Prevalence and Predictors of Alcohol Use among Female Patients Living with HIV/AIDS in Machakos County, Kenya

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Abstract

Increased alcohol consumption is associated with sexual risky behaviour, poor quality of life, poor antiretroviral adherence, and increased morbidity among people living with Human-Immunodeficiency Virus (HIV). The objective of this study was to determine the prevalence of alcohol use among females living with HIV in Machakos County, Kenya. This study also sought to assess demographic factors that act as predictors of alcohol use in the study population. A sample size of 313 participants was selected using convenience sampling technique as they received HIV outpatient care in selected hospitals in Machakos County. The research used CAGE questionnaire and researcher-generated socio-demographic questionnaire to collect the data. The results of the study showed the prevalence of alcohol use among female participants aged 20-29 was 4.5%, among those aged 30-39 at 8.6%, and 16% among participants aged 40-50. The test for odds ratio revealed that marital status, attending religious service, employment status, and health status were significantly related to alcohol use among the participants. On the other hand, age, level of education, financial constraints and having strong family support were insignificantly related to alcohol use. Multinomial regression statistics showed that being divorced, separated, attending religious service, full-time employment status, verbal stigmatization, and poor health status were predictors of alcohol use among female patients living with HIV (p's <0.05). It is concluded that in order to avert the negative impacts of alcohol use on health outcomes among HIV patients, early screening for alcohol use, and appropriate interventions in managing life issues need be prioritized in HIV care clinics in Kenya.

Key words: alcohol use, prevalence, predictors of alcohol use, HIV.

Introduction and Background

Alcohol use is a public health concern, a phenomenon which is common among HIV patients (de Silva, Mendoza-Sassi, da Mota, Nader, & de Martinez, 2017). Evidence across nations has shown that alcohol use may adversely affect the lives of individuals living with HIV. For instance, it has been estimated that 40-50% of people with HIV have a history of alcohol

abuse or dependence (Neblett et al., 2010; de Silva et al., 2017). An investigation in North Carolina focusing on the prevalence of mental health and substance use issues among HIV patients in a clinical setting established that alcohol use among the participants was high (19.1%). The study also pointed out that alcohol use was significantly associated with poor medications adherence, depressive symptoms, and being aged less than 35 years (Skalski et al., 2015). Additionally, researchers have reported that alcohol use is prevalent among HIV infected individuals and is associated with HIV re-infection and transmission through high-risk sexual and injection-related behaviors (Theall, Clark, Powell, Smith, & Kissinger, 2007; Samet et al., 2007). Further, a study by de Frota Santos and others (2017) among HIV patients in Brazil revealed that alochol consumption among HIV patients was 10.5%, and it was associated with poor quality of life. Another Brazilian sample comprising people living with HIV demonstrated that lower adherence to active antiretroviral therapy was positively correlated with alcohol use, and poor biological markers (Silva et al., 2017). Among a Portuguese sample on antiretroviral therapy, 33.3% of the participants were vulnerable to alcohol consumption (Rego et al., 2011).

A study on the prevalence and correlation of alcohol dependence disorders among persons receiving treatment for HIV and TB treatment in Zambia reported alcohol dependence prevalence rate at 27.2% among men, and 3.9% among women (O'Connell et al., 2013). O'Connell and others' study also showed that factors associated with alcohol dependence disorder among men were being single, divorced, and widowed whereas being unemployed was linked to alcohol dependence among women. Several other studies demonstarted that psychological morbidity, smoking cigarettes, Christian religion, lower education, peer pressure, parental modeling and drinking were potential predictors of alcohol use or dependence among people living with HIV (Goar, Audu, Agbir, & Dochalson, 2011; Pengpid, Pelzer, & van der Heever, 2011; Soboka, Tesfaye, Feyissa, & Hanlon, 2014). Another study also found that not being employed, internalized stigma and lack of family support were significant predictors of alcohol use among women living with HIV in South Africa (Peltzer, 2013).

Several studies in Kenya on alcohol dependence and propable socio-demograhic assocciates in different sample populations have been carried out by various scholars. For instance, Ndegwa, Munene, and Oladipo (2017) conducted a study among university students in Kenya and reported a high risk (39.3%) of alcohol use, and its association with sociodemograhic

factors. Although evidence has demonstrated that socio-demograhic factors influence alchol use, and this in turn negatively impacts the life of an individual, (Ndegwa et al., 2017; Soboka at al., 2014), limited studies have concetrated in HIV infected populations. The purpose of the present study was to establish the prevalence of alcohol use and associated socioeconomic and demograghic factors in HIV positive women attending outpatient clinics in Machakos County, Kenya.

Methodology

This study employed a cross-sectional research design carried out between the months of August 2017 and March 2018. The target population of the study were females living with HIV attending HIV clinics in Kenya. However, the study participants were identified using convenience sampling as they visited Machakos Level 5 and Kangundo Level 4 hospitals to receive regular HIV care. The hospitals were selected using simple random sampling. A total of 313 female HIV patients aged 20 to 50 were recruited using Casagrande, Pike and Smith (1978) formula to calculate the sample size. The significance level was set at 0.05, the confidence level of 95% and the power at 80%. Data was analyzed using the Statistical Package for Social Sciences version 21.

Ethical considerations to ensure that the research process did not cause physical, emotional, mental and psychological or any other harm to participants were considered. Participation was voluntary. Informed consent was sought from participants. Confidentiality and anonymity were guaranteed, and data was kept under key and lock. Institutional approval from Daystar University Research and Ethics Review Board was secured. Permit to conduct the study was obtained from National Commission for Science, Technology and Innovation. Also, approvals were sought from Machakos County Director of Education, Machakos County Commissioner, and Machakos County Director of Health and Emergency Services.

Participants completed a self-administered researcher-generated socio-demographic questionnaire and the Cut down, Annoyed, Guilt, and Eye opener (CAGE) questionnaire. The socio-demographic questionnaire sought information on age, marital status, religious attendance, financial constraints, employment status, and level of education, family support, health status, and verbal stigmatization. Also, the socio-demographic questionnaire contained a Yes/No response to the question "do you use alcohol?" to assess those who were at risk of

abusing alcohol. Participants who affirmatively responded to the dichotomous question were asked to complete the CAGE.

The CAGE questionnaire was developed in the United States in 1970 by John Ewing (Williams, 2014) for use in screening for alcohol use problem in health care settings. It has four questions with a yes/no response. A score of 2 or more out of 4 CAGE questions is indicative of clinically significant alcoholism (Vissoci et al., 2018). A score of one out of four is indicative of a likelihood of developing alcohol use issues. Several scholars have shown that the psychometric properties of CAGE were sound. For instance, Crementhe, Ledesema, Cherpital, and Borges's study seeking to establish the psychometric characteristics of CAGE and other related alcohol screening tools across three countries (Argentina, United States, and Mexico) indicated that CAGE had good internal consistency reliability (0.70 -0.80). Crementhe et al.'s findings were affirmed by a study in Tanzania examining the Swahili version of CAGE psychometric properties (Vissoci et al., 2018) which revealed that CAGE reliability was acceptable (>0.85).

Results

The distribution of socioeconomic and demographic characteristics of the participants is presented in Table 1. The age distribution of the participants was grouped into three categories namely 20-29 years, 30-39 years, and participants aged 40-50. Distribution of participants aged 40-50 was higher (162, 51.8%) compared to those aged 30-39 (101, 32.3%) and participants aged 20-29 (50, 16.0%). Frequency of participants' marital status indicated that those whose marital status was married was higher (143, 45.7%) as opposed to those who were divorced (27, 8.6%), separated (35, 11.2%), single (64, 20.4%) and widowed (44, 14.1%). Additionally, frequency of participants attending religious service was higher (284, 90.7%) than that of participants who did not attend religious service (29, 9.3%). Also, frequency of participants whose level of education was secondary was higher (157, 50.2%) compared to primary (103, 32.9%), college (41, 13.1%) and university (12, 3.8%).

Distribution of participants' employment status revealed that participants who were not in the workforce were higher (93, 29.7%) compared to full-time (65, 20.8%), part-time (86, 27.5%) and self-employed (69, 22.0%). Distribution of participants who were financially constrained was higher (210, 67.7%) as opposed to those who were not financially constrained (100, 32.3%). Furthermore, frequency of participants who did not have strong family support was

slightly higher (161, 51.6%) than those who claimed to have strong family support (151, 48.5%). Moreover, distribution of participants who were not verbally stigmatized was considerably higher (269, 86.8%) as opposed to participants who reported verbal stigmatization (41, 13.2%). Similarly, frequency of participants' health status shows that those whose health status was perceived to be good was higher (140, 44.7%) than those who perceived their health status to be poor (6, 1.9%), fair (114, 36.4%), and excellent (53, 16.9%). Furthermore, distribution of participants' alcohol use showed that those who did not consume alcohol was significantly higher (222, 70.9%) compared to those who used alcohol (29.1%).

Table 1: Socio-Economic and-Demographic Characteristics of the Participants (n=313)

Variables	Categories	Frequency	Percentage
Age (Years)			
	20-29	50	16.0
	30-39	101	32.3
	40-50	162	51.8
Marital Status			
	Married	143	45.7
	Divorced	27	8.6
	Separated	35	11.2
	Single	64	20.4
	Widowed	44	14.1
Attending Religious Service			
	Yes	284	90.7
	No	29	9.3
Level of Education			
	Primary	103	32.9
	Secondary	157	50.2
	College	41	13.1
	University	12	3.8
Employment Status			
	Full time	65	20.8
	Part time	86	27.5
	Not in workforce	93	29.7
	Self-employed	69	22.0
Financial Constraint			
	Yes	210	67.7
	No	100	32.3
Family Support			
	Yes	151	48.4
	No	161	51.6
Verbally Stigmatized			
	Yes	41	13.2
	No	269	86.8
Health Status			
	Poor	6	1.9

	Fair	114	36.4
	Good	140	44.7
	Excellent	53	16.9
Alcohol Use			
	Yes	91	29.1
	No	222	70.9

Bivariate statistics showing the prevalence of alcohol use among the participants are presented in Table 2. In terms of age categories, the prevalence of alcohol use was slightly higher among participants aged 40-50 (16.0%) in comparison to those aged 30-39 (8.6%) and those aged 20-29 (4.5%). The chi-square test of association showed no significant association between participants' age and alcohol use (p=0.760). This implies that age may not be a risk factor for alcohol use among HIV positive women in Machakos County. The prevalence of alcohol use as regards participants' marital status was 12.1% and it was higher among married participants compared to those whose marital status was reported as divorced at 4.5%, separated at 5.1%, single at 4.8%, and widowed at 2.6%. Statistical analysis indicated that there was a significant association between participants' marital status and alcohol use (p=0.004). These findings seemed to suggest that marital status could be a determinant of alcohol use among females living with HIV in Machakos County.

The proportion of participants who used alcohol was significantly higher (23.6%) among those who attended religious service in comparison to participants who did not attend religious service (5.4%). Chi-square analysis indicated that there was a strong relationship between attending religious services and alcohol use among female patients living with HIV at Machakos County in Kenya (p=0.0001). This may be interpreted to mean that HIV positive females who attended religious service were more likely to use alcohol as opposed to their counterparts.

As regards participants' level of education, the prevalence of alcohol use was 14.4%. The prevalence of alcohol use was higher among participants whose level of education was primary (8.6%), while that of college was 4.2%, and university was 1.9%. There was no significant relationship between participants' level of education and alcohol use (p=0.375). These results imply that educational level did not influence participants to use alcohol. Further, the prevalence of alcohol use among female patients living with HIV as regards employment status was 9.3%. This was noted to be higher among participants who were unemployed than those whose employment status was full-time at 8.6%, part-time at 6.1%

and self-employed at 5.1%. Chi-square analysis indicated that there was a significant relationship between participants' employment status and alcohol use (p=0.040). The interpretations of these results are that employment status may influence alcohol consumption among HIV positive females.

The prevalence of alcohol use was high (20.6%) among participants who were financially constrained as opposed to those participants who were not (8.7%). There was no significant association between participants' financial status and alcohol use (p=0.530). Alcohol use prevalence was higher (14.4%) among participants who had strong family support in comparison to those participants who did not have strong family support (14.4%). Chi-square statistics indicated that there was no significant association between participants having strong family support and alcohol use (p=0.625). These results indicated that financial constraints and having strong family support did not influence women living with HIV alcohol use behaviour.

The proportion of participants who consumed alcohol was marginally higher (23.5%) among those who were not verbally stigmatized than those participants who were verbally stigmatized (5.8%). There was a statistical relationship between being verbally stigmatized and alcohol use among female patients living with HIV (p=0.028). This may be interpreted to mean that female HIV individuals who are verbally stigmatized are more likely to misuse alcohol. Moreover, in terms of participants' health status, the prevalence of alcohol use was 16.0% among those who perceived their health status to be fair as opposed to those who perceived their health status to be good at 9.6% and excellent at 3.5%. The chi-square analysis indicated that there was a strong association between participants' health status and alcohol use (p=0.0001). The findings imply that HIV positive women in Machakos County who perceived their health status as fair were more likely to use alcohol.

Table 2: Bivariate Statistics Showing Prevalence of Alcohol Use among the Participants (n=313)

Variables	Frequency	Alcohol use Yes	No	Chi-square	df	P value
Age (Years)						
20-29	50 (16.0)[†]	14 (4.5)	36 (11.5)	.548	2	.760
30-39	101 (32.3)	27 (8.6)	74 (23.6)			
40-50	162 (51.8)	50 (16.0)	112 (35.6)			
Marital Status						
Married	143 (45.7)	38 (12.1)	105 (33.5)	15.444	4	.004

Divorced	27 (8.6)	14 (4.5)	13 (4.2)			
Separated	35 (11.2)	16 (5.1)	19 (6.1)			
Single	64 (20.4)	15 (4.8)	49 (15.7)			
Widowed	44 (14.1)	8 (2.6)	36 (11.5)			
Attending Religious Service						
Yes	284 (90.7)	74 (23.6)	210 (67.1)	13.532	1	.000
No	29 (9.3)	17 (5.4)	12 (3.8)			
Level of Education						
Primary	103 (32.9)	27 (8.6)	76 (24.3)	3.108	3	.375
Secondary	157 (50.2)	45 (14.4)	112 (35.8)			
College	41 (13.1)	13 (4.2)	28 (8.9)			
University	12 (3.8)	6 (1.9)	6 (1.9)			
Employment Status						
Full-time	65 (20.8)	27 (8.6)	38 (12.1)	8.289	3	.040
Part-time	86 (27.5)	19 (6.1)	67 (21.4)			
Not in work force	93 (29.7)	29 (9.3)	64 (20.4)			
Self-employed	69 (22.0)	16 (5.1)	53 (16.9)			
Financially Constrained						
Yes	210 (67.7)	64 (20.6)	146 (47.1)	.395	1	.530
No	100 (32.3)	27 (8.7)	73 (23.5)			
Strong Family Support						
Yes	151 (48.4)	46 (14.7)	105 (33.7)	.238	1	.625
No	161 (51.6)	45 (14.4)	116 (37.2)			
Verbally Stigmatized						
Yes	41 (13.2)	18 (5.8)	23 (7.4)	4.822	1	.028
No	269 (86.8)	73 (23.5)	196 (63.2)			
Health Status						
Poor	6 (1.9)	0 (0.0)	6 (1.9)	20.293	3	.000
Fair	114 (36.4)	50 (16.0)	64 (20.4)			
Good	140 (44.7)	30 (9.6)	110 (35.1)			
Excellent	53 (16.9)	11 (3.5)	42 (13.4)			

†Values in parenthesis shows percentages

Table 3 presents a likelihood ratio test showing statistics comparing the probability of two statistical models: a null model against an alternative model. The table expresses a log-likelihood ratio that the effect of socioeconomic and demographic variables was equivalent to alcohol use among female patients living with HIV in Machakos County. It was assumed that the numerator (socioeconomic and demographic variables) corresponded to the likelihood of an observed outcome (alcohol use) under the null hypothesis as compared to the alternative hypothesis. As indicated on Table 3, participants' age, level of education, financial status and having family support corresponded to the likelihood of an observed outcome under the null hypothesis (P's>0.05). This implies that the probability of participants' age did not correspond to the likelihood of alcohol use (p=0.922). Also, participants' level of education (p=0.960), participants' financial status (p=0.741), and having strong family status

(p=0.711) did not predict the probability of an observed outcome of alcohol use among the female patients living with HIV.

In the interim, the null hypothesis that the numerator (socioeconomic and demographic factors) did not correspond to denominator as observed outcome was rejected with other variables. The probability of participants' marital status as numerator corresponds to the likelihood of an observed outcome (alcohol use) under the null hypothesis was rejected, while the alternative hypothesis was accepted (p=0.013). This implies that the probability of marital status to predict the observed outcome of alcohol use was significant. Similarly, the null hypothesis that participants attending religious service did not predict alcohol use was rejected as indicated on Table 3. The likelihood ratio test showed that the numerator (attending religious service) corresponds to the probability of denominator as observed outcome under the null hypothesis was rejected. The alternative hypothesis was accepted. This seems to implies that attending religious service was significantly a predictor of alcohol use among the female patients living with HIV (p=0.012).

Further, an assumption that employment status did not correspond to the likelihood of alcohol use under the null hypothesis was rejected while the alternative hypothesis was accepted (p=0.038). This means that the probability of employment status to predict the observed outcome of alcohol use was significant. Similarly, the probability that verbal stigmatization corresponded the likelihood of an observed outcome (alcohol use) under the null hypothesis was rejected, while the alternative hypothesis was accepted (p=0.028). This seemed to suggest that participants who were verbally stigmatized were likely to engage in alcohol use. Also, Table 3 shows that the null hypothesis that health status did not correspond to the likelihood of an observed outcome (alcohol use) was rejected as the alternative hypothesis was accepted (p=0.0001). This suggested that health status of female patients living with HIV statistically corresponded to alcohol use.

Table 3: Indicators of Alcohol Use Likelihood Ratio Tests

| Effect | Model Fitting Criteria | | | Likelihood Ratio Tests | | |
	AIC of Reduced Model	BIC of Reduced Model	-2 Log Likelihood of Reduced Model	OR	df	Sig.
Intercept	332.990	407.462	292.990[a]	.000	0	.
Age	329.153	396.177	293.153	.162	2	.922
Marital Status	337.649	397.226	305.649	12.658	4	.013

Religion	337.239	407.987	299.239	6.249	1	.012
Education	327.292	390.593	293.292	.302	3	.960
Employment	335.434	398.735	301.434	8.443	3	.038
Financial Constr.	331.100	401.848	293.100	.109	1	.741
Family Support	331.127	401.875	293.127	.137	1	.711
Verbally Sigma	335.815	406.563	297.815	4.824	1	.028
Heath Status	351.323	414.624	317.323	24.332	3	.000

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.
a. This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.

Table 4 presents multinomial logistic regression statistics showing how socioeconomic and demographic characteristics work as predictive independent variables of alcohol use among female patients living with HIV who participated in the study. Multinomial logistic regression was used to examine which independent variables predicted the dependent (outcome) variable. This type of statistical tool was used to understand which of the sociodemographic characteristics (independent variables) significantly predicted alcohol use (dependent variable) among the participants. For example, the participants aged 20-29 at β=.025 $\pm$ (SE: .425) appeared insignificant to be a predictor of alcohol use (p=0.903) Likewise, participants aged 30-39 at β=.136 $\pm$ (SE: .339) was also insignificant statistically to be predictor of alcohol use (p=0.687). These findings implied that age of HIV female patients did not predict alcohol use.

Participants' marital status was assessed using multiple regression to identify which of the marital status category could significantly predict alcohol use among the HIV female patients. The result of the statistics showed that married status of the participants' β= -.661 $\pm$ (SE: .479) was not significant to predict alcohol use (p=0.167). This seems to suggest that HIV married participants are not likely to engage in alcohol use. Also, participants whose marital status was divorced showed the β=-1.690 $\pm$ (SE: .645), and the statistical analysis showed that being divorced significantly predicted alcohol use (p=0.009). This result implies that HIV female patients who were also divorced were significantly likely to engage in alcohol use unlike HIV female patients whose marriage was stable. The participants whose marital status was separated showed the β=-1.552 $\pm$ (SE: .583), and the result of the multinomial regression indicated that the separated marital status was a predictor of alcohol use (p=0.008). This means that female patients living with HIV who were also separated with their husbands consumed alcohol. However, single and widowed participants showed the β= -

.459 ± (SE: .559), and the logistic regression test indicated insignificant predictive of alcohol use (p=0.411). The statistical analysis implies that HIV female patients that were single or widowed were unlikely to engross in alcohol use.

Furthermore, attending religious services was assessed using multinomial regression to establish whether attending religious service could predict alcohol use behaviour among HIV female patients. Attending religious service was β = 1.211 ± (SE: .494), and the result indicated that attending religious service predicted alcohol use among the participants (p=0.014). This implies that attending religious service did not prevent HIV female patients from consuming alcohol. Participants' level of education was also tested if the variable could be a predictor of alcohol use. Among those whose level of education was primary, the β was .237 ± (SE: .757); p= 0.754, Secondary was .060 ± (SE: .720); p= 0.934; College was .778 ± (SE: .046); p= 0.830; and University was -.754 ± (SE: 1.696); p= 0.657. The multiple logistic regression test results seemed to imply that none of education nominal variables were significantly predictors of alcohol use.

In addition, participants' employment status was evaluated statistically in order to establish if any of the variables predicted alcohol use. The full-time variables' Beta was -1.273 ± (SE: .474), p =0.007; Part-time was β = -.400 ± (SE: .450), p=0.374; Not in workforce was β = -.756 ± (SE: .417), p=0.070, Self-employed was β = -3.440 ± (SE: 1.476), p=0.501. The multiple logistic regression analysis indicated that among the participants' employment status variables, full-time seemed to be a strong predictor of alcohol use among the participants (p=0.007). These results seemed to imply that working on full-time basis significantly predicted alcohol use whereas being unemployed, working on part-time basis, and being self-employed did not predict alcohol use among the participants.

Participants who were financially constrained were also assessed to establish the possibility of the variable to predict alcohol use among the participants. The financial status of the variable as predictive variable was β = -.119 ± (SE: .362), p = .741. The statistical analysis showed that financial constraint was insignificant to be a predictor of alcohol use (p=0.741). This seemed to suggest that HIV female patients who were financially incapacitated were not likely to engage in alcohol use. Verbal stigmatization Beta was .945 ± (SE: .428). Logistic regression test showed that the verbal stigmatization was significant to predict alcohol use (p

= 0.027). This means that HIV female patients who were verbally stigmatized may resort to alcohol use.

Additionally, participants' health status was tested statistically in order to establish if any of the variables predicts alcohol use. The poor health status variable's Beta was 21.139 ± (SE: .000), p =0.002; Fair health status was β = -.826 ± (SE: 3.091), p= 0.079; good health status was β = .186 ± (SE: .442), p=0.674, excellent health status was β = -3.933 ± (SE: 1.755), p=0.781. The multiple logistic regression analysis of health status variable categorized as poor significantly predicted alcohol use (p = 0.002). This means that HIV female patients whose health status was poor resorted in alcohol use.

Table 4: Multinomial Regression Testing Socio-Demographic Characteristics as Predictive Factors of Alcohol Use among Female Patients Living with HIV

Participant's Alcohol use[a]							95% Confidence Interval for Exp (B)	
	B	Std. Error	Wald	df	Sig.	Exp (B)	Lower Bound	Upper Bound
NoIntercept	1.436	1.102	1.697	1	.193			
Age= 20-29	.052	.425	.015	1	.903	1.053	.458	2.424
30-39	.136	.339	.162	1	.687	1.146	.590	2.228
40-50	0[b]	.	.	0	.	.	.	.
MS: Married	-.661	.479	1.908	1	.167	.516	.202	1.319
Divorced	-1.690	.645	6.865	1	.009	.185	.052	.653
Separated	-1.552	.583	7.082	1	.008	.212	.067	.664
Single	-.459	.559	.675	1	.411	.632	.211	1.889
Widow	0[b]	.	.	0	.	.	.	.
Attending Rel. Yes	1.211	.494	6.012	1	.014	3.355	1.275	8.830
No	0[b]	.	.	0	.	.	.	.
Edu._S: Primary	.237	.757	.098	1	.754	1.267	.287	5.587
Secon.	.060	.720	.007	1	.934	1.062	.259	4.356
College	.167	.778	.046	1	.830	1.181	.257	5.428
Univers.	-.754	1.696	.026	0	.657	1.102	.214	.289
Emp: Full-time	-1.273	.474	7.216	1	.007	.280	.111	.709
Part-time	-.400	.450	.789	1	.374	.671	.278	1.619
Not in workforce	-.756	.417	3.285	1	.070	.470	.208	1.063
Self-empl.	-3.440	1.476	1.216	0	.501	.	.	.
Fin_C: Yes	-.119	.362	.109	1	.741	.887	.437	1.803
No	0[b]	.	.	0	.	.	.	.
Strong Family Support: Yes	-.113	.306	.137	1	.711	.893	.490	1.627
No	0[b]	.	.	0	.	.	.	.

Verbally stigmati: Yes	-.945	.428	4.876	1	.027	.389	.168	.899
No	0[b]	.	.	0	.	.	.	.
Heath_S:								
Poor	21.139	.000	.127	1	.002	1515606196.8	1515606196.8	1515606196.8
Fair	-.826	.470	3.091	1	.079	.438	.174	1.099
Good	.186	.442	.177	1	.674	1.204	.506	2.866
Excellent	-3.933	1.755	.	0	.781	.	.	.

Discussion

The objectives of this study were to determine the prevalence of alcohol use and to examine socioeconomic and demographic components as predictive factors associated with alcohol use among female patients living with HIV in selected hospitals in Machakos County, Kenya. This study found out that the overall prevalence of alcohol use among female patients living with HIV among participants was 29.1%. The finding was consistent with another study conducted in a health care setting in Kenya among HIV infected young adults that reported a high prevalence (33%) of alcohol use. The present study revealed a slightly higher alcohol use prevalence in comparison to other studies that found prevalence of alcohol use among female patients living with HIV between 3% and 16%. For example, a research on 'psychopathology and coping in recently diagnosed HIV/AIDS patients and the role of gender in South Africa' reported the prevalence of alcohol dependence among female HIV patients at 4.7 while that of males was 10.1% (Olley, Gxamza, Seedat, Theron, & Emile, 2003). Another study found the prevalence of alcohol use among female patients living with HIV at 15% (Samet, Phillips, Horton, Traphagen, & kenneth, 2004). A related study among HIV-infected female sex workers in India found the prevalence of alcohol dependence at 11% (Samet et al., 2010), and 15.8% prevalence of alcohol abuse among Russian female sex workers living with HIV (Krupitsky, et al., 2006).

As regards predictors of alcohol use among the participants, this study found that divorced (p=0.009), separated (p=0.008), attending religious service (p=0.014), full-time employment status (p=0.007), verbal stigmatization (p=0.027) and poor health status (p=0.002) were potential predictors of alcohol dependence among female patients living with HIV. Thus, the study showed that there was an association between social factors such as being divorced, separated and attending religious service and alcohol use. Similarly, the study demonstrated a strong likelihood of those individuals who are HIV positive and are unemployed, perceive

their health status as poor and are verbally stigma to consume alcohol. The results of this study concur with a study conducted in Zambia among HIV positive individuals that found being single, widowed or divorced to be associated with alcohol dependence disorder (O'Connell et al., 2013). In addition, studies in other parts of the world indicated that psychological morbidity, smoking cigarettes, Christian religion, lower education, peer pressure, parental modeling and drinking are potential predictors of alcohol use or dependence among people living with HIV (Goar, Audu, Agbir, & Dochalson, 2011; Pengpid, Pelzer, & van der Heever, 2011; Soboka, Tesfaye, Feyissa, & Hanlon, 2014). Further, a study in South Africa also found that not being employed, internalized stigma, and lack of family support were significant predictors of alcohol use among women living with HIV (Peltzer, 2013).

A few limitations emerged from the present study. First, this was a cross-sectional study and therefore casual relationships could not be explained. Longitudinal study designs could be applied to help establish existing casual relationships. Second, the study used self-report measures and this may have attracted social desirablity inspite of anonynity and confidentiality being assured. The results may therefore not be generalized to all HIV infected individuals in Kenya because study participants were recruited from two health facilties in Machakos County. Since differences in socio-ecomic factors may exist among HIV positive individuals based on geograpical area, future studies could replicate this study in other localities for better insights on this phenomenon. Finally, this study used socio-economic and demograhic questionaire and CAGE questionaire to collect data. The investigators of the present study recommend that future studies could use Alcohol Use Disorders Identification Test (AUDIT) or Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) for alcohol and substances related problems detection.

Conclusion

This study revealed that female patients living with HIV were likely to engage in alcohol consumption as a way to cope with the distress arising due to their medical condition. The prevalence of alcohol use among this population was found to be 16% among those aged 40-50, 8.6% among those aged 30-39, and 4.5% among participants aged 20-29 which was in accord with several other studies about this phenomenon. Socio-economic and demographic characteristics were found to be potential predictors of alcohol use among female patients living with HIV. Since this study has proven that alcohol use was rampant among HIV

outpatients in healthcare settings, screening and assessment for alcohol use should be an integral component of HIV comprehensive care programming in Kenya.

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