

Alcohol Use Disorders Among HIV and AIDS Patients at Kenyatta National Hospital (KNH) Comprehensive Care Centre, Nairobi, Kenya

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ABSTRACT

Alcohol has particularly harmful health effects in HIV-infected patients; therefore, HIV clinics are an important setting for integration of routine alcohol screening as an integral component of HIV care. In sub-Saharan Africa, little is known about AUDs among people attending HIV services.

Objective: To estimate the prevalence of alcohol use disorder in patients attending CCC at KNH

Design: A descriptive cross-sectional study

Setting: Comprehensive Care Center, Kenyatta National Hospital, Kenya carried out in the months of August to October 2014.

Method: Two hundred and seventy three participants were recruited for this study and interviewed about their socio-demographic characteristics. The World Health Organization's Alcohol Use Disorders Identification Tool (AUDIT) was used to measure probable hazardous, harmful and dependent use of alcohol ('alcohol use disorders'). Associations between AUDs and other variables were explored using logistic regression analysis. All variables associated with AUDs with a value <0.05 were included in the final multivariable model.

Results: The overall prevalence of AUD was 14% (38) broken as follows; 5.5% (15) had Hazardous/harmful drinking behavior with a cut off score of ≥ 8 or more. Those dependent on alcohol were 8.5% (23), with AUDIT score cut off point of ≥ 13 or more for women, ≥ 15 or more for men.

Conclusion: This study demonstrated that men are more vulnerable to AUDs and need special services to address the problem. The high prevalence of AUDs detected in our study highlights the need to integrate routine alcohol screening, AUD treatment and rehabilitation as part of HIV/AIDS intervention practices to better address alcohol use disorders in patients attending HIV/AIDS comprehensive care.

Keywords: Hazardous Harmful Alcohol use disorders, Alcohol dependence, HIV and AIDS, Sub-Saharan Africa, Mental health Depression.

INTRODUCTION

Data on the Global burden of disease (GBD) shows that alcohol use disorders (AUDs) contributed 3.8% of the burden (GBD, 2010 Vol. 380, 2012). In the year 2012, 139 million net disability-adjusted life years (DALYs) or 5.1% of the GBD and injury, were attributed to alcohol consumption (GBD, 2010, 2012). The WHO (2011) reported significant sex differences in the proportion of global deaths caused by alcohol, of which 7.6% of the deaths among males and 4.0% among females were attributed to alcohol. The AUDs were described as harmful and hazardous use of or dependence

on alcohol (WHO, 2011, Peltzer, et al. 2012). Harmful alcohol use was characterized as alcohol consumption pattern that was within the individual's control but which caused physical or mental problems and could also have had social consequences (WHO, 2012). Hazardous use of alcohol considered both the increased risk of harmful physical, mental or social consequences for the user and harm to others (WHO, 2012, DSM IV, 2000). Dependent alcohol drinking was characterized as alcohol use that took over a person's life to the extent that one had a physiological or psychological need to continue drinking (DSM IV, 2000).

Dependence was the most severe end of the AUD spectrum and it was invariably associated with many social, psychological and physical health problems (WHO, 2012, Medley A, Seth P, Pathak S, et al. 2014).

According to the Joint United Nations Programme on HIV and AIDS (UNAIDS, 2011), Sub-Saharan Africa (SSA) continued to bear the burden of the global HIV and AIDS pandemic. Accounting for just 12% of the world's population, the SSA was home to 68% of the global population of people living with HIV (PLHIV) and 70% of all new HIV infections (UNAIDS, 2011, Rosen, 2011). Enhancing and expanding HIV prevention, care, and treatment efforts was essential in order to continue with the current positive trend (José, Zuniga & Montaner; 2014).

Various countries in the SSA region with high HIV prevalence rates reported high levels of hazardous alcohol consumption (WHO, 2011). Alcohol use had been associated with increase in HIV incidence (Geis *et al.*, 2011; Ruzagira *et al.*, 2011; Seeley *et al.*, 2012) and prevalence (Hahn *et al.*, 2011) along with sexual risk-taking behaviors that lead to HIV transmission and acquisition, including multiple sex partners (Scott-Sheldon *et al.*, 2012); unprotected sex, coercive sex (Woolf-King & Maisto, 2011; Medley, et al. 2014) and transactional sex (Woolf-King & Maisto, 2011, Mongi, et al. 2013). Alcohol use among the PLHIV had negative health implications such as increased levels of depression (Nakimuli-Mpunguet *al*2011). Gender differences in the relationship between alcohol use, sexual risk behavior and HIV medication adherence (Pandrea *et. al.* 2010). Men were more likely to report alcohol use, to drink alcohol more frequently and to be identified as harmful, hazardous, or likely dependent drinkers than women (Esser, *et al.*, 2011, Kalichman, *et al.*, 2007). Women's alcohol use placed them at a greater risk for experiencing gender-based violence (Browne & Wechsberg, 2010; Pitpitan *et al.*, 2013). These gender differences highlighted the different roles that alcohol played in promoting HIV risk behavior between men and women (Geis *et al.*, 2011; Ruzagira *et al.*, 2011; Seeley *et al.*, 2012). The prevalence of AUDs was found to vary from 15% in a Ugandan University Teaching Hospital (Martine, 2008) and 39.4% in a specialist hospital in Nigeria (Goar, 2011). Factors found to be associated with AUDs in these settings included male gender,

psychological morbidity, smoking cigarettes, Christian religion, lower education, peer pressure, parental modeling and drinking in order to assist social interactions (Pengpid, 2011; Goar, 2011). The frequency of alcohol use among PLHIV attending comprehensive care in the SSA was unclear as most studies were conducted in the United States (Hahn *et al.*, 2011). Alcohol use among PLHIV highlighted the need to integrate delivery of effective and reasonable interventions for AUDs into HIV care (Medley, et al. 2014). The objective of this study was, to assess the prevalence of hazardous, harmful and dependent AUDs and the associated factors, in PLHIV attending HIV services at the CCC, in Kenyatta Hospital.

METHODS

This was a descriptive cross-sectional quantitative study conducted on two hundred and seventy two (N=272) participants (Cochran 1977) comprising 139 males and 133 females aged 18 years and above, not physically ill, literate (English, Kiswahili or both), voluntarily consenting in writing to partake the study and the disabled PLWHIV attending the CCC during a 3-month period from August to October 2014 at the Kenyatta National Hospital (KNH), Nairobi, Kenya, having factored in 20% of the study population for attrition. The population was sampled by systematic, proportionate and purposive sampling techniques. Eligible study participants were adequately informed about the study objectives, benefits and harms prior to voluntarily signing the consent forms followed by administration of the questionnaire by the researcher. The Beck's Depression Inventory' (BDI) was used to collect data on depression among the study participants. The Alcohol Use Disorders Identification Test (AUDIT) was used to screen for alcohol use among the PLHIV. Socio demographic characteristics were captured on the researcher's locally designed instrument. Fully completed questionnaires were entered into excel sheets on the computer the same day by the researcher and later analyzed using the Statistical Package for Social Sciences (SPSS) Version 20. The confidence level was set at 95% whose critical value t corresponded to 1.96 from the table of standard normal distribution and the p value was set at 18%.

RESULTS

The study population (N=272) participants, comprising 51.1% males and 48.9% females, giving a response and questionnaire return rate

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of 100% each. The baseline data from the study participants provided information about the socio-demographic characteristics of the patients attending the CCC at KNH, Nairobi. The study sought to identify the socio-demographic distribution of the participants (Table 1). The age distribution of the participants showed that more than half (55.9%) of the HIV-infected participants were adults aged 33 years and above were, 16.5% were aged 30-33 years, 11% were aged 25-29 years, 8.8%

were aged, 22-25 years and 7.7% were aged 18-21 years. The age factor showed that alcohol use started below the age of 18 years, an age bracket in which brain growth and development had not reached penultimate stage and achieved the level to accommodate challenges to the integrity of the brain. There was a surge in alcohol use from the age of 33 years onwards, an age bracket characterized entry into employment accompanied by entry into family responsibilities alongside early childcare.

Table 1. Socio-demographic characteristics (N=272)

Characteristic	Category	n	%
Gender	Male	139	51.1
	Female	133	48.9
Age (years)	18-21	21	7.7
	22-25	24	8.8
	25-29	30	11
	30-33	45	16.5
	>33	152	55.9
Marital status	Married	124	45.6
	Cohabiting	17	6.2
	Single	100	36.8
	Divorced	5	1.8
	Separated	22	8.1
	Widowed	4	1.5
Level of education	None	5	1.8
	Primary	37	13.6
	Secondary	102	37.5
	College	91	33.5
	University	37	13.6
Employment	Employed	116	42.6
	Self-employed	128	47.1
	Retired	7	2.6
	Never employed	17	6.2
	Laid off work	4	1.5
Income bracket (\$/month)	10-100	104	39.4
	100-200	75	28.4
	200-300	34	12.9
	300-400	20	7.6
	400-500	12	4.5
	>500	19	7.2
Religion	Catholic	104	38.2
	Protestant	126	46.3
	Muslim	12	4.4
	Other	30	11.0
Housing	Own	49	18.1
	Rented	174	64.2
	Friends	13	4.8
	Parents	28	10.3
	Other	7	2.6

Almost half (45.7%) of the study participants were married but the total in union was 51.8%, demonstrating the contribution of alcohol use on the family dysfunctioning; 36.8% were single, 8.1% were separated and 6.2% were cohabiting. The rest were either divorced or widowed. Only 1.8% of the study participants had no formal education and 13.6% had completed primary school educational level. Over four-fifths (83.6%) of the study participants had at least secondary school educational level that almost matched the national average of 85% literacy level, 37.5% had secondary school level of education, 33.5% had college education and 13.6% had university levels of education. These findings showed that a large population of the schooled study participants was literate and using alcohol, hence education was a risk factor for alcohol use. Most of the respondents (47.1%) had sources of income, whereby 46% were self-employed and 42.6% were employed. The rest had retired from employment, never been employed or they were laid off from employment. Over two-thirds (67.8%) of the

study participants earned an income below US\$ 200, implying that unemployment may have been one of the contributing factors to increased alcohol use; 39.4% earned US\$ 10-100 and

28.4% earned between US\$ 100-200. All the same, about 60.6% of the study participants earned income well above one dollar per day. About 12.9% earned between US\$ 200-300 a month. While 7.6% earned US\$ 300-400 and 4.5% earned US\$ 400-50,000. Only 7.2% earned US\$ 500 and above per month. Most of the participants (84.5%) were Christians, of whom 38.2% were Catholics and 46.3% were Protestants. Muslims comprised 4.4% of the study population, while other religions (African traditional, Atheists, Pagans and Hindus) comprised the remaining 11%. Less than a fifth (18.1%) of the study participants lived in their own houses, while 64.2% lived in rented houses, 10.3% lived with parents, 4.8% lived with friends and 2.6% lived with other people or facilities. This finding showed that those who used alcohol in this study were highly dependent on it (Table 1).

Most (82%) of those who tested for HIV among the study participants received treatment, demonstrating high access to health care services: 47.6% of them were referred to the VCT centres while 34.4% were given ARV treatment. The rest were treated and discharged from the hospital (Table 2b).

Table 2b. Treatment (N=272)

Treatment Provided	N (%)	%
Counseling only	28	10.3
Out-patient	19	7.0
In-patient	6	2.2
ARV's	94	34.4
Referred to CCC	130	47.6
Other	6	2.2

Alcohol Use Disorders

When the AUDIT tool was used to assess Alcohol Use Disorder (AUD) in this study, the majority (86%) of the study participants were found to be at low risk of SUDs. Among the study participants, 73.3% of them did not use alcohol while 12.7% were social drinkers and based on AUDIT scale, their scores ranged from

1-7. The prevalence of alcohol use disorders as undefined by the AUDIT score of ≥ 8 was found to be 14%, comprising of 5.5% with hazardous/harmful drinking behavior with a cut off score of ≥ 8 or more. Those dependent on alcohol were 8.5% of the study population, with the AUDIT score cut off point of ≥ 13 or more for women and ≥ 15 or more for men (Table 3).

Table 3. Alcohol Use Disorder (N=272)

Alcohol disorder risk	n	%
Never used alcohol	200	73.3%
Not at risk	33	12.7%
Harmful/Hazardous drinking	15	5.5%
Alcohol dependence	23	8.5%

Relationship between socio-demographic characteristics and alcohol use disorders

Quantitative statistical analysis (bivariate) of age, marital status, education, housing, HIV testing site, test results disclosure method and post-test care did not have statistically significant associations with alcohol abuse (p

value >0.05). However, being of male gender (p<0.0001) and income (p<0.0001) level had statistically significant associations with alcohol abuse. Those that were more likely to report alcohol abuse problems were male respondents (p<0.0001), retired and laid off respondents (p=0.05) and those with monthly income higher than Kenya shillings (kshs) 50,000 (Table 4).

Table4. Bivariate comparison for AUDIT and Socio-demographic characteristics of participants

		AUDIT Risk						Chi square	P value
		Not at risk		Harmful/Hazardous drinking		Alcohol dependence			
		n	%	N	%	n	%		
What is your gender?	Male	106	76.3	12	8.6	21	15.1	22.6	<0.0001
	Female	126	96.2	3	2.3	2	1.5		
Employment	Employed	91	79.1	11	9.6	13	11.3	15.2	0.055
	Self-employed	117	91.4	3	2.3	8	6.2		
	Retired	5	71.4	1	14.3	1	14.3		
	Never employed	17	100.0	0	0.0	0	0.0		
	Laid off work	2	66.7	0	0.0	1	33.3		
Income bracket in US\$/month	1-10	91	88.3	3	2.9	9	8.7	35.8	<0.0001
	10-20	69	92.0	3	4.0	3	4.0		
	20-30	27	79.4	4	11.8	3	8.8		
	30-40	16	84.2	0	0.0	3	15.8		
	40-50	8	66.7	4	33.3	0	0.0		
	>50	14	73.7	0	0.0	5	26.3		

Association between income and alcohol use

One third of the laid-off and retired (14%) had greater dependence on alcohol compared to the employed (11%) or the self-employed (6%). Income did not discriminate between the employed and self-employed, which formed the

majority of the study population. Income does not tell us much but we could consider alternative approaches for determining social economic status participants (by what the respondents own). Results are summarized in Table 6 below.

Table5. Association between Income and Alcohol Abuse

	Not at risk		Harmful/hazardous drinking		Alcohol dependence		X ²	P-value
	#	%	#	%	#	%		
Employment status								
Employed	91	78.4	11	9.5	13	11.2	15.2	0.055
Self-employed	117	91.4	3	2.3	8	6.3		
Retired	5	71.4	1	14.3	1	14.3		
Never employed	17	100.0	0	0.0	0	0.0		
Laid off work	2	50.0	0	0.0	1	25.0		
Income (US\$)								
10-100	91	87.5	3	2.9	9	8.7	35.8	<0.001
100-200	69	92.0	3	4.0	3	4.0		
200-300	27	79.4	4	11.8	3	8.8		
300-400	16	80.0	0	0.0	3	15.0		
400-500	8	66.7	4	33.3	0	0.0		
>500	14	73.7	0	0.0	5	26.3		

All forms of employment status did not have any significance on alcohol use (p=0.055) but low income at kshs 1,000 – 10,000 was significantly (p<0.001) related to alcohol use.

Multivariate Analysis of Socio-Demographic Factors and Alcohol Abuse

On multivariate analysis alcohol abuse was associated with male gender (OR=10, 95%

CI of OR [3.6 – 28.3], $p < 0.0001$) and severity of depression (OR=5.5, 95% CI of OR [2.1 – 14.3], $p < 0.0001$). The summary is shown in the Table 10 below.

Table 6. Multivariate Analysis for Socio-Demographic Associated with Alcohol Abuse

	Coefficient	S.E. of coefficient	P value	OR	95% C.I. for OR	
					Lower	Upper
Gender1	2.435	.599	.000	11.413	3.531	36.886
Age	.181	.204	.376	1.198	.804	1.786
Marriage	.208	.148	.160	1.231	.921	1.646
Education	-.028	.263	.915	.972	.580	1.630
Employment	-.458	.333	.170	.633	.329	1.216
Income	.185	.159	.246	1.203	.880	1.643
Religion	.159	.230	.489	1.172	.747	1.839
Housing	-.114	.266	.669	.893	.530	1.503
BECKS Score	1.586	.540	.003	4.883	1.693	14.077

DISCUSSION

In this study, the overall prevalence of AUDs scores ≥ 8 in this study was (14%), defined by an AUDIT score ≥ 8 . AUDs were present in almost one quarter of males, and less than 5% of females. Males were identified as hazardous drinkers compared to females 3.8% and also more likely to be dependent on alcohol than females.

Gender differences in alcohol consumption and attention to the ways that such gender differences both cut across are influenced by cultural differences (Fabián et al., 2013). Male drinkers consume larger quantities of alcohol than female drinkers do, and male drinkers experience more behavioral problems related to their drinking than female drinkers do (Bridget, 2014). In a study conducted among Scottish Highlanders, where female drinking is particularly deplored but nonetheless occurs, alcoholic beverages consumed by women are often conveniently granted a sort of honorary ‘non-alcoholic’ status, such that their consumption does not count as ‘drinking’ (McDonald, 1994; Purcell, 1994). A weaker, sweeter version is considered suitable for women, while ‘strong’ and ‘fierce’, is a man’s drink. Fewer 4.6% females had 12 or more days of heavy drinking (5 drinks per day), compared to 16.5% of men. This result indicate that men use alcohol in terms of everyday transitions; where alcohol is used to mark the transition from work to play and where drinking is associated with recreation and irresponsibility, thus men are more inclined to have higher levels of alcohol-related problems. Heavy drinking is

associated with risky sexual behaviors. Further, in Kenya, alcohol consumption frequently occurs in settings (e.g., bars, clubs, and informal drinking places) where unprotected sex with several partners is likely to occur as is indicated by Kalichman et al. 2007b. This has also been shown in a Kenyan study (Mackenzie and Kiragu 2007) where current drinkers were four times more likely to have multiple sexual partners than nondrinkers. Other studies have shown that alcohol-serving establishments often are also the places where sex partners meet, resulting in the formation of “sexual networks” in which HIV can spread rapidly (Chersich and Rees 2010; Weir et al. 2003). Finally, alcohol dependence may lead to trading sex for drinks, as has been reported in South Africa (Kalichman et al. 2007a).

Our results in this study are also comparable to other findings from hospitals in Africa where the prevalence of AUDs varies from 12% in a teaching hospital in Nigeria (Farly, et al., 2010), 15% in a Ugandan university teaching hospital (Martinez, et al., 2008). Other studies from Africa also show a substantially higher prevalence of AUDs in PLWHA. Estimates from a case study control study of factors associated with late presentation to HIV/AIDS care among PLWHIV in South Wollo Hospital, Ethiopia report 33.8% and another study from Jimma Hospital, Ethiopia on defaulters from antiretroviral treatment among PLHIV 36.5% (Deribe, Hailekiros, Biadgilign et al. 2008), the two studies did not use a standardized questionnaire to define AUDs. In Nigeria the prevalence of AUDs in PLWHA was 39.4% (Goar et al, 2011).

In this study, harmful alcohol use was found in 5.5% of the total participants, which differs substantially from a similar study carried out in Nigeria in which the prevalence was 28.8% (Goar et al., 2011). In this study, hazardous alcohol use was found in 14% of participants. This is slightly lower than the prevalence of hazardous drinking found in similar studies from Uganda (15.4%) (Martinez et al., 2008) and is higher in similar studies from Nigeria (10.6%) (Goar et al., 2011).

The prevalence of dependence 8.5% found in our study was higher than the result from a study of alcohol use disorders and associated factors among people living with HIV attending services in south west Ethiopia of 5.1% (Matiwos&Markos et al. 2014). Across Africa, reports of alcohol use among HIV positive persons show variable rates. Sebit et al. observed a prevalence of alcohol use among HIV positive adult outpatients in Zimbabwe of 24.3% (Sebit et al. 2003) while Shaffer et al. recorded 54% of both HIV positive and negative public clinic patients in Kenya as hazardous drinkers according to the AUDIT (Shaffer et al. 2004). The reason for the difference may be due to the different tools used in this study (AUDIT vs. CAGE), as the CAGE is used to detect severe alcohol use disorders (alcohol dependence rather than harmful use or hazardous drinking). Another reason would be the application of a lower AUDIT cut-off point than the recommended cut-off (lower than 8). Another reason could be cultural differences.

Another association was in respondents whose monthly income was higher than Kenya shillings 50,000. The more income people have, the more educated they are and the higher their social status or class, the more likely they are to drink alcoholic beverages (Holder, 1998). This association contradicts the one observed between alcohol abuse and employment and also reports in literature of a negative association between higher income and alcohol abuse. A probable explanation could be the objective self-report of employment status compared to non-verifiable reporting of income. There is need for studies designed using verified and dependable measures of social economic status to clarify associations between alcohol consumption and income or social economic status. This relationship between being male, being depressed and abusing alcohol suggests that men have poorer coping mechanisms and are therefore more susceptible to alcohol abuse.

This study found AUDs to be higher among male gender (23.7%) as compared to the female gender (3.8%); which is in agreement with other studies done in different countries (Farly, 2010, Goar et al, 2011). This strong association with male gender is similar to findings of studies of hazardous alcohol use in patients with and without HIV conducted in South Africa (Myer, et al., 2008) and Kenya (Myer et al., 2004). Both the retired (28.6%) and the laid-off (33.3%) had statistically significant association with alcohol use disorder. This indicated that, loss of income and their livelihood may have contributed to their alcohol use disorder. On multivariate analysis alcohol abuse was associated with male gender (OR=10, 95% CI of OR [3.6 – 28.3], $p<0.0001$) and severity of depression (OR=5.5, 95% CI of OR [2.1 – 14.3], $p<0.0001$). Severity of depression was also linked to AUD. This can be postulated to mean that individuals who drink alcohol do so to reduce emotional stress. This may be self-medicating with alcohol as has been documented by Grant et al., 2009, and a link has been shown where depression predicted alcohol use disorder and alcohol use disorder predicted depression (Marmorstein, 2009).

The reasons for this interrelationship are complex. A cause-effect relationship could not be established because our study employed a cross-sectional study design. Research supports an association between alcohol use and depressive symptoms among HIV patients, few studies have examined whether depressive symptoms predict subsequent drinking, especially among HIV-infected patients or vice versa (Palfai, 2013).

Limitations

This study employed a cross-sectional design. Data were collected in only one CCC, which may not be representative of AUD in PLWHA in Kenya. The study was a self-reported data; there exists a reporting bias in these findings. The reliability of reporting risk behaviors in care settings is sometimes questionable.

Recommendations

Our study brings to light the need for routine alcohol screening as an integral component of HIV care. AUDs treatment should be introduced as part of the HIV/AIDS intervention. Given the high prevalence of AUDs among individuals seen at CCC, there is a clear need for further

research into the determinants of alcohol use in these populations, as well as simple screening tools which can be used to identify psychopathology in HIV-infected individuals, and ultimately, support the development of strategies to effectively manage the comorbidities not only in specialized clinical but in primary health care settings. Future work could usefully study prevalence in an HIV-negative control group.

CONCLUSION

These results indicate that there is a significant burden of AUDs among HIV-infected individuals attending the specialized CCC at KNH. We demonstrated that men are more vulnerable to AUDs and need special services to address the problem. The high prevalence of AUDs detected in our study highlights the need to integrate routine alcohol screening, AUD treatment and rehabilitation as part of HIV/AIDS intervention practices to better address alcohol use disorders in patients attending HIV/AIDS comprehensive Care.

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