Alcohol Use Disorders and Associated Determinants among Public Sector Employees in Kenya

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Abstract

Global data estimates that 237 million men and 46 million women have alcohol use disorders (AUDs) representing 5.1% of adults. Despite the growing burden of AUDs in the general population, there is limited attention on the situation in the workplace. Further, there is limited evidence to inform tailored interventions specific to the public sector workplace. This study therefore aimed to assess the status of AUDs and associated determinants among public sector employees in Kenya. A cross-sectional study was conducted from August 2020 – May 2021 where a total of 9,422 public sector employees were interviewed. Results showed that the lifetime prevalence of alcohol use among public sector employees in Kenya was 44.5%; the annual or 12 – month prevalence was 34.2%; and the 30 – day prevalence was 23.8%. Results also showed that 13.2% of the public sector employees presented with an AUD where 5.7% met the criteria for mild AUD, 3.0% moderate AUD and 4.5% severe AUD. Findings of the multinomial logistic regression analysis also showed that public sector employees who were male; married; separated/widowed/divorced; employed for 5 – 14 years; with temporary employment terms; from a state corporation; and from a medium sized public sector institution (PSI) were significantly associated with exposure to AUDs. Even though evidence showed a high burden of AUDs among employees in the public sector workplace, the problem was not generalized. Findings revealed AUDs risk disperaties across gender, marital status, duration of service, nature of employment, category of workplace and institutional size. The study therefore underscored the need for implementation of target specific interventions in the public sector workplace sensitive to the intricate dynamics of employee sub-group characteristics.

Key words: *Alcohol use disorders, public sector employees and workplace.*

Introduction

Globally, an estimated 3 million deaths are reported every year as a result of harmful alcohol use, representing 5.3 % of all deaths. In 2016, the alcohol-attributable disease burden was highest in low-income and lower middle-income countries when compared to upper-middle-income and high-income countries (WHO, 2018).

Global data has estimated that 237 million men and 46 million women have alcohol use disorders (AUDs) representing 5.1% of adults. The past 12-months prevalence of AUDs among the population aged 15 years and older varied by region, with the prevalence of AUDs being highest in the European Region (8.8%) followed by Regions of the Americas (8.2%), Western Pacific (4.7%), South-East Asia (3.9%), African (3.7%) and lastly East Mediterranean (0.8%) (WHO, 2018). Further, in 2016, severe AUD occurred in 2.6% of the global population aged 15 years and older. Severe AUD was most prevalent in the Region of the Americas (4.1%) and the European Region (3.7%), and least prevalent in the Eastern Mediterranean Region (0.4%) (WHO, 2018). In Kenya, the national prevalence of AUD among the population aged 15 – 65 years was 10.6% (NACADA, 2017). Data also showed that 2.2% of the population met the criteria for mild AUD,

2.0% moderate AUD and 6.2% severe AUD (NACADA, 2017).

Despite evidence of AUD estimates in the general population, workplace specific data is limited. In a study targeting employees from the 50 states of the USA including the District of Columbia, 9.3% of respondents met criteria for mild AUD, 1.9% moderate AUD, and 1.2% severe AUD (Parsely *et al.*, 2022). Evidence shows that alcohol use by employees increases the risk of physical and mental harm thereby leading to undesirable workplace related outcomes such as loss of personal income, injury, and termination of employment (Bockerman, Hyytinen and Maczulskij (2017). Other studies have also linked alcohol use to decreased productivity, absenteeism and antisocial behaviours in the workplace (French et al., 2011; Samokhvalov et al., 2010; Roche et al., 2008).

The negative consequences of employee alcohol use as well as management of AUDs in the workplace exposes employers to major financial consequences. Data from 2,805 employees in the US estimated that the prevalence of workforce impairment due to alcohol use was 15% with significant variation across the different occupation sectors (Frone, 2006). Similarly, a UK survey suggested that working under the influence of alcohol or with a hangover costs the UK economy between £1.2 billion to £1.4 billion annually (Bhattacharya, 2019).

With evidence of the documented consequences of alcohol use and AUDs in the workplace, a "one size fits all" approach to programing may not result to the intended desired outcomes unless the focus is narrowed to targeted interventions. It is therefore imperative to understand the determinants of AUDs among employees to facilitate implementation of selective tailored interventions specific to high risk sub-groups within the workplace. Although there is limited data on determinants of AUDs within the workplace, higher risks of alcohol use have been associated with gender (Larson *et al.*, 2007; WHO, 2018; Jaguga *et al.,* 2022), marital status (Jaguga *et al.*, 2022) and terms of employment (De Cuyper et al., 2008). Although there is an attempt to understand the underlying factors related to

alcohol use among employees, there is limitation of data specific to AUDs. Further, there is limited attention of studies specific to substance use among employees in the workplace especially in the middle and low income countries. Besides, majority of the previous studies give emphasis to employees in the private sector with limited focus on mainstream governments resulting to limitation evidence needed to inform selected interventions specific to the diverse sub-sectors within the public sector workplace including Kenya. Therefore, this study aimed to assess the status of AUDs and associated determinants among public sector employees in Kenya. The findings will consequently bolster implementation of evidence informed interventions within the public sector workplace in Kenya.

Methodology

A cross-sectional study was conducted where quantitative data was collected. A structured questionnaire was used to generate data on the prevalence of alcohol use and alcohol use disorders (AUDs). The study targeted public sector employees in Kenya. The sample size was determined using the formula by Kothari (2003). Based on the accuracy of data, the margin of error associated with sampling and other random effects at 95% confidence level was kept at a maximum of +/-0.95% for a sample size of 10,477 employees in the public sector workplace. A total of 9,422 public sector employees were interviewed translating to a response rate of 89.9%.

The survey applied both probability and non-probability sampling methods. From a sampling frame of 500 public sector institutions (PSIs), the survey purposively sampled at least ten (10) percent of the institutions. This translated to 50 PSIs. The sampled PSIs were stratified into three (3) broad categories. The categories included ministries; state corporations and tertiary institutions. Proportionate sampling was used to allocate the number of institutions to be selected in each category resulting to 8 ministries, 27 state corporations and 15 tertiary institutions.

A second stratification was done within each of the three categories (ministries; state corporations;

and tertiary institutions) based on size of the PSIs. In this case the institutions were categorized into large sized PSIs (> 300 employees), medium sized PSIs (101- 300 employees) and small sized PSIs (< 101 employees). From each of these sub-categories, proportionate sampling was also applied to determine the number of institutions in each group (large sized, medium sized and small sized PSIs). The third level of stratification was based on regional distribution of the PSIs across the eight regions of Kenya. Simple random sampling was then used to select the individual PSIs from each of the sub-categories within the ministries; state corporations; and tertiary institutions. Individual respondents were identified using systematic random sampling where every n[th] employee from the employee staffing register was selected to participate in the study. Employees from all cadres, regions or stations in a given workplace were covered in the sample.

Data collection

Data was collected from August 2020 – May 2021. Both physical and on-line structured questionnaires were used to collect data from the sampled employees. The physical questionnaires complemented the on-line platform especially where the respondents expressed reservations with technology and network challenges. Data collection was coordinated by members of the alcohol and drug abuse (ADA) committees from the sampled institutions. Data on alcohol use disorders (AUDs) was captured using the 5th edition of the Diagnostic and Statistical Manual of Mental Disorder (DSM – 5) (American Psychiatric Association, 2013). The DSM – 5 was used to identify employees with AUDs targeting those who had used alcohol in the last 12 months. AUD was defined as meeting two (2) or more DSM – 5 criteria. In addition, mild AUD was defined as meeting 2 or 3 DSM – 5 criteria, moderate AUD (4 or 5 criteria) and severe AUD (6 or more criteria) (American Psychiatric Association, 2013).

Data analysis

Quantitative data was coded, sorted, entered into the computer and processed using SPSS software version 20. Descriptive statistics were used to describe and summarize the data. Multinomial logistic regression was used to identify determinants of AUDs among public sector employees in Kenya. The results of this analysis also presented the relative risk ratio (RRRs), 95% confidence intervals (CIs) and p-value where $p<0.05$ was considered significant. AUD was adopted as the dependent variable.

Results

Background characteristics

Table 1 showed that 57.6% of the public sector employees interviewed were male while 42.4% were female. Majority of employees were aged 46 years and above (34.5%); with a bachelor's degree (34.1%); married (72.2%); in the technical staff position (40.0%); permanently employed (70.9%); from State Corporations (50.1%); and working for large sized institutions (69.3%).

Table 1: Background characteristics (n=9,422)

Characteristic	Category	Percentage (%)
Gender	Male	57.6
	Female	42.4
Age	25 years and below	3.3
	26-35 years	32.6
	36 – 45 years	29.6
	46 years and above	34.5
Education level	Secondary level and below	10.0
	College level	32.6
	Bachelor's degree level	34.1
	Post-graduate level	23.3
Marital status	Single	21.5
	Married	72.2
	Separated/ widowed/ divorced	6.3
Job position	Top Management	3.1
	Middle Management	32.1
	Technical Staff	40.0
	Support Staff	24.8
Nature of employment	Permanent	70.9
	Contract	21.7
	Temporary	7.4
Category of workplace	Ministries	32.2
	State Corporations	50.1
	Tertiary Institutions	17.7
Size of PSI	Large (> 300 employees)	69.3
	Medium (101 - 300 employees)	21.9
	Small (< 101 employees)	8.8

Source: Study data, 2021

Prevalence of alcohol use

Analysis showed that 44.5% of the public sector employees in Kenya had used ever used alcohol in their lifetime (lifetime prevalence). This implied that 55.5% of the public sector employees were lifetime abstainers. Findings also showed that 34.2% of the employees had used alcohol in the last one year (annual or 12-month prevalence) while 23.8% were current alcohol users (current or 30-day prevalence).

Categories of AUDS

Results showed that 13.2% of the public sector employees met the criteria for AUD. Further analysis indicated that 5.7% of the employees met the criteria for mild AUD, 3.0% moderate AUD and 4.5% severe AUD.

Determinants of AUDs

In multinomial logistic regression analysis, public sector employees who were male; married; separated/ widowed/ divorced; employed for 5 – 14 years; with temporary employment terms; from a state corporation; and from a medium sized PSI were significantly associated with exposure to AUDs. On the contrary, job position and education level were not significantly associated with AUDs (Table 2).

Table 2: Determinants of AUDs

Variable	AUD	
	Adjusted RRR (95% CI)	p-value
Gender		
Female	1 (Reference)	
Male	4.141 (3.540, 4.844)	<0.0001
Education		
Secondary level	1 (Reference)	
Bachelor's degree level	1.233 (0.964, 1.575)	0.095
College level	1.060 (0.841, 1.335)	0.622
Post-graduate level and above	1.267 (0.971, 1.652)	0.081
Primary level	1.345 (0.673, 2.690)	0.402
Marital status		
Single (never married)	1 (Reference)	
Married	0.717 (0.602, 0.854)	<0.000
Separated/ divorced/ widowed	1.423 (1.069, 1.895)	0.016
Job position		
Top Management	1 (Reference)	
Middle management	1.067 (0.719, 1.582)	0.748
Support staff	1.138 (0.751, 1.725)	0.541
Technical Staff	1.024 (0.688, 1.524)	0.909
Duration of service		
5 years and below	1 (Reference)	
10-14 years	1.344 (1.102, 1.638)	0.003
15-19 years	0.876 (0.652, 1.176)	0.377
20 years and above	0.811 (0.642, 1.025)	0.079
5-9 years	1.299 (1.090, 1.548)	0.003
Nature of employment		

Variable	AUD	
	Adjusted RRR (95% CI)	p-value
Permanent	1 (Reference)	
Temporary	2.884 (2.262, 3.676)	<.0001
Contract	0.837 (0.692, 1.011)	0.064
Category of workplace		
Tertiary Institution	1 (Reference)	
Ministry	1.230 (0.965, 1.567)	0.095
State Corporation	1.229 (1.005, 1.502)	0.044
Size of PSI		
Small (< 100 employees)	1 (Reference)	
Large (> 300 employees)	0.896 (0.702, 1.144)	0.379
Medium (100 – 300 employees)	0.714 (0.550, 0.927)	0.011

Source: Study data, 2021

Discussion

According to results of this study, the lifetime prevalence of alcohol use among public sector employees in Kenya was 44.5%; the annual or 12 – month prevalence was 34.2%; and the current or 30 – day prevalence was 23.8%. In another general population survey conducted in Kenya, the lifetime prevalence of alcohol use was 30.2%; annual prevalence was 15.1%; and current or 30 – day prevalence was 12.2% (NACADA, 2017). The comparison revealed that the prevalence of alcohol use was higher in the public sector workplace compared to the general population. Similar findings in an Italian study have shown that workers presented with higher alcohol prevalence compared to non-workers (18.0% vs 14.2%) (Venturelli *et al.*, 2017).

In a previous study targeting public maintenance workers in a Brazilian university, findings showed that 78.0% of the workers had used alcohol in the last 12 months (Oliveira and Souza, 2018). This magnitude was 2-fold higher compared to the public sector employees in Kenya. Available evidence also shows that alcohol consumption patterns vary by occupation (Mandell *et al.*, 2006; Australian Bureau of Statistics, 2008; Kim *et al.*, 2008).

Results also indicated that 13.2% of the public sector employees met the criteria for AUDs. Further analysis showed that 5.7% of the employees had met the criteria for mild AUD, 3.0% moderate AUD and 4.5% severe AUD. Comparatively, a national study in the USA reported a 9.3% prevalence of AUD from a sample of working adults with 6.2% meeting the criteria for mild AUD, 1.9% moderate AUD and 1.2% severe AUD (Parsley *et al.*, 2022). The contrast showed that the prevalence of AUD was 2-fold higher among the Kenya public sector employees while severe AUD was 3-fold higher. However, it was important to note that the target population for the current study was the public sector employees. This finding therefore calls for an urgent need for the government to invest on treatment and rehabilitation programs in order to reverse the negative consequences associated with severe AUD among the employed population. Another study had also reported that an estimated 8.8 percent of full-time workers reported past month heavy alcohol use (Larson *et al.*, 2007). This was evidence that alcohol use in the workplace was an emerging challenge that required emphasis of mainstreaming evidence based prevention interventions and programs in the workplace in order to reverse this trend.

For evidence based programing in the workplace, it becomes critical to understand the underlying factors pre-disposing employees to AUDs. From the findings, gender was one the key determinants of AUDs among the public sector employees in Kenya where males were at a higher exposure risk compared to females. Similar findings have also been reported in other studies where males showed

a higher exposure risk to AUDs, sometimes more that 3-fold that of female employees (Larson *et al*., 2007; WHO, 2018). This finding was also comparable to a study in Kenya targeting the healthcare workforce where male employees were more likely to report harmful alcohol use (Jaguga *et al*., 2022). This observation therefore underscores the need for tailored gender sensitive workplace interventions.

Marital status was another factor associated with AUDs within the public sector workplace. The study showed that employees who were married; or separated/ widowed/ divorced had a higher risk of exposure to AUDs. Although marital status was identified as a risk factor, another Kenyan study reported that unmarried employees had a higher likelihood of harmful alcohol use (Jaguga *et al*., 2022). In the context of the current study, it was expected that employees who were married had more parental responsibilities compared to the employees who were single. However, the study showed that parental responsibilities were not protective against exposure to AUDs among employees who were married. Further, it could be explained that employees who were separated/ widowed/ divorced were going through psychological traumatic events that predisposed them to the risk of AUDs especially where alcohol was being used as a coping mechanism deal with these stressful situations.

Duration of service was another risk factor associated with AUDs among public sector employees with those who had worked between 5 – 14 years reporting a higher risk of exposure to AUDs. In another Kenyan study, employees with 11 – 20 years of experience showed a higher likelihood of reporting harmful alcohol use (Jaguga *et al*., 2022). This finding lays emphasis on the need to implement deliberate prevention interventions targeting newly recruited employees as well as addressing the challenges of workplace culture promoting alcohol use among employees.

Likewise, the study also showed that employees who had been recruited on temporary employment terms had a higher risk of exposure to AUDs. In a comparable study investigating the association between contract type and alcohol addiction, findings showed that temporary employees were 5.6 times more likely to be alcohol dependent compared to the permanent workers (De Cuyper *et al*., 2008). This finding therefore concluded that temporary employment terms was a workplace stressor leading to higher risk of alcohol use among this category of employees.

Lastly, analysis of data highlighted that employees from medium sized PSIs as well as those from state corporations had a higher likelihood of exposure to AUDs. In terms of the workforce size, most of the medium sized PSIs were mostly state corporations which had higher remuneration rates for employees compared to the ministries and tertiary institutions. Therefore, there was a likelihood of higher disposable income among employees from medium PSIs as well as the state corporations thereby predisposing them to higher risks of alcohol use and eventual consequences of AUDs. This observation was supported by findings of another study that showed a positive correlation between disposable income and higher alcohol use patterns (Murakami and Hashimoto, 2019).

Conclusion

The study established a worrying trend of AUDs among public sector employees in Kenya. In particular, the study highlighted a growing problem of severe AUDs which presents the potential challenges of low productivity, increasing healthcare costs and high attrition rates of affected public sector employees. Even though evidence showed a high burden of AUDs among employees in the public sector, the problem was not generalized. Findings revealed AUDs risk disperaties across gender, marital status, duration of service, nature of employment, category of workplace and institutional size. The study therefore underscored the need for implementation of target specific interventions in the public sector workplace sensitive to the intricate dynamics of employee sub-group characteristics.

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