

1 **Original Research Article**

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Alcohol, Substance Use and Psychosocial Competence of

4

Adolescents in Selected Secondary Schools in Uganda: A

5

Cross Sectional Survey

Aims: 1) To determine the nature and extend of alcohol and substance use and 2) To describe the relationship between alcohol use and psychosocial competence in secondary school youths in Northern and Central Uganda.

Study Design: This was a cross-sectional study.

Place and Duration of study: Departments of Psychiatry, Gulu (Northern Uganda) and Makerere (Central Uganda) Universities between September 2011 and April 2012.

Methodology: Four (4) and eight (8) secondary schools located in the rural and urban areas of Gulu and Kampala districts respectively were randomly selected to participate in the survey. A total of 3200 students aged 12 to 24 years were recruited by proportionate multistage sampling. Data was collected using socio-demographic questionnaire that included questions about nature and frequency of alcohol and substance use. A pretested self-administered survey questionnaire containing scales to measure components of psychosocial competence was administered. Data was entered in Epidata software, and analyzed using SPSS version 16.0. Psychosocial competence was classified as high or low depending on the responses in the sub-scales of decision making, self efficacy, empathy, emotional awareness, coping with stress and emotions, and Accurate self assessment and self confidence.

Results: 2902 (From Kampala: 2502, (86.2%) and Gulu: 400 (13.8%)) questionnaires were analyzed. Male to female ratio was 1:1 with age range of 12 to 24 years and a mean of 16.5. About 70.1% had ever used alcohol and substances. Only 39.1% used substances regularly. The commonest substance was alcohol (23.3%), followed by Kuber (10.8%), Khat (10.5%), Aviation fuel (10.1%), Cannabis

(9.2%) and cigarettes (5.9%). Respondents from the North were twice more likely to use all substances. The level of psychosocial competence among non-users from Central Uganda was low. Users and regular users from the North had lower psychosocial competence. Factors significantly associated with non-use of alcohol are high levels of self-confidence, non use of cannabis and kuber, age and having symptoms of depressive illness. In the alcohol user groups, a high level of coping was associated with discontinued and experimental use.

Conclusion: More than two-thirds (70.1%) of young people in this study had ever used substances only once and slightly over a third use it regularly. School mental health programmes that target both non-users and users are recommended from the perspectives of service provision, the perspective of mental health promotion and prevention of illicit substance use.

6

7 *Keywords: **Substance use; Young people; psychosocial competence; Uganda***

8

9 **1.0 INTRODUCTION**

10 The use of alcohol and other substances during adolescence and early adulthood has become a serious
11 public health problem in Uganda. The global burden of disease projected that tobacco, alcohol and illicit
12 drugs were respectively the 2nd, 9th and 20th leading cause of mortality globally[1]. This report further
13 projected that tobacco smoking alone will lead to 1 billion deaths globally during the 21st century[1] . The
14 World Health Organization's global status report on Alcohol, 2004 stated that Uganda has one of the
15 highest alcohol and substance abuse rates in the World[2]. With over half of her population below 24
16 years, school going adolescents and young people have been part of this statistics [3]. A study done on
17 drug and substance abuse in schools of Kampala and Wakiso found between 60 to 71% of the students
18 were using drugs with alcohol and cannabis taking the biggest percentages[4].

19 Given the serious consequences of drug and alcohol abuse, considerable effort has been directed toward
20 adults who have developed health problems despite the low success rates[5]. In research and clinical
21 studies, adolescent alcohol and substance use has been relatively neglected[6]. In Uganda, there is also
22 a paucity of services and treatment programmes, with the few programmes biased towards treating adults
23 and adoption of adult treatment models without appropriate attention to different developmental and child
24 protection needs. At the policy level, there is no policy to guide any implementation of services to control
25 the alcohol and illicit substance use in Uganda.

26 Continued use of these substances has a spectrum of adverse outcomes including psychological,
27 physical, social and legal problems. Among adolescents with substance use problems, co-occurring

28 mental disorders are common and serious [7]. In general, research has shown that individuals with co-
29 occurring disorders (also called dual diagnosis) have more severe psychiatric symptoms, are more
30 difficult to treat, incur greater costs, and have worse overall outcomes than persons with only one
31 disorder [7]

32 Physical adverse health effects have been shown in adolescent smokers, including effects on the lungs
33 [8]. While many of these conditions, particularly the physical ones develop only after a chronic use
34 spanning many decades, and are therefore rare in children and adolescents, an understanding of
35 substance use and substance use problems during adolescence is critical to any approach aimed at
36 lessening these consequences, as it is during childhood and adolescence that the use of these
37 substances typically first occurs [6]. Some studies suggest that if substance use has not been initiated by
38 age 21, it is unlikely to ever be initiated [6, 9]. Further, age at initiation to substance use has consistently
39 been shown to be associated with higher lifetime consumption, more risky patterns of use and with onset,
40 duration and severity dependence[10]. Studies suggest that the younger an individual is at the onset of
41 substance use, the greater the likelihood that a substance use disorder will develop and continue into
42 adulthood [10]. Furthermore, it is stated that more than 90% of adults with current substance use
43 disorders started using before age 18; half of those began before age 15 years [11] .Thus, it is clear that
44 early onset use is a robust indicator of risk for future substance related problems.

45 There is also a growing recognition of the high cost of treatment and of the inability of existing treatment
46 programs to keep up with increasing demand. Half of the admissions in the Ugandan National Mental
47 Referral Hospital are young people with alcohol and substance use disorders[12]. These observations
48 stimulate interest in primary prevention of alcohol and other drug abuse in adolescents. Psychosocial
49 competence is one of the factors that has been stated to be protective against progressing to problematic
50 use of alcohol and other substances[13, 14], and it is a critical starting point for policy reform aimed to
51 promote mental health and to prevent and control illicit substance use by young people in Uganda.

52 This article focuses on the use of alcohol and other substances among young people in secondary
53 schools. In this article, we advance the understanding that alcohol and substance use occurs along a
54 spectrum ranging from beneficial to problematic use. We also support the proposition that harmful alcohol
55 and substance use is facilitated by poor problem-solving capacity and low psychosocial competence. This
56 conceptualization emphasizes the public health-based understanding of substance use instead of binary
57 categorical approach of "use" vs. "abuse" [15].Viewed in this way, alcohol and substance related
58 problems can be understood as occurring on different levels of use associated with different types of
59 problems and levels of psychosocial competence, with young people moving between the different
60 levels[16]. Many young people will experiment with alcohol and substances and stop while others may go
61 on to recreational use and yet a few may get addicted and develop varying types and levels of
62 complications [16].

63 In this paper, we define alcohol and substance use as lying along a continuum. This may be a onetime
64 use, regular use or problematic use. Problematic use can further be classified as i) substance abuse
65 which involves the use of substances despite persistent social, interpersonal or other problems caused by
66 the use of the substance[17] and ii) substance dependence which is a more severe disorder entailing
67 signs of physical or psychological tolerance or dependence[17].

68 Studies have shown that there are factors that cause some adolescents to be particularly vulnerable to
69 problematic use of alcohol and substances [18] [6]. Factors associated with resilience are termed assets;
70 i.e.: positive factors that reside within the individual, such as psychosocial competence and resources,
71 and positive factors that help youth overcome risk, but that they are external to the individual, such as a
72 supportive family environment or caring relationship with at least one adult[19].The importance of
73 identification of these factors, and their impact upon the progression or not of substance use in particular
74 individuals, underscores importance of prevention and early intervention programmes for young people.
75 Botvin and others have studied the effectiveness of a drug abuse prevention programme, and life skills
76 (psychosocial competence) training [20, 21]. At 6 year follow up, Botvin and colleagues' study showed
77 that self reported substance abuse was 44% less in the intervention group and poly drug abuse was 66%
78 less [21].


79 This study aimed to determine the nature and extend of alcohol and substance use and secondly, to
80 describe the relationship between alcohol use and psychosocial competence in young people in
81 secondary schools in Northern and Central Uganda. [(Arial, normal, 10 font, justified) (Detailed instruction
82 about this section is given below. After reading these instructions, please delete this paragraph and begin
83 typing your text here. If you are using copy-paste option then select 'match destination formatting' in
84 paste option OR use 'paste special' option and select 'unformatted Unicode text' option).

85
86 Provide a factual background, clearly defined problem, proposed solution, a brief literature survey and the
87 scope and justification of the work done.]

88

89 **2. MATERIAL AND METHODS**

90



91 This study sought to answer the following research questions; namely: a) what the nature and extent of
92 alcohol and substance use among young people in secondary schools in Northern and Central Uganda
93 was, and b) what the relations between alcohol and psychosocial competence of young people in
94 secondary schools in the study areas was 

95 **2.1 Study instruments**

96 **2.1.1. Socio-demographic questionnaire**

97 All students completed a demographic data sheet, which had questions on gender, age, class in school,
 98 religious affiliation, parenthood status, orphanhood status (for orphans), experience of domestic violence,
 99 nature of housing, number of rooms in a house where they live and history of mental illness in the
 100 respondent and family.

101 **2.1.2. The Emotional Competence Inventory (ECI)**

102 The ECI was used to measure psychosocial competence. The ECI is a 360-degree tool designed to
 103 assess the emotional and social competencies of individuals. The test is based on emotional
 104 competencies identified by Dr. Daniel Goleman in working with Emotional Intelligence [22]. Only the
 105 desired attributes were extracted and measured on  likert scale. Decision making/problem solving was
 106 assessed on 5 point likert scale of; (1) almost always, (2) usually, (3) about half the time, (4) rarely and (5)
 107 never. Self efficacy, accurate self assessment and self confidence were assessed on 5 point likert scale
 108 of; (1) strongly disagree, (2) disagree, (3) undecided, (4) agree and (5) strongly agree. Empathy,
 109 emotional awareness and coping with emotions were assessed on 6 point likert scale of; (1) always, (2)
 110 very frequently, (3) occasionally, (4) rarely, (5) very rarely and (6) never. Coping with stress was
 111 assessed on 5-point likert scale of; (1) very much, (2) often, (3) sometimes, (4) rarely and (5) not at all. 

112 **2.3.1. Measures of substance use**

113 Alcohol and substance use was measured by asking a question: ‘have you ever used the following
 114 (alcohol, Marijuana, Khat, Kuber, petrol/ aviation fuel, cigarettes, others?’ This question was asked to
 115 identify lifetime users. The questions that followed asked the frequency of taking alcohol and other
 116 substances e.g How often do you drink alcohol? Students could answer by ticking off the number of
 117 times they had used any of the substances:1= never,2=Tried but don’t use them now, 3=Once a year,
 118 4=Once a Month, 5= 2 to 3 times a Month, 6=Once a week,7=A few times a week. This question also
 119 served as validating question [23, 24]. According to the Health Behaviour in School Aged Children
 120 (HBSC) standard [25], the results on both answers were combined and recoded into five substance use
 121 subgroups: 1) Those who had never used (non use);2) Those who tried but do not use them now
 122 (discontinued use);3)Those who used once a year (experimental use),4) Those who reported using any of
 123 the substances between once a month and 2-3 times a month (regular non- heavy use);5) Those who
 124 reported using it once a week and a few times a week (regular heavy use).

125 For the purposes of this article, ‘use’ is defined as any one time use of alcohol or any substances, ‘non-
 126 use’ as not ever taken alcohol or other substances; ‘regular heavy use’ defined as using any of the
 127 substances at least once a week and ‘regular non heavy use’ as using any of the substances once a
 128 month or more and excludes those who have never used any substances and experimental users.

129 **2.2 Data management, analysis and handling of confounding factors**


130 Data was entered in EpiData Version 3 and exported to the Statistical Package for Social Scientists
 131 (SPSS) version 16.0 for cleaning, editing and analysis. We compared young people from central and
 132 northern Uganda on selected socio-demographics, using frequency distributions and the two-way
 133 contingency table analyses. In order to incorporate multistage sampling design in our survey analyses,
 134 we chose SPSS complex Samples model using robust standard errors to obtain 95% confidence intervals
 135 and p values in a weighted and multistage sample[27]. Alcohol use was included in the model as a
 136 dependent variable, dichotomised into 'use' (reference category) and 'non use'. Psychosocial
 137 competence levels on each of the eight components were included as factors and confounding variables
 138 as covariates. These variables were included in a Logistic regression model.

139 To investigate the association between frequency of alcohol use and psychosocial competence, a five-
 140 category alcohol use variable was created (see Measures section): non use (reference group),
 141 discontinued use, experimental use, regular non heavy use and regular heavy use. This five-category
 142 variable was included in the model as an dependent variable while correcting for age, gender, nature of
 143 housing, experience of violence orphanhood, family history of mental illness depressive symptoms as
 144 independent variables. All analyses were carried out with SPSS version 13 for Windows. Level of
 145 significance was set at $p < 0.05$.

146

147 3. RESULTS

148 3.1. Socio-demographic characteristics

149 Out of the targeted sample of 3,200, data from 2,902 young people was collected using questionnaires
 150 and analyzed. To be consistent with the population of targeted students in the Kampala and Gulu,
 151 proportionate sampling was used. Consequently, out of the 2,902, 2,502 (86.2%) participants came from
 152 the Central region (Kampala) while 400 (13.8%) were from the Northern region (Gulu). Male to female
 153 ratio was 1:1 with age range of 12 to 24 years and a mean age of 16.5 

154 Respondents from the North were more likely to be males, of age group 17-20 years protestants or
 155 Catholics, be double orphan ,have family history of mental illness and more likely to experience domestic
 156 violence but less likely to have semi permanent or permanent house and 2 or more rooms(Table 1).

157

158 **Table 1: Socio-demographic characteristics of the study participants in Central and Northern**
 159 **region**

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Variables	Region		P Value	OD (95%CI)
	Central	Northern		


	N (%)	N (%)		
Age				
12-16	1396 (55.8)	181 (45.3)	Ref	Ref
17-20	1052 (42.0)	215(53.8)	<0.000	1.57(1.27-1.96)
21-24	55 (2.2)	4 (1.0)	.57	0.40 (0.17-1.67)
Gender				
Male	1228 (49.1)	231 (57.8)	.001	0.71(0.57-0.87)
Female	1274 (43.9)	169 (42.3)		
Class				
S2	785 (31.4)	122 (30.5)	Ref	Ref
S3	705 (28.2)	105(26.3)	.78	0.99(0.72-1.28)
S4	584 (23.3)	112 (28.0)	.15	1.23 (0.93-1.65)
S6	428(16.7)	61(15.1)	.41	0.62(0.19-2.31)
Religion				
SDA	157 (6.3)	3 (0.8)	Ref	Ref
Protestant	583(23,3)	131(32.8)	<0.000	11.76 (3.57-46.84)
Catholic	744 (29.7)	219 (54.8)	<0.000	15.41 (4.71-60.98)
Muslim	580 (23.2)	17 (4.3)	.78	1.53 (0.42-6.67)
Pentecostal	404(16.1)	30 (7.5)	.02	3.89 (1.11-16.21)
Others (JW&Trad)	34 (1.4)	0.0	1.00	0.00 (0.00-10.86)
Both Parents alive				
Yes	1774 (70.9)	224 (56.0)	<0.000	1.90 (1.53-2.35)
No	728 (29.1)	176 (44.0)		
Orphanhood				
Maternal/Paternal Orphan	560 (29.1))	50(13.1)	<0.000	8.40 (5.71-12.38)
Double Orphan	168 (7.2)	126(30.9)		
Domestic Violence				
Don't want to say	111(4.4)	19 (4.7)	Ref)	Ref
Yes	585 (23.0)	139(34.8)	<0.000	0.005 (0.004-0.007)
No	1806(72.6)	248 (60.5)	<0.000	0.003(0.002-0.004))
Nature of Housing				
Hut	114 (4.6)	205 (51.3)	Ref	Ref
Semi permanent	683 (27.3)	99 (24.8)	,0.000	0.08(0.06-0.11)
Permanent House	1705 (68.1)	96 (24.0)	<0.000	0.03(0.02-0.04)
Number of rooms				
1 room	351(13.7)	142(35.1)	Ref	ref
2 rooms	692(23.2)	89(22.0)	<0.000	0.29(0.21-0.39)
3 rooms	625(24.5)	93(23.0)	<0.000	0.33(0.24-0.45)
More than 3 rooms	987(38.6)	80(19.8)	<0.000	0.21(0.16-0.28)
Family history of mental illness				

Yes	628 (25.0)	137(34.3)		
No	1874 (74.9)	263(65.8)	<0.000	0.64(0.51-0.81)

161

162 **3.2 Nature and extent of alcohol and substance use**

163 When the following direct question was asked: 'have you ever taken the following 1) *Alcohol* 2) *Marijuana*
 164 3) *Khat* 4) *Kuber* 5) *Petrol/ aviation fuel* 6) *Ciggarrettes* 7) *Any Other substances?*, 36.3% respondents
 165 reported that they had ever used the above substances; of these 66% were from Northern region. The
 166 commonest substance was alcohol (19.3%) followed by kuber (4.4%), Cigarettes (3.9%), Marijuana
 167 (2.9%), Aviation fuel (1.9%), and khat (1.7%). Other substances were mentioned including cocaine and
 168 heroin (2.2%). When a validating question was asked: 'How often (if ever) do you drink alcohol
 169 beverages, smoke marijuana etc, 70.1% had ever used alcohol and substances. The commonest
 170 substance was alcohol (23.3%) followed by Kuber (10.8%), Khat (10.5%), Aviation fuel (10.1%),
 171 Cannabis (9.2%) and cigarettes (5.9%). Respondents from the North were twice more likely to use all
 172 substances than those from Central Uganda (Table 2).

173 Among the users, again respondents from the North were more likely to be regular heavy users (defined
 174 as taking any substance at least once a week) of alcohol, Marijuana, Aviation Fuel and cigarettes. The
 175 differences between regular heavy users and regular non heavy users in regard to region were not
 176 however significant 

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178 **Table 2: Use and non-use of substance by region (Central and Northern)**

Substance of use	Region		P-value	Crude (95%CI)	ORs
	Central (n%)	Northern (n%)			
Alcohol					
Use	516(20.6)	159(39.8)**			
Non use	1986(79.4)	241(60.3)	<0.000	0.39(0.32-0.49)	
Marijuana					
Use	201(8.0)	67(16.8)**			
Non use	2301(92.0)	333(83.3)	<0.000	0.51(0.38-0.68)	
Khat					
Use	243(9.7)	70(17.5)**			
Non use	2259(90.3)	330(82.5)	<0.000	0.51(0.38-0.68)	
Kuber					
Use	247(9.9)	59(14.8)**			
Non use	2255(90.1)	341(85.3)	0.003	0.63(0.47-0.86)	
Fuel					
Use	239(9.6)	55(13.8)**			
Non use	2263(90.4)	345(86.3)	0.01	0.66(0.48-0.91)	
Cigarettes					
Use	127(5.1)	45(11.3)**			
Non use	2375(94.9)	355(88.8)	<0.000	0.42(0.29-0.60)	

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Significant at $p \leq 0.05$, * Use defined as any one-time use of alcohol or any substances, non-use as not ever taken alcohol or other substances

188 **3.3. Alcohol and psychosocial competence**

189 Non-users of alcohol in the central had higher percentages of low score on six (6) of the eight
 190 components of PSC. They were more likely to have low levels of PSC on the subscale of empathy
 191 ($P=.01$), emotional awareness ($P=.04$) and coping with emotions ($P=.001$). Non-users from the North had
 192 higher percentages of low score of PSC on 4 of the components with significant difference on decision-
 193 making and self-confidence.

194 They were less likely to have low levels of decision-making ($P=.03$) and self-confidence ($P= .01$). In the
 195 central region regular non-heavy use of alcohol was significantly associated with coping with stress; they
 196 were less likely to have low levels of PSC on coping with stress. There was a tendency of northern region
 197 to have higher percentages of low scores on PSC on five (5) of the eight components (table 3), none of
 198 which reaching significant levels. Non-users of alcohol in Central Uganda had low psychosocial
 199 competence but users and regular heavy users in Northern Uganda had lower psycho-social competence 

201 **Table 3: Alcohol use and non use by components of PSC and region**

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Components of PSC	Region		Crude ORs (95%CI)	P-value	Crude ORs (95%CI)
	Central Non use(N=1986) n(%)	Use(N=516) n(%)			
Decision making					
High	1513(76.2)	408(79.1)			192(79.7) 112(70.4)
Low	473(23.8)	108(20.9)	.17	1.18(0.93-1.50)	49(20.3) 47(29.6)
Self efficacy					
High	1461(73.6)	389(75.4)			156(64.7) 99(62.3)
Low	525(26.4)	127(24.6)	.40	1.10(0.88-1.37)	85(35.3) 60(37.7)
Empathy					
High	1034(52.1)	302(58.5)			146(60.6) 99(62.3)
Low	952(47.9)	214(41.5)	.01	1.23(1.07-1.58)	95(39.5) 60(37.7)
Emotional awareness					
High	1244(62.6)	349(67.6)			167(69.3) 111(69.8)
Low	742(37.4)	167(32.4)	.04	1.25(1.02-1.53)	74(30.7) 48(30.2)
Coping with emotions					
High	1061(53.4)	317(61.4)			414(58.5) 96(60.4)

Low	925(46.5)	199(38.6)	.001	1.39(1.14-1.69)	100(41.5)	63(39.6)	.71	1.08(0.72-1.63)
Coping with stress								
High	626(31.5)	182(35.3)			89(36.9)	59(37.1)		
Low	1360(68.5)	334(64.7)	.11	1.18(0.96-1.45)	152(63.1)	100(62.9)	.97	1.01(0.66-1.52)
Accurate self assessment								
High	1570(79.1)	394(76.4)			155(64.9)	93(58.5)		
Low	416(20.9)	122(23.6)	.18	0.86(0.68-1.08)	84(35.1)	66(41.5)	.24	0.78(0.52-1.18)
self confidence								
High	1563(78.3)	395(76.6)			178(73.9)	99(62.3)		
Low	423(21.3)	121(23.4)	.29	0.88(0.70-1.11)	63(26.1)	60(37.7)	.01***	0.58(0.38-0.89)

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205 **3.4. Results of Multiple Logistic regressions**

206 To control for the multiple explanatory variables on alcohol non-use, multiple logistic regression was
 207 done. In this model, self-confidence, non use of cannabis and kuber, age and having symptoms of
 208 depressive illness emerged as significantly associated factors of non-use of alcohol. Young people with
 209 high levels of self-confidence were more likely to be non-users of alcohol ($P=.0001$, adjusted OR =1.204,
 210 95% CI =1.147-1.260). Non-users of cannabis and Kuber were also likely to be non-users of alcohol ($P=$
 211 $.001$; Adjusted OR =1.050; 95% CI=7.477-1.260) and $P=.02$; OR=2.688; 95%CI=2.007-3.601)
 212 respectively. The age group of 17-20 was less likely to be non-users ($P=.003$; Adjusted OR =0.713; 95%
 213 CI= 0.630-0.807).

214

215 **3.5 Association between alcohol use and psychosocial competence in different user**
 216 **groups**

217 High levels of components of psychosocial competence of self-confidence, coping with stress and
 218 emotions were associated with discontinued and experimental use respectively. Those with high levels of
 219 self-confidence were less likely to discontinue use while high levels of PSC on the component of coping
 220 with stress were more likely to have discontinued use.

221 Those with PSC high levels on the component of coping with emotions were about 2 times more likely to
 222 be experimental users. The age group 17-20 emerged a strong predictor of the whole spectrum ranging
 223 from discontinued to regular heavy use (table 5)



224

225 **Table 5: Association between alcohol use and psychosocial competence in different user groups**

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<i>Alcohol user groups</i>	<i>P</i>	<i>Adjusted OR</i>	<i>95% CI</i>
Discontinued use			
Age (17-20)	.02	1.31	1.04-1.64
Self confidence (high)	.03	0.72	0.53-0.96
Coping with stress (high)	.05	1.29	1.01-1.66
Experimental use			
Age (17-20)	<0.0001	2.34	1.49-3.67
Coping with emotions (high)	.01	2.22	1.25-3.95
Regular non heavy use			
Age (17-20)	<.0001	1.88	1.45-2.45
Regular heavy use			
Age (17-20)	<.0001	2.13	1.43-3.15

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229 **4.0 DISCUSSION:**

230 **4.1 Key findings**

231 For students aged 12 to 24 in selected secondary schools in Northern and Central Uganda, 70.1% of
 232 respondents had ever used alcohol and substances. We found a discrepant level of nearly twice when a
 233 validation question was asked. This discrepancy in the rates of alcohol and substance use demonstrated
 234 by the two questions supports the view that response validity of substances use is highly dependent on
 235 the construction of the question, procedures for administration, investigators' perceived intentions and
 236 respondents' cognitive fitness [23, 24]. This finding is further supported by a study done in adults in IDP
 237 camps in Northern Uganda by Roberts and others in 2008 which revealed very low rates of alcohol and
 238 outright denial of alcohol use by interviewees who were drunk even at the time of interview[28]

239 Only 39.1% of our respondents used substances regularly. The commonest substance was alcohol
 240 23.3%, Kuber 10.8%, Khat 10.5%, Aviation fuel 10.1%, Cannabis 9.2% and cigarettes 5.9%. The finding
 241 that alcohol is the substance most commonly used by secondary school youth is consistent with previous
 242 studies conducted among secondary school youth[3, 4, 29-31]. The somewhat new finding here that
 243 Kuber being the second most common illicit drug used. Not much is known about this drug that is thought
 244 to originate from India and is being sold in Ugandan supermarkets in sachets similar to tea bags

245 disguised as mouth freshener since 2009[32]. It is thought to be a CNS stimulant, libido enhancing, highly
246 addictive with some of its users experiencing psychotic and depressive like symptoms[33].

247 When considering the continuum of alcohol use by gender, males in this study generally had higher
248 prevalence rates of discontinued, experimental, regular non-heavy and regular heavy use than females.
249 Respondents in the Northern Uganda were twice more likely to use all substances. The risk of having low
250 levels psychosocial competence among respondents from the Central was high among non-users of
251 alcohol and other substances. While both users and regular-heavy users from the North had lower levels
252 of psychosocial competence. This finding may mean that use and non-use of alcohol and substances in
253 the two regions are influenced by same factors differently. One explanation for this finding may be that
254 resilience may be content and context specific, i.e. a young person may be able overcome one type of
255 risk but unable to overcome other type of risks. Researchers have found that different assets may be
256 associated with different risk and outcome pairings, as in our study, this makes it difficult to identify
257 universal protective or risk factors [34].

258 Holding the region constant, in multiple logistic regression, factors found to be significantly associated
259 with non use of alcohol are self esteem, use of cannabis and kuber, age and having symptoms of
260 depressive illness emerged as significantly associated with use of alcohol. Young people with high levels
261 of self-esteem were more likely to be non-users of alcohol. And among the users, those with high levels
262 of self-esteem were less likely to have discontinued use. Self esteem is about how we rate or appraise
263 ourselves and this attribute is closely related to self-confidence, a measure of one's beliefs about one's
264 own judgment, skills and abilities. The two concepts sometimes are used interchangeably. This finding
265 may seem contradictory but it is not far from what is in the literature. Previous studies have not provided
266 conclusive evidence about the relationship between self esteem and alcohol use or non use[21, 35]. For
267 instance, despite theory positing a negative relation between self-esteem and alcohol use, empirical
268 findings have indicated that in certain situations, delinquent activities (e.g., alcohol use) can enhance self-
269 esteem[36, 37]. Some of the explanations for this finding may be that rapid developmental change occurs
270 during adolescence and thus a lack of stability in either alcohol use or self-esteem could influence the
271 statistical reliability of their relations with one another[35]. Further, the operative mechanisms that link
272 self-esteem and alcohol are likely to be complicated, and thus not necessarily straightforward, to
273 delineate adequately[21, 35].

274 In this study, the finding that non users of cannabis and Kuber were also likely to be non users of alcohol
275 was not surprising as previous studies have indicated that most 13 and 15 year olds in Scotland in 2002
276 were not regular users of any substance (66%)[38]. The age group of 17-20 was less likely to be non-
277 users but more likely to be have discontinued, experimented, and was regular non-heavy and regular and
278 heavy use of alcohol and illicit drug use.

279 **4.2 Use of Alcohol and depressio**

280 Those who had Depressive symptoms as measured by Becks depression Inventory BDI-II were also likely
281 to be users. According to National Institute of Alcohol Abuse and Alcoholism study, nearly one-third of
282 people with major depression also have an alcohol problem, [39-41]. Previous research shows that
283 children who are depressed are more prone to develop alcohol problems once they reach adolescence
284 [42].Adolescents who've had an episode of major depression are twice as likely as those who aren't
285 depressed to start drinking alcohol[42].In studies with adult population, it has been shown that alcohol
286 abuse increases the risk for depression[39]. This connection may be because of the direct neurotoxic
287 effects of heavy alcohol exposure to the brain[43]. Alcohol related problems and depression might share
288 common trigger factors. Twin Studies have shown that the same factors that contribute to heavy drinking
289 in families also contribute to the risk for major depression [44-47]. Genetic studies have found a variant of
290 the gene CHRM2 [48] that is thought to be involved in several important brain functions like memory and
291 attention [53]. Variations in this gene might put people at risk for alcohol related problems and depression
292 [53].

293 **4.3 Use of alcohol and Coping:**

294 Those with high PSC levels of coping with stress and emotions were about twice more likely to have
295 discontinued or be experimental users respectively. Studies in animals have indicated that stress
296 increases alcohol consumption and that individual animals may differ in the amount of alcohol they
297 consume in response to stress [49]. Prolonged stress in infancy may permanently alter the hormonal
298 stress response and subsequent reactions to new stressors, including alcohol consumption [43, 50, 51].
299 Sigvardsson and others reported an association between certain types of alcoholism and adverse early
300 childhood experiences [52]. Part of our sample was drawn from the northern region that has experienced
301 war for time period that may correspond with time of birth of most of the respondents. The central region
302 has not be free of violence either.

303 **4.4 Limitations of the study**

304 Although we made all effort to counter some of the potential limitations of this study, there are some
305 aspects of the research that may limit the interpretation of our findings. One is the reliance on self-report
306 questionnaire and data. Responses to sensitive questions about undesirable or illegal behavior may be
307 biased and subjective. However, having prior knowledge that response validity of substances use is
308 highly dependent on the construction of the question, procedures for administration, investigators'
309 perceived intentions and respondents' cognitive fitness helped us in preparing beforehand. The
310 administration of the questionnaires in school classes, assuring anonymity, making clear our intentions
311 and asking a validating question as was done in this study, might have helped to generate reliable and

312 valid data[23, 24]. A limitation of conducting a school survey is that adolescents may be absent from
313 school as a result of alcohol and substance use and the same adolescents may also possibly have low
314 levels of psychosocial competence and poor coping mechanisms. This bias could have probably resulted
315 in an underestimation of the strength of the association between alcohol use and psychosocial
316 competence. However, the timing of the study- at the beginning of term, when academic stress may be
317 less may have minimized this bias. The study age group of 12 to 24 is a period of rapid developmental
318 change. We used regression models that may reflect static views of development. In our analysis, the
319 ages were grouped into 12-16, 17-20 and 21-24 to correspond with early adolescence, mid adolescence
320 and late adolescence respectively. Despite this age grouping, our results may not represent the best
321 approach to capturing possible dynamic relations between psychosocial competence and alcohol use. In
322 light of the possible dynamics underlying psychosocial competence and alcohol use in young people, it is
323 important that models be developed that can account for change reliably as part of the developmental
324 mechanisms linking psychosocial competence with alcohol use [35]. Finally, because of the cross-
325 sectional design of this study we cannot therefore make inferences on causal relations.

326 5.0 Conclusions

327 In this study, about three quarters of young people had ever used substances only once and slightly over
328 a third use it regularly. Of the substances evaluated, alcohol is the commonest, followed by Kuber while
329 cigarettes are the least used. Factors found to be significantly associated with non-use of alcohol are high
330 levels of self-confidence, non-use of cannabis and kuber, age group of 17-20 years and having symptoms
331 of depressive illness. In the alcohol user groups, a high level of coping was associated with discontinued
332 and experimental use.

333 Young people who have difficulties adjusting to emotional and life difficulties try to escape from their
334 problems by using alcohol or illicit drugs [53]. With time, the amount of life difficulties they have to cope
335 with exceeds their ability to respond resulting in the inability to achieve desired goals [54]. This overload
336 is experienced at school, families and social lives. It is therefore necessary that efforts are directed at
337 promotion of psychosocial competence e.g. problem solving skills; device strategies to strengthen self-
338 confidence; strategies to cope with stress, anxiety and depression. Further, setting up school mental
339 health program to promote mental health, identify and treat mental health problems early and lastly,
340 support to families of vulnerable young persons including the identification of family members with mental
341 health problems[55, 56]

342 8.0 Consent

343 Assent and consent was sought from all study participants at the time of recruitment. Participants below
344 the age of 18 years took detailed consent forms in English and local language to their parents or

345 guardians. The signed forms were brought back to the research assistants on the day of administration of
 346 the questionnaire. All those who declined to participate in the study were treated with respect and without
 347 prejudice. What to expect as a participant was made clear to all respondents. Confidentiality of
 348 information supplied by research participants and the anonymity of respondents were given utmost
 349 respect. All authors hereby declare that all researches have been examined and approved by the
 350 appropriate ethics committee and have therefore been performed in accordance with the ethical
 351 standards laid down in the 1964 declaration of helsinki [26].

352 2. Ethical Approvals

353 Ethical clearances were obtained from the Research and Ethics Committees of Makerere University
 354 Medical School (Uganda) and Uganda National Council for Science and Technology Committee on study
 355 of Human Subjects. Administrative clearance was obtained from Ministry of Education and Sports as well
 356 as relevant District Education Officers. The head teachers of the sampled secondary schools allowed the
 357 study in their schools.

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489 **ABBREVIATIONS**

490 List of abbreviations used: PSC-Psychosocial competence; WHO-World Health Organization

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