

## **PATTERNS OF SUBSTANCE USE AND ITS PREDICTORS AMONG NORTH-WEST UNIVERSITY STUDENTS MAFIKENG CAMPUS**

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### **ABSTRACT**

The aim of this study was to examine the pattern of substance use among university students in South Africa. A cross-sectional study of randomly selected 416 students was conducted. Data were analysed using descriptive statistics and binary logistic regression. The result of the study indicated that current alcohol use was reported by 67.5%, Cigarette, 21.4%, cannabis, 17.3% and glue 2.9%. Alcohol consumption was associated with sex, age, religious affiliation, home language, family influence, and substance experimentation. Sex and substance experimentation were predictors of cigarette smoking. Cannabis use was associated with respondent's sociocultural group and family influence. There is need to strengthen the family structure of homes as present substance use is rooted in family influences. Educational programmes that emphasise the dangers of experimenting with substance to young people may have great potential in minimizing substance use.

**Key words:** pattern, psychoactive, substance use, peer pressure, experimenting.

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### **INTRODUCTION**

The pervasiveness of the use of alcohol, tobacco, cannabis and other psychoactive substances remains a major concern among young people globally. Nearly 25% of the total death toll among people aged 25-39 years were related to alcohol use in 2014 (WHO, 2015). This percentage

is higher than that of the global alcohol related deaths which is recorded as 7.6% and 4.0% for men and women respectively. The United Nations Office on Drug and Crime (2015) reported about 187,100 drug-related deaths in 2013. Of a particular importance, the report indicated that cannabis use disorder is more dominant in several regions of the world.

In the Sub-Saharan African context, South Africa has a historic pattern of hazardous or harmful alcohol consumption which stems from the apartheid era. For example, the South African Youth Risk Behaviour Survey of 2002, indicates that 16% of the young participants commenced drinking of alcohol before the age of 13 years (Reddy et al., 2003). Further evidence suggests that 31.8% alcohol use and 23% binge drinking was recorded among people aged 14-18 years (Reddy et al., 2003). However, cases of binge drinking escalated from 23% in 2002 to 28.5% in 2008 (YRBS, 2010). Peltzer and Ramlagan (2009) review of five national and local surveys on the prevalence of alcohol use revealed that life time, current use and binge drinking remained constant for both adolescent and adult addicts for a period of 12 years. Given that alcohol and drug use are major causes of early death and disability among young people, substance use in South African is a demographic concern.

The illegal use of drugs has added a new dimension to substance use equation in South Africa. Different researchers have made diverse indications about the social context of drug use. For instance, Mudavanhu and Schenck (2014) link the unavoidable use of substances to cultural festivals which they argue makes substance use unavoidable in South African society. Similarly, Alhyas *et al.* (2015) indicate that there is evidence that experimenting with cigarette smoking which culminates to dangerous drug use such as cannabis often begins in school toilets. Other studies in South Africa reveal that substance use is often linked to easy access, family history of substance abuse, peer influences and developmental stage (Mudavanhu & Schenck, 2014; Rice &

Dolgin, 2008). Furthermore, the prevalence of substance use has been linked to the rapid urbanization, economic development, increased availability, corporate targeting, weak policy infrastructure and trade agreement driven by globalization (Ferreira-Borges, Dias, Babor, Esser, & Parry, 2015). Therefore, these complex interactions between cultural diversity and contextual factors may yield differential patterns on substance use.

Despite the multiplicity of patterns and background characteristics that influence substance use, there is a paucity of studies among university students in South Africa. In their research, Peltzer and Ramlagan (2009) observed that students residing in the educational institutions were excluded in the five national and local surveys on substance use. As a result of this gap in information, policy makers and interventionists are clueless about the patterns and factors influencing substance use in the university environment. This qualifies university students as a vulnerable group, specifically considering the freedom from parental guidance and the unlimited susceptibility to substance experimentation in the university environment.

A study conducted at the University of Venda reveals a 65% use of alcohol and 49% abuse of alcohol among the students (Kyei & Ramagoma, 2013). The study further documents peer pressure as the main determinant of alcohol consumption. A similar study by Ajao (2014) affirms a high use of illicit substances and the negative complications among students in Venda. Interestingly, this study indicates that individuals' affiliation to religion reduced the level of alcohol consumption. However, given the differentials in university environmental factors and norms, the findings of these studies cannot be generalised.

Therefore, this study is designed to assess the prevalence and identify the contextual factors associated with substance use at the Mafikeng Campus, of the North-West University, South Africa.

## METHOD

A cross sectional survey was conducted among students of the North-West University, Mafikeng campus in November 2014. Lecture halls were randomly selected and self-administered questionnaire developed in the English language were distributed to students during the lecture periods. The aim was to incorporate the participation of students living both within and outside the campus. The returned 500 questionnaires were examined for consistency and the 416 correctly filled ones were used for analyses.

### Measures

Substance use was assessed by asking participants questions on life time and current use of any of the substances. Current use is defined as the usage within the space of six-months prior to the survey. The responses were either "Yes" or "No". Those who reported that they consumed any of the substances were further asked to state the frequency of usage in the past six months. This was measured on a scale of 1 to 6 (1= 1-2 times; 2 = 3-4 times; 3 = 5-6 times; 4 = 7-8 times; 5 = 9-10 times and 6 = daily). Based on the feedback received, substance use was examined on alcohol consumption, cigarette, cannabis and glue.

The background characteristics examined were age, sex, places of residence, year of study on campus, religious denomination and home language. Other variables examined were family and peer

influences on substance use, as well as testing and experimenting with substance. All the background characteristics were categorised and reported in the study findings.

### Data Management and Analyses

Data were coded and analysed using the Statistical Package for Service Solutions (SPSS) version 22. Demographic characteristics and patterns of substance use were described using frequencies and percentages. Chi-square analyses were used to test the association between alcohol consumption, cigarette smoking, cannabis and glue by selected background characteristics. Binary logistic regression model was used to establish the predictors of current alcohol consumption, cigarette and cannabis smoking.

## RESULTS

### Demographic characteristics of the respondents

Table 1 presents the socio-demographic characteristics of the respondents by sex. More females participated than males in the study. About three-quarters (58%) of the sample were people aged 20-24 years. Slightly over half of the respondents were second year students and about two-fifth of the students were residents on the campus. Two-thirds of the students indicated that they were Tswana. Over three-fifths admitted that they lived alone. Majority of the students were Christians, with one-third professing Pentecostalism. Majority stated that neither family nor peer influences was responsible for their use of substances. However, nearly half (48%) commenced substance use by testing and experimenting.

**Table 1.** Demographic characteristics of the respondents.

Characteristics	Female	Male	Total
<b>Age group</b>			
< 20	31	13.5	23.8
20-24	55.9	60.8	57.9
25+	13.1	25.7	18.3
<b>Year of study</b>			
Year 1	14.3	10.5	12.7
Year 2	55.5	48	52.4
Year 3	11	12.9	11.8
Year 4	7.8	14.6	10.6
Postgraduate	11.4	14	12.5
<b>Place of residence</b>			
On campus	40.4	45.6	42.5
Off campus	59.6	54.4	57.5
<b>Sociocultural group</b>			
Tswana	69	62	66.1
Sotho	11	12.9	11.8
Xhosa	7.3	8.8	7.9
Zulu	8.6	9.4	8.9
English	4.1	7	5.3
<b>Religious Affiliation</b>			
None	10.2	25.1	16.3
Catholic	11	10.5	10.8
Methodist	16.3	7.6	12.7
Protestant	23.7	12.3	19.0
Pentecostal	31.8	35.1	33.2
Anglican	6.9	9.4	7.9
<b>Family Influence on substance use</b>			
No	88.3	86.4	87.5
Yes	11.7	13.6	12.5
<b>Peers Influence on substance use</b>			
No	86.1	77.8	82.7
Yes	13.9	22.2	17.3
<b>Testing &amp; Experimenting</b>			
No	56.7	46.3	52.4
Yes	43.3	53.7	47.6
<b>Total (n)</b>	<b>245</b>	<b>171</b>	<b>416</b>

### Lifetime and current use (in the last 6 months) among students.

Figure 1 shows lifetime and current substance use. Majority (90.6%) of the students reported life time ever tested alcoholic drink. With regard to the past six

months prior the interview, 67.5% stated that they consumed alcoholic drinks. The ever smoked and current cigarette smoking category showed significant differences. Ever used and current use of Cannabis was reported by 20.4% and 17.3% of the

students. Lowest percentages indicated ever used and current use of glue.

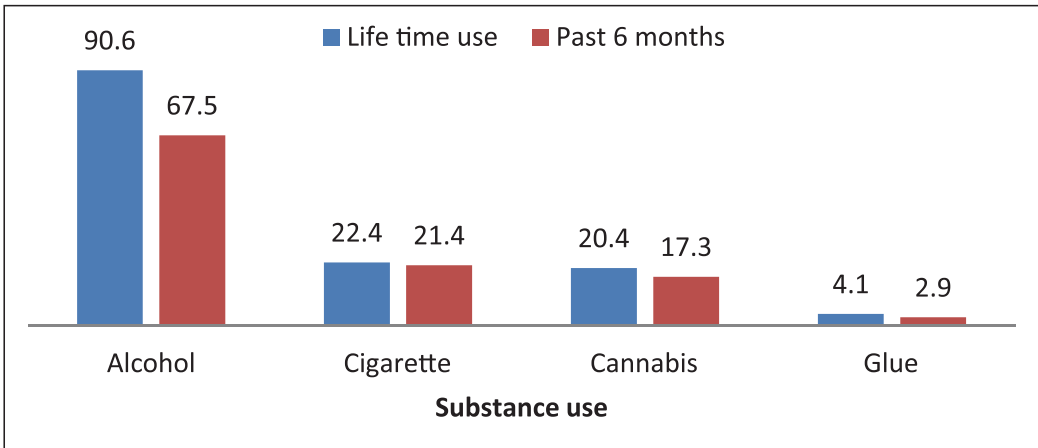
**Prevalence of substance use in the last six-months before the survey.**

Figure 2 demonstrates the prevalence in pattern of current substances use. Cigarette was the most widely daily used substance, followed by cannabis, glue and alcohol in decreasing order. In the previous six months before the survey, about a

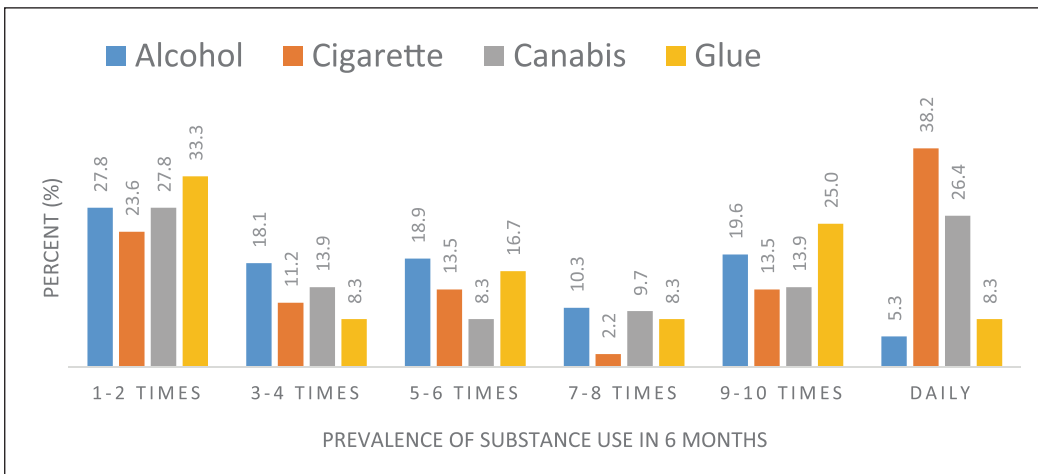
quarter of the students admitted to using glue, cannabis, alcohol and cigarette once or twice.

**Current substance use by selected background variables: Bivariate analyses.**

The Chi-squared analyses in Table 2 below suggests that age, sex, religious denomination, family history of substance use, experimenting and testing alcohol



**Figure 1.** Lifetime and current substance use.



**Figure 2.** Prevalence of alcohol, cigarette, cannabis and glues use.

**Table 2.** Percentage distribution of substance use in the past six month by selected variable

Variables	N = 416	Alcohol	Cigarette	Cannabis	Glue
<b>Age group</b>					
< 20	99	51.5	16.2	8.1	4.0
20-24	241	73.9	20.3	18.1	2.5
25+	76	68.4	31.6	26.3	2.6
<b>P- value</b>		<b>0.000</b>	<b>0.040</b>	<b>0.006</b>	<b>0.732</b>
<b>Sex</b>					
Female	245	58.8	15.5	11.8	2.4
Male	171	80.1	29.8	25.1	3.5
<b>P- value</b>		<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.525</b>
<b>Year of Study</b>					
Year 1	53	50.1	15.1	13.2	1.9
Year 2	218	69.7	19.7	15.1	2.3
Year 3	49	71.4	20.4	18.4	2.0
Year 4	44	72.7	29.5	20.5	9.4
Postgraduate	52	67.3	28.8	26.9	1.9
<b>P- value</b>		<b>0.091</b>	<b>0.278</b>	<b>0.283</b>	<b>0.146</b>
<b>Place of residence</b>					
On campus	177	66.1	20.3	20.3	2.8
Off campus	239	68.6	22.2	15.1	2.9
<b>P- value</b>		<b>0.588</b>	<b>0.652</b>	<b>0.160</b>	<b>0.950</b>
<b>Sociocultural group</b>					
Setswana	275	70.5	21.1	14.5	2.2
Sotho	49	71.4	24.5	30.6	2.0
Xhosa	33	63.6	12.1	18.2	6.0
Zulu	37	48.6	24.3	16.2	0.0
English	22	59.1	27.3	22.7	13.6
<b>P- value</b>		<b>0.077</b>	<b>0.623</b>	<b>0.091</b>	<b>0.018</b>
<b>Religious Affiliation</b>					
None	68	80.9	27.9	20.6	5.9
Catholics	45	82.2	24.4	24.4	4.4
Methodist	53	64.2	17.0	7.5	0.0
Protestants	79	58.2	22.8	20.3	1.3
Pentecostal	138	62.3	15.2	13.8	2.9
Anglican	33	69.7	33.3	24.2	3.0
<b>P- value</b>		<b>0.010</b>	<b>0.125</b>	<b>0.134</b>	<b>0.430</b>
<b>Family influence</b>					
No	366	64.8	19.7	15.3	2.5
Yes	50	88.0	34.0	32.0	6.0
<b>P- value</b>		<b>0.001</b>	<b>0.020</b>	<b>0.003</b>	<b>0.161</b>
<b>Peer influence</b>					
No	348	65.8	19.0	15.5	2.3
Yes	68	76.5	33.8	26.5	5.9
<b>P- value</b>		<b>0.086</b>	<b>0.006</b>	<b>0.029</b>	<b>0.106</b>
<b>Testing and Experimenting</b>					
No	288	51.3	14.9	12.3	2.6
Yes	188	87.2	29.3	23.4	3.2
<b>P- value</b>		<b>0.000</b>	<b>0.000</b>	<b>0.003</b>	<b>0.734</b>

were significantly associated with current drinking. The highest percentage of alcohol consumption was reported by people aged 20-24 years. Males represented a higher percentage in comparison to females in this category in the past six months. Similarly, in comparison to Protestants, Catholics represented a higher percentage in alcohol consumption. Relatively higher percentages of alcohol drinking was reported by those with a family history of substance use or alcohol experimenting and testing. However, the year of study, place of residence, home language, and peer influences were not associated with alcohol consumption.

Furthermore, as Table 2 reveals, cigarette smoking was significantly associated with age, sex, family as well as peer influences, testing and experimenting with substances. The highest proportion of cigarette smoking was observed among males and those aged 25 years and above. As expected, those with family or peer influenced substance use and testing and experimenting with substance recorded higher percentages of cigarette smoking. A similar pattern was observed with regards to cannabis usage. In addition, year of study, place of residence sociocultural group and religious denomination were neither associated with cigarette smoking nor the use of cannabis. With the exception of home language, the use of organic solvents did not show association with the background characteristics. This could be due to the low proportions that reported the use of organic solvent.

### **Multivariate analyses**

A binary logistic regression analysis was applied to identify salient variables which in combination predict the alcohol consumption in the past six months. Table 4

below shows that sex, age, religious denomination, sociocultural group, family history of substance use, testing and experimenting with substance are significantly associated with alcohol consumption. It also demonstrates that males were about 3 times more likely than females to report alcohol consumption. In a similar vein, teenage students were less likely to state alcohol consumption compared to those aged 20-24 years. In comparison to those with no religious denominations, Protestants and Pentecostals had 68% and 70% reduced odds of reporting alcohol use. The probability of alcohol consumption was lower among Zulus compared to the Tswana group. Respondents with a family history of substance use, testing and experimenting with substance were 4 times and 6 times more likely to consume alcohol unlike those with no family influence or testing and experimenting. However, peer influence, year of study and place of residence were not significantly associated with alcohol consumption.

The table further reveals that cigarette smoking was significant associated with sex, testing and experimenting with substance. On the other hand, the use of cannabis was associated with sociocultural group and family history of substance use. The likelihoods of reporting cigarette smoking were higher among males compared to females, and among those who started using substance by testing and experimenting. Similarly, in comparison to the Tswana sociocultural group, Sothos were 2 times more likely to use cannabis. Those with a family history of substance use were more likely to use cannabis compared to their counterparts with no family history of substance use. However, age religious denominations, home language, peer influence, year of study,

**Table 4.** Parsimonious logistic regression of current substance use.

Variables	Alcohol		Cigarette		Cannabis	
	ORs	95% C.I.	ORs	95% C.I.	ORs	95% C.I.
<b>Sex</b>						
Female (Reference)	1.00		1.00			
Male	<b>2.75**</b>	1.54- 4.89	<b>2.39**</b>	1.45 -3.94	-	-
<b>Age group</b>						
< 20	<b>0.40**</b>	0.22 - 0.74	-	-	-	-
20-24 (Reference)	1.00					
25+	0.62	0.30 - 1.27	-	-	-	-
<b>Religious Affiliation</b>						
None (Reference)	1.00					
Catholics	0.64	0.20 - 2.05	-	-	-	-
Methodist	0.41	0.14 - 1.15	-	-	-	-
Protestants	<b>0.32*</b>	0.12 - 0.82	-	-	-	-
Apostolic/Pentecostal	<b>0.30**</b>	0.13 - 0.72	-	-	-	-
Anglican	0.62	0.17 - 2.24	-	-	-	-
<b>Sociocultural group</b>						
Tswana (Reference)	1.00				1.00	
Sotho	1.10	0.49 - 2.45	-	-	<b>2.38*</b>	1.13 - 5.01
Xhosa	0.71	0.27 - 1.89	-	-	1.25	0.44 - 3.56
Zulu	<b>0.20**</b>	0.08 - 0.50	-	-	1.10	0.42 - 2.88
English	0.41	0.12 - 1.41	-	-	1.55	0.52 - 4.67
<b>Family influence</b>						
No (Reference)	1.00				1.00	
Yes	<b>3.60*</b>	1.20 - 10.79	-	-	<b>2.79**</b>	1.41 - 5.54
<b>Testing and Experimenting</b>						
No (Reference)	1.00		1.00			
Yes	<b>6.34**</b>	3.60 - 11.15	<b>2.39**</b>	1.43 - 3.98	-	-

\* Significant at 0.05 level; \*\* significant at 0.01 level; 1.00 is reference category and CI for confidence interval

place of residence and family history of substance use were not significant predictors of cigarette smoking. Furthermore, sex, age, religious denomination, peer influence, year of study, place of residence, testing and experimenting with substance did not predict the use of cannabis.

### DISCUSSION

The study demonstrates that substance use is pervasive among the students.

Consistent with other studies in South Africa (Seggie, 2012) and Rwanda (Kanyoni, Gishoma, & Ndahindwa, 2015), this study agrees that alcohol and cigarette are the predominantly used substances among students. This assertion is attributable to the easy access of alcohol and cigarettes. The study further indicates a higher tendency of alcohol and cigarette use among males compared to females, this finding is in agreement with the findings of studies conducted among Haramaya University students in Ethiopia (Tesfaye, Derese, &



Hambisa, 2014). Higher alcohol and cigarette use among males suggests a natural predisposition of males towards pleasure-seeking beneficial behaviour especially substance use which has become a widely-normalised social activity.

The lower likelihood of substance consumption by teenage students could be explained by the fact that the national law prohibits under-age alcohol consumption. Therefore, although there is evidence of alcohol consumption among teenagers, the society rejects such behaviour. This finding suggests that alcohol consumption behaviour evolves over time among the students. These findings are pertinent because they could propel strategies that promote modest alcohol consumption among teenagers which would in turn have health benefit effects on teenagers.

Finding that professing Protestantism and Pentecostalism had deterrent effects on alcohol consumption was not unexpected. This finding concurs with previous studies in South Africa; (Kyei & Ramagoma, 2013), Nigerian universities (Makanjuola, Abiodun, & Sajo, 2014) and US (Vaughan, de Dios, Steinfeldt, & Kratz, 2011) which equally indicate that religion has effectively curbs the proclivity for alcohol consumption. The protective role of religion as is evident in the present study may be attributed to the proscriptive teachings on alcohol use by these religious denominations. Religious groups have been forthright in discouraging alcohol use despite the fact that some denominations use alcoholic drinks for spiritual ceremonies. We attribute this finding to the conservative liturgy and belief on alcohol use of Protestants and Pentecostals.

Cultural rituals which make substance use unavoidable in South African societies

can be characterised by the individual sociocultural groups. However, sociocultural groups were neither associated with alcohol use nor the use of cannabis at bivariate analyses. Conversely, alcohol consumption was associated with Zulus at multivariate level. Similarly, the use of cannabis was mostly associated with the Sothos. Arguably, this suggests that sociocultural whims worked through other variables to suppress alcohol consumption among Zulus, while enhancing the use of cannabis among the Sothos. It also appears that the public awareness on the harmful effects of alcohol consumption has had positive impacts on the Zulus. Furthermore, higher likelihood of cannabis usage by the Sothos may be partly explained by their sociocultural acceptability of cannabis use.

The study indicates that family influence is an important factor that under-scores alcohol consumption and the use of cannabis. Students were more likely to use substances if members of their family were users. This finding reiterates the summations of previous reports on alcohol consumption (Makanjuola et al., 2014). It also strongly agrees with the study in Australia (Gilligan & Kypry, 2012; Ward & Snow, 2011) that linked family substance use as predisposing factor to the use cannabis among young people. This finding is not unexpected because the family is the baseline of socialisation and character formation of young people which extends into adulthood. This finding emphasises the need for the adults in families to be role models for the younger ones.

Current use of alcohol and cigarette smoking is associated with substance experimentation and use which is similar to related findings in South Africa

(Mudavanhu & Schenck, 2014) and Nigeria (Owoaje & Bello, 2010). This finding is not unexpected because the South African society is not forthright in regulating alcohol consumption and cigarette smoking. Consequently, alcohol consumption and cigarette smoking as is observed in this study is further perpetuated by illegal substance experimentation.

It is noteworthy that other substances such as amphetamines, cocaine/crack, khat, tranquilisers, hallucinogens, opium, sedatives and hypnotics were not reported. This suggests that these students have probably not been exposed to them. It is also possible that the location of the university may have made the access to these substances impossible due to far distance from mega business hub. This has widened the knowledge on the type of substances that are not currently used on the campus and may form a basis for sustained efforts in the prevention of substance use among university students.

### CONCLUSION AND RECOMMENDATION

The study has presented the patterns of substance use which revealed that students use them on daily basis. It further characterised the contextual factors such as religion, family influences and socio-cultural background connected to substance use. Finally, individual factors such as sex, testing and substance experimentation which predict the current use of specific substances were demonstrated. The findings of the study proposes the urgency for programmes in the university that aim at educating young people about the dangers of substance use. To deter health compromising behaviour

among students, this study recommends the strengthening of the moral fabrics of homes and sociocultural backgrounds as present substance use is mostly rooted in unhealthy background influences. This measure will unquestionably go a long way in curbing substance experimentation and use among young people.

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