI-10: RCI-10 (Worthington, et al., 2003) assesses one's level of religious adherence in daily life and the extent to which an individual interprets life events based on his/her religious views. It was designed for research and clinical use. The 10 items of the inventory are arranged on a 5-point Likert type scale: not at all true of me (1), somewhat true of me (2), moderately true of me (3), mostly true of me (4) and totally true of me (5). Sample items of the scale include: 'my religious beliefs lie behind my whole approach to life' (intrapersonal), and 'I enjoy working in the activities of my religious organization' (interpersonal). Worthington et al. (2003) reported 6 different studies for the development and refinement of RCI - 10, in large heterogeneous samples, including college students and university undergraduates. Scores on the RCI-10 had strong estimated internal consistency with Cronbach's alpha ranging from .93 - .96 (Worthington et al., 2003). A previous study in Nigeria had replicated the two factor structure of RCI-10 (See Ifeagwazi & Chukwuorji, 2014). Another study by Chukwuorji, Ituma and Ugwu (2017) obtained Cronbach's alpha values of .85 (full scale), .79 (intrapersonal religious commitment) and .74 (interpersonal religious commitment). Higher scores on the inventory indicate higher religious commitment. Reliability analysis and confirmatory factor analysis yielded good fit for study 2 (see Table 3).

Brief Inventory of Thriving (BIT): The BIT (Su, Tay & Diener, 2014) was used to assess participants' perceived levels of subjective wellbeing. It is a 5-point Likert-type

scale, consisting of 10 items, responded to on a response format ranging from strongly disagree (1) to strongly agree (5). It consists of items such as “There are people who appreciate me as a person”, “I feel a sense of belonging to my community”, “I feel good most of the time”. All items are directly scored. Possible range of scores was from 10-50. High scores indicate the presence of subjective wellbeing while low scores reflect a negative evaluation of one’s life and consequently low levels or possible absence of wellbeing. The validity and reliability of the BIT has been demonstrated in various studies. For example, Su, Tay, and Diener (2014) reported a reliability coefficient of $\alpha = .90$. The convergent validity for the BIT was established using the Satisfaction with Life Scale (Diener et al., 1985) ($r = .29, p < .001$), and a Cronbach’s α of .87 was obtained. (Chukwuorji, Iorfa, Nzeadibe, & Ifeagwazi, in press). Reliability analysis and confirmatory factor analysis yielded good fit for the present study (see Table 3).

Statistical Analyses

Confirmatory factor analysis and item analysis were first conducted to validate

the measures (results are given in Table 3). Thereafter, Pearson’s correlation (r) analysis was conducted among the study variables while hierarchical multiple regressions was employed to statistically test the hypotheses for the study.

Results

Table 4 shows the intercorrelations among study variables. There were negative correlations between thriving and substance abuse, as well as religious commitment and substance abuse.

The results of the hierarchical multiple regression in Table. 5 in which substance abuse was entered as the criterion variable indicate that the demographic variables entered in the equation as controls collectively accounted for a 10% variance in substance abuse. However, only type of secondary school attended ($\beta = .06, t = 1.72, p < .05$) and type of accommodation in school ($\beta = .02, t = 1.07, p < .05$) significantly and positively predicted substance abuse. This means that respondents who had attended day secondary schools abused drugs more than those who had attended boarding secondary schools. Also, students who stay

Table 4. Pearson’s correlations of demographic factors and study variables

Variables	1	2	3	4	5	6	7
1. Gender	-						
2. Ethnic group	.19	-					
3. Religion	-.11	.16**	-				
4. Type of sec school	-.04	-.13*	.00	-			
5. Accommodation in school	-.04	-.01	.03	.27**	-		
6. Substance Abuse	-.21**	.10	.16**	.08*	.11*	-	
7. Thriving	-.09	.03	.11	-.05	.01	-.75**	-
8. Religious Commitment	.01	-.03	-.04	.02	.11	-.63**	.83**

Note. $N = 300$, * = $p < .05$ (two-tailed), ** = $p < .01$ (two-tailed), Gender was coded 1 = male, 2 =female. Ethnic group, 1= Igbo, 2= Yoruba, 3= Hausa, 4= Others; Religion, 1= Christianity, 2= Islam, 3= African Traditional Religion; Type of Secondary School, 1= Boarding house, 2= Day school; Accommodation in school, 1= living with parents, 2= School hostel, 3= Staff quarters, 4= off campus

Table 5. Hierarchical multiple regression predicting substance abuse by thriving and religious commitment

Variable	Step 1 B	Step 2 B	Step 3 B
<i>Controls</i>			
Gender	-.07	-.10	-.10
Ethnic Group	.02	.03	.03
Religion	.10	.11	.11
Type of Secondary School	.06*	.07*	.07*
Accommodation in School	.02*	.04*	.05*
<i>Predictors</i>			
Thriving		-.13*	-.12*
Religious Commitment			-.37**
Adjusted R^2	.10	.12*	.32**
ΔR^2	.12	.11*	.21**
ΔF	1.2	4.40*	7.61**

* = $p < .05$, ** = $p < .01$, *** = $p < .001$.

outside the school campus either with their parents or by themselves reported higher substance abuse than those who stayed in school hostels. When thriving was entered in step 2 of the equation, it contributed a significant 12% variance observed in substance abuse. Thriving negatively and significantly predicted substance abuse ($\beta = -.13$, $t = -3.25$, $p < .05$). This means that for every one unit increase in thriving, substance abuse decreases by .13 units. Religious commitment entered in the last step of the equation raised the variance observed in substance abuse to 32%. Religious commitment also significantly and negatively predicted substance abuse ($\beta = -.37$, $t = -7.18$, $p < .01$). This means that for every unit increase in religious commitment, substance abuse or proneness to substance abuse decreases by .37 units. It was therefore observed that age, type of secondary school, type of accommodation in school, thriving and religious commitment are predictors of substance abuse among university undergraduates.

Data on emerging psychoactive substances abused were also gathered from studies 1 & 2. The results is presented in Table 6 below. It was observed that apart from the common psychoactive substances abused by youths, new and emerging substances which most times are a combination of two or more other drugs have surfaced and are known by varying names in different locations across the country. Table 6 presents alongside the name of the drug, the percentage of participants in the study who had either used it, seen someone use it or have heard of it.

DISCUSSION

The aim of this study was to examine the roles of psychoticism, social alienation, thriving and religious commitment in substance abuse. The present study established strong association between substance abuse and psychoticism, social alienation, thriving and religious commitment. While the first study looked at predisposing

Table 6. Emerging psychoactive substances abused by young persons in Nigeria

Substance	Reason for intake	Mode of intake	% of awareness in Study 1	% of awareness in Study 2
Marijuana (<i>Kpoli, Igbo, ganja</i>)	Euphoria	Smoking, chewing	53%	89.6%
Black Mamba (spice, Colorado,)	Euphoria	Smoking	7%	85%
Codeine (blunts)	Euphoria	Injection	32%	77%
Tramadol	Euphoria, delay ejaculation,	Ingestion (singly/mixed with alcohol/coca-cola)	34%	98%
Rohypnol (Roko, roofies, renfol, etc.)	Euphoria,	Crushed/snorted, smoked with Marijuana, dissolved in drinks	6%	68%
<i>Alabukun</i>	Treat hangover	Sniffing/mixed with alcohol	3%	47%
Dexacoitin	Gain weight	Ingestion	0%	34%
Aspirin	Euphoria	Ingestion (singly/mixed with alcohol/coca-cola,	3%	57%
Valium	Relaxation	Injection, Injection	7%	33%
Gum	Euphoria	Sniffing	79%	54%
Soakaway	Euphoria	Sniffing	12%	34%
Monkey tail (local gin brewed in marijuana leaves, stems, roots, seeds)	Increase libido	Ingestion	8%	67%
Gutter water (a combination of codeine, refnol, tramadol, cannabis, and water/juice)	Euphoria	Ingestion	0%	3%
<i>Dongoyaro</i>	Euphoria	Ingestion	43%	78%
Molly	Euphoria	Swallowed	0%	6%
Storm	Increase libido	Swallowed	0%	20%
Cloud 9 (ZB, bath salt)	Euphoria	Swallowed	0%	1%
Ecstasy (Rolls)	Euphoria	Swallowed, snorted, smoked, injected	0%	13%

factors to substance abuse, the second study looked at positive concepts that may buffer substance abuse in youths.

It was found in this study that the more psychoticism traits reported by the participants, the more the level of substance abuse as well. Therefore the hypothesis which stated that psychoticism will positively predict substance abuse was supported. The implications of this in intervention and therapy is that anti-drug campaigns, intervention strategies and therapeutic approaches ought to include efforts at reducing the manifestation of psychotic traits in individuals. Investigat-

ing substance abuse at the secondary school level, we found that the menace has become common among adolescents in secondary schools. Type of secondary school (whether boarding or day) attended also had influences on drug abuse later in the university. As observed from the results, secondary school students who had attended day schools during their secondary education, abused drugs more than those who stayed in the boarding house. Also, undergraduate students who were not living in campus hostels abused more drugs than their counterparts who stayed in the university hostels.

This study also found significant and positive prediction of substance abuse by social alienation. Therefore the hypothesis which stated that social alienation will positively predict substance abuse was supported. Integrating social inclusion as an intervention strategy and creating a sense of belonging among drug addicts may prove instrumental in psychosocial interventions for substance abuse. Earlier studies had also touched on social inclusion as a therapeutic approach to drug addiction. For instance, Alexander (2010) reported experiments in which rats in solitary confinement consumed more drugs than rats which were allowed to socialize. Addiction may create a cage for the addicted and therefore the need to bring them out of that cage for social inclusion into the society. Social inclusion therapies may need to be client oriented with self-directed goals. In emphasizing social inclusion for the addict, therapists and clinicians must have in mind that addicts are more prone to developing networks based on their problems rather than the presenting solutions. Therefore, group therapies and good social networks may be suggested to the addict.

The society must also strive for collectivism- a more collective attitude that broods a sense of belonging to every member of the community. Social exclusion also may result from other socioeconomic factors such as unemployment, poor housing, family breakdown and disputes. This calls for government and other agencies involved to work on implementing policies that revolve around poverty reduction and crime eradication in the society. These and many other factors may be indirectly responsible for the high rate of substance abuse observed in the country.

In the second study, it was found that religious commitment was a negative predictor of substance abuse. In other words, those who were more religiously committed reported less use of psychoactive substances. Therefore the hypothesis which stated that religious commitment will negatively predict substance abuse was supported. The finding is consistent with finding by some authors (e.g., Bahr, Hawks & Wang, 1993; Nonnemaker, McNeely, & Blum, 2003; Ritt-Olson, et al., 2004) that have consistently identified religious commitment as a protective influence against youth substance abuse. By implication, fostering stronger religious beliefs and adherence to the tenets of one's religion may make the students less likely to engage in abuse of substances.

Thriving was also found to be a negative predictor of substance abuse. Previous research has established a link between substance abuse and various aspects of thriving (e.g., Khan & Shah, 2014; Visser & Routledge, 2007). Therefore the hypothesis which stated that thriving will negatively predict substance abuse was supported. Efforts and psychosocial interventions to enhance the psychological well-being and functional mental health of youths must be given priority in the society. By so doing, the abuse of substances may be reduced. However, it should also be noted that the use of substances also impacts negatively on mental health status.

Our study has some noteworthy limitations. As a crosssectional research, it has all the inherent weaknesses of this type of research design. Although we considered the four independent variables factors in substance abuse, it is possible that substance abuse also influences one's perceived alienation, psychotic traits,

religious commitment and thriving. We suggest the adoption of longitudinal designs in future research to clarify the causal mechanisms of effect among the variables. We used self-rated substance abuse and the predictor variables by students in a secondary school university located in South eastern Nigeria. The sample was not religiously diverse because of the predominance of Christians in the student population. Therefore, the generalizability of the findings is limited. Researchers should in future consider a more religiously and ethnically heterogeneous group in order to make better generalisations.

CONCLUSION

Youth addiction has become a major public health concern, not only in Nigeria, but all over the world. This is partly due to the over availability of prescription medication/over the counter drugs and the ease in procuring street drugs (marijuana, cocaine, nicotine, etc.). While the government and other regulatory agencies fight this menace from the top, it is essential that a grass root approach that integrates evidence-based, cost effective and research-informed intervention strategies be adopted to fight the menace at individual levels. The findings from this study will help inform proper therapeutic approaches and intervention strategies for tackling substance abuse among young persons. Taken together, these results have implications for clinical practice and counselling among youths. Clients who are inclined to religious commitment may respond better to therapies that incorporate religious teachings and create room for clients (who are willing) to discuss religious themes with therapists.

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**COMMUNITY PERSPECTIVES ON CULTURAL PRACTICES AND BELIEF SYSTEMS
INFLUENCING ALCOHOL AND DRUG USE: A QUALITATIVE STUDY IN ANAANG
COMMUNITY, NIGERIA**

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ABSTRACT

Alcohol and drug use are socially sewn into cultural practices and belief systems in societies. This has been the case with Anaang community. This qualitative study examined narratives in a natural setting to gain insights on cultural practices relating to alcohol and drug use in Anaang society. The methods of study were participant observation and in-depth interview with 80 participants. The study found that some cultural activities harbour causal factors to alcohol use. Majority of participants reported using alcohol in conformity with societal norms and values. Participants differed in opinion concerning drug use. Some confessed using drugs out of personal conviction. Conversely, a good proportion of participants believed that cultural practices and belief system have either overtly or covertly lured them into drug use. Participants unanimously identified low literacy rates, ignorance and lack of effective regulatory mechanism as precursors to alcohol and drug use in local communities. This study mediated through Anaang cultural practices and belief system to derive informed insights that are needful for designing culture-sensitive-programme of preventive intervention for alcohol and drug use in local communities in Nigeria.

INTRODUCTION

The world drug problem remains a common and shared responsibility that requires effective and increased international cooperation and demands an integrated, multidisciplinary, mutually reinforcing and balanced approach to drug supply, demand reduction and harm reduction strategies, as well as ensuring the availability of controlled substances

for medical and scientific use, while reducing the illicit use of narcotic drugs and psychotropic substances (Common African Position [CAP] for the UN General Assembly Special Session on the World Drug Problem, 2016).

Globally, alcohol use and misuse account for 3.3 million deaths every year, or 6percent of all deaths (Sudhinaraset, Wigglesworth & Takeuchi, 2016). The debilitating effects of alcohol and drug misuse are

not only complex but far reaching, ranging from individual health risks, mortality, morbidity and many other unpleasant consequences for family, friends, associates and the society at large. Many researches and studies on alcohol and drug abuse seem to have a dedicated focus on risk factors, from the societal perspectives down to the individual level (Sudhinaraset *et al.* 2016). According to a report from World Health Organization [WHO] report, cited in Center for Disease Control and Prevention (2014), Worldwide, 3.3 million deaths were attributed to alcohol misuse in 2012. Excessive alcohol use is the third leading cause of death in the United States, accounting for 88,000 deaths per year. Alcohol-attributable disease and injury are responsible for an estimated 4 percent of mortality and 4 to 5 percent of disability-adjusted life-years [DALYs] (Rehm and Popova, 2009).

In the United States alone, the costs of excessive alcohol use were estimated at \$223.5 billion in 2006 or \$746 per person (Bouchery, Harwood & Sacks, J. 2011). Much of these costs accounted for dwindling productivity at work place as well as health care expenses, criminal justice involvement and motor vehicle crashes (Rehm *et al.* 2009). Sudhinaraset, *et al.* (2016) reported that alcohol consumption varies across gender, race or ethnic inclination. Across the world, men consumed more alcohol than women, and women in more developed countries drink more than women in developing countries. American men are much more likely than women to use alcohol (56.5 percent Vs 47.9 percent respectively, to binge drink (30.4 percent Vs 16 percent respectively) and to report heavy drinking (9.9 percent Vs 3.4 percent, respectively) (Substance Abuse and Mental Health Services Administration [SAMSHA], 2013).

Binge drinking is conceptualized here as the number of instances in the past 12 months that women drank 4 or more drinks and men drank 5 or more drinks within a 2-hour period (Sudhinaraset, *et al.* 2016). Among racial and ethnic groups, researches have shown that, Whites report the highest overall alcohol use among persons age 12 and over (57.4 percent). American Indian/Alaska Natives report the highest levels of binge drinking (30.2 percent), followed by Whites (23.9 percent), Hispanic/Latinos (23.2 percent), African American (20.6 percent), and Asians (12.7 percent) (SAMHSA, 2013).

Asians, on the other hand, generally are thought to have higher abstention rates compared with other racial and ethnic groups, especially when they are integrated within their ethnic cultures (Cook, Mulia & Karriker-Jaffe, 2012). One measure of the retention of ethnic values and cultural norms is generation status. That is, the longer immigrants have lived in the United States, the more likely they are to acculturate to the cultural norms of their destination community (Berry, Phinney, Sam, & Vedder, 2006). Lower levels of ethnic identity may be one explanation for these differences across Asian subgroups. Japanese Americans, Filipino Americans, and Korean Americans often have been in the United States longer than other Asian subgroups, such as Cambodians, Thais, and Vietnamese, and also report higher levels of alcohol use compared with other Asian Americans and Asian immigrants (Iwamoto, Takamatsu & Castellanos, 2012). Ethnic identity may promote stronger family values and traditional ties, leading to lower levels of alcohol use. Moreover, Asian-American adolescents who have a high attachment

to family or who share their family's negative attitudes toward drinking are less likely to consume alcohol (Hahm,, Lahiff, & Guterman, 2003).

Scholars have amply documented African drinking practices. The history of drug use is much less studied, but in the recent past at least illicit drug use has become ubiquitous in many African societies. And the fact is that African fiction and autobiography are awash in alcohol—and increasingly provide rich accounts of local drug cultures as well (Marry, 2016). In a panel on “Drugs in Africa” at the African Studies Association annual meeting in Washington, DC in November, Donna Patterson, a historian in the Department of Africana Studies at College, presented a paper on “Drug Trafficking in Africa: Historical Cases from West Africa,” which in contrast to other papers on the panel looked at the commerce in legal pharmaceuticals. The discussion that followed made clear the value of exploring the histories “legal” and “illegal” drugs in conjunction one with the other—something that has rarely been done for Africa, where the focus has been much more on understanding the linkages between “traditional” and Western medicine. At the same time, the discussion led us to consider how those very linkages might inform our understanding of the trade and consumption of various kinds of drugs—however categorized—in African societies. Are Africans simply more abstemious? This is hardly the case (Marry, 2016).

In a recent talk on “African Issues” and US policy on those issues, Assistant Secretary of State for African Affairs, Ambassador Johnnie Carson, chose to conclude by stressing the growing challenge of drug trafficking in Africa. Having discussed democratization, having covered all of the

regional hot spots and having emphasized hot-button topics such as HIV AIDS, malaria, and lagging agricultural production, Carson turned his attention to a topic that he reminded his audience would not have been included on his list of “African problems” a decade or even five years ago (Marry, 2016). Addressing a large audience at the African Studies Association meeting in Washington in mid-November, Carson, who has had a long career at State and was formerly Ambassador to Kenya, Zimbabwe and Uganda, reminded fellow Africanists that a claimed 40% of illicit drugs interdicted in Europe had passed through West Africa. What is a major issue for Europe and the USA must therefore become a major issue for Africa.

All of the focus on Guinea Bissau as the first African narcostate has tended to distract us—according to Carson—from a much broader and growing pattern of drug trafficking throughout Africa. Although Guinea Bissau may provide a dramatic tale of high level politicians in the thrall of global drug lords gunning each other down in the ramshackle capital of a marginal state, the drug trade routes run through virtually every West African country and certainly through Sénégal, Côte d’Ivoire, Ghana and especially Nigeria—which has been a nexus of trafficking and drug gangs that spread across five continents through networks that reach across the Indian Ocean as well as the Atlantic. Unsurprisingly, Carson made the case for US official support for efforts in African countries to combat the trade. Again unsurprisingly, he talked exclusively about the need to provide moral, material and training support to the USA’s African allies in a global war on drugs.

The literature on community influences on alcohol use focuses primarily

on environmental aspects, such as neighborhood characteristics and opportunities for alcohol purchasing and consumption (Sudhinaraset *et al.*, 2016). For example, one study found that individuals who lived in a neighborhood with a poorly built environment, characterized by inferior building conditions, housing, and water and sanitation indicators, were 150 percent more likely to report heavy drinking compared with those living in better built environments (Bernstein, Galea & Ahern, 2007). Other studies have examined the spatial epidemiology of neighborhoods regarding alcohol availability, individual consumption, and community disorganization and violence (Cohen, Ghosh-Dastidar, & Scribner, 2006; LaVeist and Wallace, 2000; Scribner, Cohen & Fisher 2000; Shimotsu, Jones-Webb, & MacLehose, 2013; Theall, Lancaster & Lynch. 2011).

Spatial relations between alcohol outlets and individual consumption also may be a key to explaining differential rates in alcohol use across racial/ethnic groups. A number of studies suggest that minority communities have higher concentrations of liquor stores than White communities (Alaniz and Wilkes, 1998; LaVeist and Wallace, 2000; Pollack, Cubbin, Ahn, & Winkleby. 2005; Romley, Cohen, Ringel & Sturm, 2007; Treno, Alaniz, & Gruenewald, 2000), potentially increasing access to alcohol among minority populations (Freisthler, Lipperman-Kreda, Bersamin, & Gruenewald. 2015; Scribner *et al.* 2000). Moreover, living in a disadvantaged neighborhood at an early age has long-term effects. Childhood exposure to violence leads to increased exposure to delinquent peers and alcohol use (Trucco, Colder & Wiczorek, 2014). In another study, realizing how easy it is to get alcohol, witnessing neighborhood

drug dealing, and seeing peers drink were all associated with increased alcohol use (Chung, Pedersen & Kim, 2014).

Relating neighborhood characteristics to alcohol use risk is useful for public health program planning because it allows policymakers and programmers to understand how changing structural-level factors of the built environment may affect health risk behaviors, including alcohol use (Sudhinaraset, *et al.*2016). However, methodological challenges remain when analyzing the impact of complex community factors on individual behaviors. Such factors include social stratification (i.e., the probability of living in certain neighborhoods, which is higher for certain types of persons) and social selection (i.e., the probability that drinkers are more likely to move to certain types of neighborhoods). It remains unclear whether neighborhood disadvantage causes alcohol problems, and whether frequent drinkers are in fact usually more attracted to certain neighborhoods (i.e., self-selection). These challenges limit the interpretation of research on community-level effects (Sudhinaraset, *et al.*2016). Some studies have attempted to address these issues using propensity matching and time-sensitive indicators (Ahern, Galea & Hubbard, 2008). Future studies should take these challenges into consideration and address subgroup differences in alcohol use norms across race/ethnicity and gender.

Peer norms play an important role at this life stage (Jackson, Roberts & Colby, 2014). By the late adolescent period, parental influences related to alcohol use are small compared with peer influences (Schwinn and Schinke, 2014; Zehe and Colder, 2014). Much of the focus on peer influences has highlighted the risk

networks associated with alcohol use. Peer pressure (Studer, Baggio & Deline, 2014), peer alcohol norms (Varvil-Weld, Turrisi & Hospital, 2014), and socializing with substance-using peers (Patrick, Schulenberg, & Martz, 2013) were associated with alcohol misuse and binge drinking. Studies note that leaving the home environment, entering college, and joining Greek organizations increased alcohol use as a result of more socially permissive norms around drinking (Scott-Sheldon, Carey & Carey 2008; White, McMorris, & Catalano, 2006).

More recent studies have attempted to assess the synergistic influence of peers and families. Whereas the majority of studies on peers have focused on the negative consequences of social networks, research shows that greater parental support and monitoring can lead to prosocial peer affiliations (Williams, Marsiglia, Baldwin, & Ayers, 2015). One study found that protective influences in parental domains can moderate the negative effects of negative peer influences among Latino college students (Varvil-Weld et al. 2014). In particular, maternal communication resulted in less alcohol use; conversely, maternal permissive norms and peer norms were associated with more alcohol use. Greater parental disapproval toward alcohol use is associated with lower involvement in peer networks that use alcohol, less peer influence to use, and greater self-efficacy and stronger negotiation skills to avoid alcohol (Nash, McQueen, & Bray, 2005). Interventions aimed at establishing and fostering conservative peer norms were found to be more effective than individual resistance training (Hansen and Graham, 1991), whereas multi-level interventions incorporating peers, families, and communities are known to

be effective among adolescents (Chapman, Buckley, Sheehan & Shoche, 2013; Perry, Williams, & Komro, 2002; Toumbourou, Gregg & Shortt, 2013).

Existing successful interventions to reduce alcohol use include incorporating culturally sensitive delivery models, such as employing community health workers among Latino populations (Ornelas, Allen & Vaughan 2014) and using Web-based interventions to change norms (Patrick, Lee & Neighbors, 2014). In a recent review, *Familias: Preparando la Nueva Generación*, a culturally grounded intervention for parents to support Mexican-heritage youth, showed reductions in parental drinking (Williams, *et. al.* 2015). Because past studies show that parents may potentially moderate negative peer influence, fostering synergistic solutions between multiple contexts should be a priority (Ewing, Osilla & Pedersen, 2015).

METHOD

Study Site

The Anaang people are in Akwa Ibom state, South-south of Nigeria. They are the second largest ethnic group of the state, occupying its Northwestern part. They are bounded in the North by the Isogbo Igbo (Abia state), in the West by the Ngwas (abia state), and Ndoki (Rivers state) and in the South, East and North-east by the Ibibios.

The Anaang people are territorially located in eight Local Government Areas in Akwa Ibom State: Abak, Ikot Ekpene, Ukanafun, Ika, Obot Akara, Essien Udim, Oruk Anam and Etim Ekpo. The Anaang and Ibibio people do possess some cultural similarities and could be traced to the same ancestral root, despite their distinct

ethnic inclinations. The community is besieged with many developmental challenges ranging from poor access to basic amenities such as good road network, water supply, electricity, modern health-care facilities, schools, housing and other modern social amenities. Majority of the people are engaged in subsistent farming, trading and other informal sectors to earn a living. Although, good number are also employed in white collar jobs. They are mostly Christians, but a good number are traditional worshippers. The condition of living is observed to be very low.

Participants and Data Collection

The study employed a multi-sited ethnographic and qualitative approaches to examine the influence of cultural practices on alcohol and drug use in Anaang community. The study participants included young and adult population aged 15-60 years old. Males(n=50) and females(n=30) participated in the study. Altogether, 80 participants were interviewed for this study using a convenient sampling method. Data was collected using unstructured-open-ended in-depth interview guide and participant observation. All interviews were conducted in Anaang dialect by three of the authors and were both audio-recorded after seeking the consent of participants in addition to diligent note taking of informal discussions and interactions with study participants.

The interview guide was developed to capture participant's perception on alcohol and drug use and their opinions and experiences on influence of cultural practices on drug use. Averagely, the interview lasted 35-60minutes. Audio-recorded interviews were later translated and transcribed by experts in that field.

Procedure

A thematic framework was designed by the researchers to code all qualitative datasets (raw narratives) and field notes emanating from participant observation. Grounded theory was employed to identify key themes and variables in the recorded interviews and participant observation conducted during the data collection period (Beth, Dorothy and Nsikanabasi, 2016). This involved immersing in the data by reading the transcribed texts over and over again (Ediomo-Ubong, 2012). The data was thereafter coded and organized in such a manner to identify participant type, research site and specify their properties and dimensions to create analytic categories of thematic domains. The categories were literally placed side by side to establish similarities and dissimilarities. This is done to ensure that they are mutually exclusive. Thereafter, they were related to each other according to their corresponding properties and dimensions (Ediomo-Ubong, 2012). In this study some participant's opinions during interview are quoted verbatim to illustrate their views on cultural practices, alcohol and drug use.

RESULTS

Culture, Belief System and Perception of Participants on Alcohol and Drug Use

A Typical African is so deep in his culture. He goes to church and does everything with elements of his culture. Therefore, participants opined that cultural norms, values, beliefs systems are associated with alcohol and drug misuse. It is a well sung saying across Anaang land that " when occasion comes, drinks also comes." Alcohol drinking is so deified in

Anaang land, to the extent that a certain date in the local calendar is set aside for free drinks (*Usen ibet ukot*). On this day all palm wine tappers in Anaang land are forbidden from selling their wine. Men are often found strolling in groups from one compound to another on drinking episode amid songs and dance.

Participants (97%) pointed out that alcohol consumption in Anaang land was culturally tolerated as parts of ceremonial lives of the people. It is essentially a social act subject to variety of rules and norms regarding who may drink, when, where with whom and why.

Raw alcohol from raffia palm is called *ukot nsung*. The fermented one is distilled locally to produce the local gin *kaikai*. Another form of alcohol mainly tapped by youths is from felled palm tree, and is called *ukot ayop*.

Observations and comments from participants revealed that, local gins are commonly mixed with herbs, roots as herbal therapy for various illness condition and performance boosters.

Participants (85%) pointed out that alcohol is mainly consumed by male adults for pleasure while the females and children were culturally restrained from drinking, though there were no formal rules prohibiting them.

A participant (aged 50 years) said:

A woman is regarded as the beauty of the family (mkpo uto) she is not expected to take part in public discussions or engaged the opposite sex in arguments not to talk of drinking freely in the public. Nevertheless, depending on the nature of the gathering or events, she could be offered a little quantity. Any woman who competes for drinks in the public is

socially and culturally a disgrace to her family.

Another participant (aged 25 years) commented:

Our culture does not sanction women drinkers. But it is viewed as an act of irresponsibility for a woman to compete for alcoholic drinks with men in the public. If she eventually become intoxicated and perhaps strip her clothe who will marry such a woman? Definitely no serious minded person will approach her for marriage.

Majority of Participants (97%) believe that alcohol consumption is normal as long as people do not in excess to the point of losing self-control and become a public nuisance. Excess consumption of alcohol was not a norm neither was it encouraged and intoxication attracted negative sanctions such as not allowing them to partake in active or major decision making, not allowed to attend meetings were secret/deep things of the community was planned to avoid leakage of vital information to women or enemies.

According to a participant (aged 57 years):

A person that is given to excessive drinking or a drunk was not treated with dignity as he cannot be nominated to represent the village or his peers. His family is not regarded in the community. Such people do not have future prospects as they are exposed to many adverse situations in life.

Notions on why People Misuse Drugs and Alcohol

The misuse of drugs and alcohol is one of the most controversial issues in our

society, and often a source of conflict between generations and sections of the society.

Participants (67%) pointed out that people use drugs and alcohol out of personal volition as nobody is compelled to use them under normal condition or as a matter of compunction. Users make conscious decision by evaluating the risks and benefits of indulging in the act. This, of course depends on an individual's ability to make informed and positive decisions / choices, which is a function of psychological, social and cultural variables. Insights from personal observation and participants' responses identified low literacy rates, ignorant and lack of effective regulatory mechanism as major precursors to drug use among other variables.

Some Cultural Practices that Influence Alcohol and Drug Use

Alcohol use is an intrinsic part of Anaang cultural heritage. It played major roles in traditional activities. Ceremonial rites and pouring of libation to propitiate the angry gods or ancestors. In every gathering, celebration of birth, death, victory, success, achievements, and even when somebody commits suicide which is considered abominable, alcohol is demanded from the victim family among other items to cleanse the land and appease the gods. Observations have shown that most times, this local gin is garnished with herbs and roots which have drug effects on drinkers. The participants identified the following cultural practices as having the potential to covertly or overtly promote alcohol and drug use.

Births: The arrival of a new baby to the family is usually celebrated with varieties of drinks including alcohol beverages such

as *Ukot nsung, kaikai, ukot ayop*, Beer, Schnapps, Malt drinks etc.

Circumcision: The practiced of circumcision for both male and female children was a major traditional rite, and is still being in vogue currently, especially among the non-educated families. Family members and friends gather to share drinks at the success of the surgical operation.

Coming of Age: This is a rite of passage in Anaang land where the females approaching menarche are initiated into the *Nwowo* (age of puberty) cult. Others are; Traditional Marriage, Death/Burials, Land Acquisition, Foundation Laying ceremonies, Chieftaincy Installation, Traditional festivals, etc

The Community, Culture, Alcohol and Drug Use Control

Although, alcohol and drug use is acceptable practice in Anaang land, there are some cultural practices that regulates or discourage the use of these harmful substances: Religious belief, Family /Parental Disapprovals, Sacred Days, Dedicated Days, Gender/Age, Intertribal/Communal Conflicts, Era of Civilization, Use of Measure, etc.

DISCUSSION

Cultural norms and beliefs are strong predictors of both current drinking and frequent heavy drinking (Brooks-Russell, Simons-Morton & Haynie, 2013; Caetano and Clark 1999; LaBrie, Atkins & Neighbors 2012; O'Grady, Cullum, Tennen, & Armeli. 2011;

Paschall, Grube, & Thomas, 2012). Across race and ethnicity, African

Americans and Latinos report more conservative attitudes toward drinking compared with Whites (Caetano and Clark, 1999; LaBrie, *et al.* 2012). These more conservative norms may be associated with lower drinking rates among African Americans and Latinos compared with Whites (SAMHSA 2013). Few studies have examined diversity within racial and ethnic groups such as Latinos, Blacks, and Asians, limiting our ability to meet the needs of specific subpopulations. Some studies suggest that alcohol-related problems differ substantially across Latino subgroups, including higher rates of alcohol abuse and dependence among Mexican-American and Puerto Rican men compared with Cuban Americans and Central and South Americans (Caetano, Ramisetty-Milke & Rodriguez, 2008). These findings may best be explained by considerable differences in cultural norms, especially the cultural beliefs regarding appropriate alcohol use (Greenfield and Room 1997; LaBrie, *et al.* 2012). For example, some scholars explain heavy-drinking patterns among Latino men through the concept of machismo, which has been a significant cultural influence for generations and remains integral to Latino male identity (Dolezal, Carballo-Diéguez, Nieves-Rosa & Díaz, 2000). Machismo suggests that Latino men attempt to appear strong and masculine because of cultural values, and drinking greater amounts of alcohol further exemplifies their masculinity. More recently, scholars have commented that concepts like machismo cannot account for the complexity of Latino drinking behavior (Caetano, 1990)

Cultural norms also vary by context and place. Some alcohol researchers have used multilevel approaches to distinguish among the causal effects of individual and

neighborhood-level norms. For example, Ahern and colleagues (2008) found that neighborhood norms against drunkenness were a more robust and stronger predictor of binge drinking than permissive beliefs about it held either by the individual or family and friends. If an individual lived in a neighborhood that frowns on binge drinking, that individual was less likely to drink, even if he or she believed it acceptable to **do so**. This was particularly true for women, suggesting gender norms around alcohol use may be a factor.

Specifically, past studies found that gender differences in alcohol use may reflect the greater social stigma directed at women who drink. This seems to be more pronounced in certain cultures. Caetano and Clark (1999), for example, found stronger gender norms related to alcohol use in Latino cultures compared with the United States (Kulis, Marsiglia & Nagoshi 2012). This results in greater gender differences in alcohol use among Latinos compared with other U.S. populations, with recent trends suggesting similar levels of binge drinking between men and women in Western cultures (Iwamoto, *et al.* 2012). This may reflect changing beliefs about gender and social status. Although traditionally perceived as a “masculine” behavior, binge drinking is now more acceptable among women in certain cultures that foster more balanced gender roles (Lyons and Willott, 2008).

Some of the strongest influences on adolescent drinking behavior come from the people that youth spend the most time with: family and friends (Sudhinaraset, *et al.* 2016). Studies have found that higher levels of alcohol use among parents and peers is associated with increased alcohol use among adolescents and young

adults (Cruz, Emery & Turkheimer, 2012; Dawson, 2000; Mares, Engels and Lichtwarck-Aschoff, 2011; Trucco, *et al.* 2014; Varvil-Weld, *et al.* 2014; Wallace, Forman, & Guthrie, 1999; Walsh, Djalovski, Boniel-Nissim, & Harel-Fisch, 2014; Williams & Smith, 1993). Developmentally, people's social contexts shift from the family unit during childhood to focus more on their peers and their schools during adolescence. Reflecting this, parental alcohol use seems to exert a greater influence before age 15 and diminishes over time (Dawson, 2000).

Conversely, family support, bonding, and parental monitoring is associated with lower alcohol use (Bahr, Marcos & Maughan, 1995; White, *et al.* 2006) and social networks and social support also have protective effects (Ramirez, Hinman & Sterling, 2012). For example, one study that assessed the effects of leaving home and attending college found that although the transition overall was associated with higher levels of alcohol use, young people with fewer friends who use alcohol reported higher levels of religiosity. Higher parental monitoring also protected against alcohol and marijuana use (White, *et al.* 2006). Moreover, higher levels of familism (values that place family needs over individual needs) and being in a nuclear family served as protective factors among adolescents (Ewing, *et al.* 2015).

CONCLUSION

Traditionally in Anaang land, alcohol consumption is not just a social act but is deeply entrenched and engraved in the heart of Anaang cultural heritage. Even though consumption is seen as normal, it

is subjected to variety of rules and norms of usage in terms of who offers it, when, why and where to drink. Excessive drinking has some unpleasant consequences socially, economically and health wise. Alcohol education programs need to also address individual intent and motivations while offering personalized feedback and protective behavioral strategies (Patrick *et al.* 2014). Public health and treatment programs needed to be culturally sensitive, paying particular attention to cultural factors such as ethnic identification and orientation. This study attempts to explore how cultural practices, norms, and belief system can influence drug and alcohol use as well as a community perspective on the war against substance misuse.

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CONTENTS

- Roles of Background Characteristics in HIV and Alcohol Use
Prevention Among School Learners: The HAPS Project..... 79
Godswill N. Osuafor & Chinwe E. Okoli
- Psychoactive Substance Use as a Predictor of Road Rage Behaviour
in a Sample of Commercial Drivers in Enugu, South-Eastern Nigeria..... 93
Philip C. Mefoh, Joy I. Ugwu, & Timothy E. Eze
- Commercial Tricycle Riders' Perceptions of Psychoactive Drug Use
and the Risk of Road Traffic Accidents in Uyo, Nigeria 105
*Ediomo-Ubong E. Nelson, Okokon O. Umoh,
Nsidibe F. Essien & Aniekan S. Brown*
- Some Neuropsychological Profiles of Cannabis Dependent Users
on Long-Term Abstinence in a Rehabilitation Centre in Nigeria..... 119
*Valentine A. Ucheagwu, Rita N. Ugwokwe-Ossai,
Paul D. Okoli, & Jesse P. Ossai*
- Substance Use Among Youths: Roles Of Psychoticism,
Social Alienation, Thriving and Religious Commitment..... 133
*Steven K. Iorfa, Chinedu Ugwu, Chuka M. Ifeagwazi,
& Johnbosco C. Chukwuorji*
- Community Perspectives on Cultural Practices and Belief Systems
Influencing Alcohol and Drug Use: A Qualitative Study in Anaang
Community, Nigeria..... 147
*Nsidibe A. Usoro, Dorothy N. Ononokpono, Ursula Ette,
& Nkereuwem N. James*