

Review Article

## Excessive Alcohol Use and Its Negative Consequences among Women of Child Bearing Age in Africa: A Systematic Review

Apophia Agiresaasi<sup>1\*</sup>, Goretti Nassanga<sup>2</sup> and Nazarius Mbona Tumwesigye<sup>1</sup>

<sup>1</sup>Department of Makerere College of Health Sciences, Uganda

<sup>2</sup>Department of Makerere School of Journalism and Communication, Uganda

### Abstract

Research examining excessive alcohol use among women on the continent is scanty. The study sought to review literature on the prevalence of various forms of excessive alcohol use among women in the reproductive age group in Africa. A literature search of several databases for relevant literature was undertaken. Published studies that reported alcohol exposure for women aged 15-49 were included.

Frequent alcohol consumption ranged from 3.9% in Tanzania to 34.9% in Ghana. Heavy drinking ranged from 0.9% in Mauritius to 25.4% in Congo. Harmful alcohol use, hazardous drinking and alcohol dependence were mostly reported in South Africa and Lesotho and ranged from 1.1 to 13%. The study found strong evidence to link the various forms of excessive alcohol use to FAE, HIV acquisition among others. Excessive alcohol use among women aged 15-49 in Africa varies from country to country with diverse consequences. Binge drinking is particularly common.

### Introduction

Excessive alcohol use in this article refers to the different patterns of alcohol use which include binge drinking, frequent alcohol use, heavy drinking, harmful alcohol use, hazardous drinking, alcohol dependence and risky drinking. Various scholars have defined these terms.

Binge drinking is defined as drinking 70 g (men) or 56 g (women) or 4 drinks in about two hours [1]. Dependent use is a cluster of physiological, behavioural, and cognitive phenomenon in which the use of

**\*Corresponding author:** Apophia Agiresaasi, Department of Makerere College of Health Sciences, Uganda Tel:+256 776626187; E-mail: agiresaasi@gmail.com

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alcohol takes on a much higher priority for the individual than other behaviours. These phenomena include increased desire to use alcohol with impaired control, persistence use despite harmful consequences, higher priority given to alcohol use than any other obligations, increased alcohol and a physical withdrawal reaction when alcohol use is discontinued [2]. Frequent Alcohol Consumption is defined as drinking three times a week [3]. Heavy Alcohol Consumption is drinking 5 or more drinks on the same occasion on each of 5 or more days in the past 30 days [4]. Hazardous alcohol use is the use of alcohol that will probably lead to harmful consequences to the user, either to dysfunction or to harm similar to the idea of risky behaviour [5]. Harmful drinking is defined as a pattern of alcohol consumption causing health problems directly related to alcohol [6].

It should be noted that some studies define these terms a little differently. The WHO Alcohol Use Disorders Identification Test (AUDIT) has been used to define AUDIT score of 20 and above as problem drinking or alcohol dependence. AUDIT cut off score of 5 or more as hazardous/harmful drinking.

Excessive alcohol use is a major public health concern across the world. It has been linked to morbidity and mortality from a range of both social and physical illnesses [7]. It is also a component cause of several diseases and injury conditions as described in the International Statistical Classification of Diseases and Related Health Problems (ICD) 10th Revision [8].

Women are more likely to suffer the consequences of excessive alcohol use than men due to lower body weight, a higher proportion of body fat, smaller liver capacity to metabolize alcohol which together contributes to women achieving higher blood alcohol concentrations for the same amount of alcohol intake [9,10]. Women are also affected by interpersonal violence and risky sexual behaviour as a result of the drinking problems and drinking behaviour of male partners [11].

The effects of alcohol and burden of disease has been greatest in developing countries around the world [8]. During pregnancy, alcohol use increases the risk of pre- term births (PTB), stillbirths, low birth weight (LBW) several birth defects and developmental disabilities known as Fetal Alcohol Spectrum Disorders (FASD) [12]. It is also associated with early childhood leukaemia [13], infant cleft palate and infertility in males and females [14,15]. Excessive alcohol use has been reported to be more harmful to the growing foetus as compared to low level alcohol use [16]. Research has established the presence of Fetal Alcohol Spectrum Disorders in South Africa [17]. This data in other countries on the continent is sparse however.

Women's drinking affects the community and families more than men's drinking given their gender roles and the tendency to hide drinking problems, more needs to be done to address the consequences of alcohol use on the continent before they escalate given the aggressive marketing that targets women [18,19]. The adoption of the WHO Global Strategy and WHO Regional Strategy (for Africa) to reduce the harmful use of alcohol in 2010 and the WHO Global Action plan for the prevention and control of non-Communicable diseases in

2013 set the stage for addressing alcohol use and its effects in Africa. But not much has been done since to stem the tide [20]. Yet several studies have documented a change towards a “public, binge drinking culture over the weekends”, leading to important health, social and development consequences, and have underlined the need to protect the population in general, and women and children in particular, from alcohol-related harms [21, 22].

It is important to understand the levels and patterns of excessive alcohol use among women on the continent. Such understanding will be useful in making recommendations for interventions meant to reduce alcohol use and its effects.

## Methods

### Inclusion criteria

This systematic review considered studies conducted in the 54 countries that constitute Africa that assessed excessive alcohol use among women aged 15-49. The following inclusion criteria was used:

1. Various forms of Alcohol use were investigated.
2. Negative consequences associated with alcohol use were investigated.
3. Recruitment of study participants was either population based or took place in a health care environment (antenatal care clinic, ultra sound clinic, delivery clinic, STI clinic, TB treatment clinic)
4. Data was collected between the period 1996 -2019
5. The study was published in a scientific peer reviewed journal in English in the last two decades (1996 -2019).

This standardised inclusion criteria was instrumental in facilitating comparison of studies and results to ensure that methodological differences do not result in differing outcomes.

### Exclusion criteria

We excluded a few studies that

1. Did not investigate alcohol prevalence/incidence
2. Did not document frequency and quantity of alcohol consumed
3. Studies conducted outside Africa
4. Studies that did not conduct original empirical data

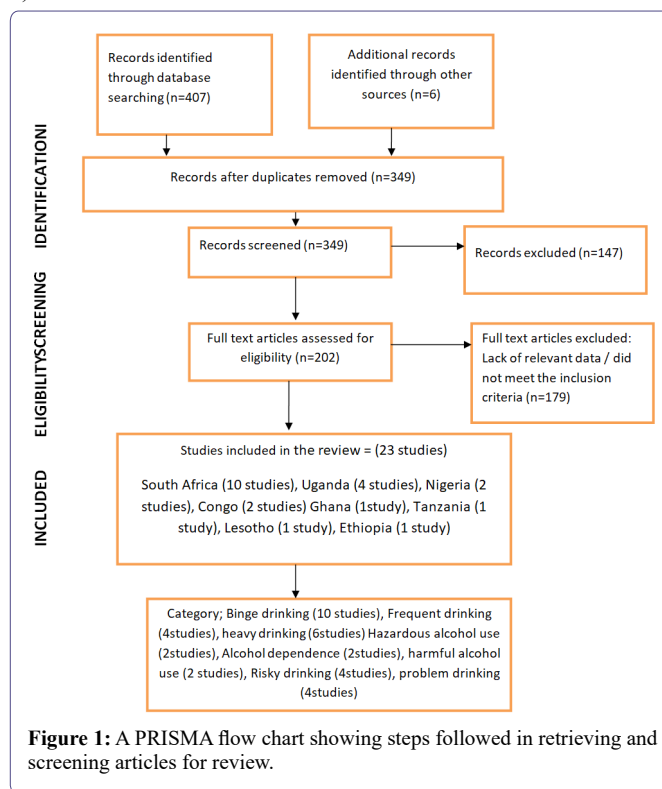
### Search strategy

To obtain studies for the review, a literature search of studies published from January 1996 to December 2019 was undertaken. A primary research was conducted to identify all related primary research in English from all relevant databases and journal collections including google scholar, Sage Online Journals, Taylor and Francis Online, Wiley Online Library, Project Muse JSTOR (Journal Storage) by using the text words such as (“alcohol burden” OR “alcohol negative effects”) AND (“alcohol prevalence” OR “alcohol use by women in Africa”) AND (“alcohol consumption by women” OR “Africa”). We also manually searched the google search engine by interchanging the text words with each other. The authors were assisted by an experienced librarian in searching these data bases. The search was limited to articles either published in English after 1995.

### Search words

The following search words were used. Alcohol use, alcohol consumption, prevalence, alcohol effects, alcohol burden, alcohol negative effects, Africa, sub-Saharan Africa, East Africa, Algiers, Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African republic, Chad, Comoros, Democratic republic of the Congo, Republic of the Congo, Cote d’Ivoire, Djibouti, Equatorial Guinea, Egypt, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome, Senegal, Seychelles, Sierra Leone, South Africa, Sudan, South Sudan, Swaziland (Eswatini), Tanzania, Togo, Tunisia, Uganda, Zambia and Zimbabwe.

The database yielded 407 Potential articles. Six More articles were obtained from references. These were screened against the inclusion criteria. Only 23 studies contained relevant data and were retained for data extraction. These articles were obtained and read in full (Figure 1).



**Figure 1:** A PRISMA flow chart showing steps followed in retrieving and screening articles for review.

The systematic review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta - data Analysis (PRISMA) guidelines.

All the studies included in this review presented self-reported data on alcohol use. A total of 56% of the studies used probability sampling strategy and 13% used non probability sampling. The rest did not report on sampling strategy utilised. 82% of studies had an adequate sample size of at least 300 participants. 69% of studies employed a validated tool to ascertain alcohol use. All the studies (100%) used a questionnaire/single question and provided details of tool used. 60.8% of the studies had adequate participation rate of at least 60%. All studies included in this review described study participants. Quality Appraisal results of all the 23 studies are provided in Table 1.

Representativeness of the Sample				Ascertainment of Alcohol Use			
Reference	Probability Sampling	Non Probability Sampling	Adequate Sample size 300 or more participants	Validated tool used	Questionnaire including a single question	Adequate response/ participation rate 60% or more	Study subjects described
Adeyiga, et al	X		X		X	X	X
Anteab K, et al.	X		X		X	X	X
Barthelemy, et al.					X		X
Chukwuonye, et al.	X		X	X	X	X	X
Croxford J. and Viljoen D			X		X	X	X
Desmond, et al.			X	X	X	X	X
English, et al.			X	X	X	X	X
Jones, et al.		X	X	X	X		X
Kabwama, et al.	X		X	X	X	X	X
Louw, et al.	X		X	X	X		X
Martinez, et al.	X		X		X	X	X
Mitsunaga T and Larsen U	X		X	X	X	X	X
Morojere, et al.	X				X		X
Morojere, et al.	X		X	X	X	X	X
Namagembe. et al.	X		X	X	X	X	X
Ordinioha B and Brisibe S	X				X	X	X
Peltzer K, et al.			X	X	X	X	X
Phaswana, et al.		X	X	X	X		X
Simbayi, et al.		X		X	X		X
Siegfried, et al.	X		X	X	X		X
Tumwesigye, et al and Kasirye, et al.	X		X	X	X		X
Vythilingum, et al.			X	X	X	X	X
Williams, et al.			X	X	X		X

Table 1: Checklist for Quality of Studies included in the Review Source: Adapted from Wong et al. The absence of X can mean either No or not reported.

## Data Extraction

A pre - defined framework was developed to aid extraction of data from selected studies. The following data was extracted:

### Study participants and setting

- Study Title
- Lead Author
- Publication Years
- Location of study(Country of origin)
- Duration and period of data collection
- Number of study participants
- Characteristics of study participants

### Study Protocol

- Study design
- Study inclusion criteria
- Instrument used for alcohol use
- Data collection methods
- Age of respondents when alcohol was measured
- Status either pregnant or not pregnant when alcohol use was measured

## Study outcomes

- Prevalence of alcohol use
- Negative consequences associated with alcohol use

## Assessment of Methodological Quality

There was no ethical clearance required by this study as all papers were published in scientific peer reviewed journals.

## Results

### Characteristics of studies selected

Most of the studies (n=13) were health facility based while 10 studies were community based. Health facility based studies were conducted among women seeking antenatal care, delivery, and PMTCT, Tuberculosis and STI services. Only a few studies (n=8) investigated negative consequences related to excessive alcohol use among women of child bearing age.

All the studies identified were conducted in East, West, Central and Southern Africa. Majority of the studies were conducted in South Africa(n=10), followed by Uganda(n=4), Nigeria(n=2), Congo (n=2), Tanzania (n=1) and Ghana (n=1), Lesotho (n=1) and Ethiopia (n=1). The WHO World Health survey which is also included was conducted in 20 African countries including Burkina Faso, Chad, Comoros,

Congo, Coted'voire, Ethiopia, Ghana, Kenya, Malawi, Mali, Mauritius, Morocco, Namibia, Senegal, South Africa, Swaziland, Tunisia, Zambia and Zimbabwe.

Timeframes measured were not similar as some reported current use, use within the last thirty days or twelve months preceding survey. All the studies varied in study population and measure and definition of alcohol use. The terms used to define excessive alcohol use differed in the various studies. They included; harmful alcohol use, hazardous drinking, alcohol dependence, binge drinking, frequent alcohol use, heavy drinking and risky drinking. Studies also used various tools to measure excessive alcohol use and these were Cut down, Annoyed, Guilt, Eye opener (CAGE) questionnaire, Alcohol Use Disorders Identification Test (AUDIT) questionnaire and Tolerance Annoyed Cut-down Eye opener (TACE). The findings have been categorized into two study populations: Those recruited from the general population and those recruited from health facilities.

### Prevalence of excessive alcohol use among women of child-bearing age in Africa among identified studies

Some studies included in this review assessed more than one form of excessive alcohol use. Five studies reported on frequent alcohol consumption and this ranged from 3.9% in Tanzania to 34.9% in Ghana [23-27]. Heavy alcohol use was reported by five studies and ranged from 0.9% in Mauritius to 25.4% in Congo [22,27-30]. Binge drinking was assessed by eleven studies and ranged from less than one percent in Mpumalanga South Africa to 35% in Cape Town South Africa [24,26,29,31-37].

Risky alcohol use was documented by four studies and ranged from 0.3% in Mauritius to 57.5% in Chad [22,35,38,39]. Four studies assessed problem drinking and this varied from 2.16% to 25% in Cape town South Africa [38,40-42]. Harmful alcohol use, hazardous drinking and alcohol dependence was mostly reported in South Africa and Lesotho and ranged from 1.1 to 13% [33,39,41,43].

Eight studies investigated negative consequences of excessive alcohol use among women in the reproductive age group. These include; multiple sexual partnerships and HIV exposure, alcohol exposed pregnancies, FAEE in neonates, injury, poor physical health, high risk sex, alcohol related disorders such as failing to do what was expected of them after drinking and being unable to stop drinking once they started drinking [25,27,30,34,35,38,40,42]. Details of the 23 studies that met the selection criteria are summarized in Tables 2-4.

As part of the world health survey, data was collected in 20 African countries on alcohol use among women [22]. In total 40,739 women aged 18 years and above were interviewed between 2002-2004. Heavy drinkers were defined as those who had consumed a total of 15 or more standard drinks during the last 7 days and risky single occasion drinkers were defined as those who consumed at least 5 or more standard drinks of alcohol on at least one day of the previously week. Heavy drinking varied from 4% in Ghana to 41% in Chad. Risky single occasion alcohol use ranged from less than one percent in Mauritius to 58% in Chad. Rates of risky single-occasion drinkers among current drinkers were below 20% in 9 countries.

## Discussion

Only eight studies in this review of papers on various forms of excessive alcohol use among women of child bearing age in Africa, we note that not much has been documented about prevalence estimates

of excessive alcohol use among women and related burdens in Africa. Save for the WHO World Health survey which was carried out in 20 out of 54 countries in Africa that investigated heavy and risky single occasion drinking, most of what is known about excessive alcohol use among women in Africa is documented in only 8 countries that is Congo, Ghana, Ethiopia, Lesotho, Nigeria, South Africa, Tanzania and Uganda. Related studies on the continent have mainly documented alcohol use (any amount) and alcohol abstinence. More research should be implemented in other countries to adequately estimate the prevalence and burden of excessive alcohol use among women on the continent.

This study reveals that heavy drinking among women ranged from 0.9% in Mauritius to 25.4% in Congo and binge drinking ranged from less than one percent in Mpumalanga South Africa to 35% in Cape Town South Africa. These results fall in similar range as those of other women outside Africa. About a third of women (35%) engaged in binge drinking in Copenhagen during early pregnancy [44]. In the US, binge drinking during pregnancy was reported by 3.9% and has been recorded at 2.7% in Europe [45,46].

Binge drinking was the most common form of excessive alcohol use documented by most studies in this review. This maybe because it is the most prevalent form of excessive alcohol use. Given their socially ascribed roles as caretakers, women are engaged in brewing and serving alcohol on functions such as wedding and funerals which presents an opportunity for them to indulge in risky single occasion drinking. It should be noted that binge drinking is the pattern of alcohol use associated with increased physical and emotional harm, including violence, accidents, unplanned pregnancy, unprotected sex, STD, HIV and FASD [10,46]. It has also been linked to stress, anxiety, traumatic events and depression [47]. These findings are catastrophic given women's roles in society. FASD in particular may result into birth defects and other lifelong conditions such as mental illness and illegal behaviour [48]. This may further constrain Africa's poorly resourced healthcare systems. Efforts are thus required by governments to address cultural perceptions and norms that predispose women to binge drinking.

The highest prevalence of excessive alcohol use were reported in Chad, South Africa and Nigeria and the lowest in Mauritius. For some women increased opportunities for them to perform traditionally male roles may have presented more opportunities for women to increase their drinking, with more adverse consequences [49]. In some societies alcohol consumption is frowned upon. It may be for the same reason that excessive alcohol use was not reported in any of the Moslem countries. This relates to findings of other studies that have espoused the roles of religious values and belief systems in alcohol consumption [50].

Only eight studies in this review representing three countries of Uganda, Tanzania and South Africa assessed negative consequences related to drinking among women. These include FAEE, HIV acquisition, alcohol exposed pregnancies, intimate partner violence, mortality, poor physical health, alcohol use disorders, risky sexual behaviours. Similarly, other authors have found that women's intoxication reduces social control of their sexuality, making them either more sexually uninhibited or more sexually vulnerable [51]. Findings of this study indicate that alcohol related consequences are considerable among women. Since patterns of drinking have been linked between alcohol and health [52,53]. More in-depth studies and analyses are needed to look at the patterns and nature of drinking among women in Africa in relation to alcohol related problems.

Reference	Country	Alcohol Use definition	Study Population	Women	Prevalence of Alcohol Use
Adeyiga, et al.	Ghana	Frequent Use	Gynaecologic outpatient facility in Accra	394	12.9% drank daily 36.3% drank 5 or more units per week
Barthelemy, et al.	Congo	Consuming more than 1 liter of alcohol a day defined as heavy drinking	ANC attendees	240	25.4% reported heavy drinking
Croxford J, and Viljoen D, et al.	Western Cape South Africa	Moderate 5-10 units absolute alcohol/ week or binges of 5-10 units/occasion) or heavy(>10unitsAA/week or binges of >10 units AA/week or binges of > 10 units per occasion)	ANC Attendees	636	23.7% of all women reported moderate or heavy alcohol use in binge pattern
Desmond, et al.	Kwazulu, Natal(South Africa)	Binge drinking as consuming 3 or more drinks on a single occasion	PMTCT program attendees	1201	35% of drinkers (221/1201) binged twice a month
English, et al.	Uganda	Current use Heavy alcohol consumption(not defined)	Pregnant women reporting to maternity ward	505	6.3% reportedly drank heavily 3.2% drank moderately
Louw J, et al.	Mpumalanga, South Africa	Binge drinking as drinking 4 or more drinks per single occasion AUDIT cut off score of 5 or more as hazardous/harmful drinking	ANC attendees	1497	1.1% of all sampled women reported hazardous/ harmful drinking 0.98% of all sampled women reportedly drank 4 or more drinks on occasion daily or weekly
Namagembe, et al.	Uganda	Taking 4 or more drinks on single occasion as binge drinking  Risky drinking defined as averaging more than one drink per day	ANC attendees	610	2.6% binged 6 or more drinks on single occasion 9% drank 4 or more drinks per single occasion 7.9% reported risky drinking
Ordinoha B, et al. and Brisibe S, et al.	Nigeria	Taking 4 or more standard units of drink at a single occasion as binge drinking Frequent drinking defined as consuming 14 units of alcohol in a week	ANC women	221	25.79% of all sampled women binged 2.2% of all sampled women drank frequently
Peltzer K, et al.	South Africa	AUDIT Score 8 and above Defined as hazardous or harmful drinking AUDIT score of 20 or more as alcohol dependence AUDIT score 8-19 defined as high risk drinking	TB Patients aged 18 years and above	2,229	13.0% reported hazardous/harmful drinking 3.4% reported alcohol dependence 9.5% reported high risk drinking
Phaswana, et al.	South Africa (GertSibande district)	Consuming 4 or more drinks on a single occasion defined as binge drinking	ANC attendees	984	7.4% reported consuming 4 or more drinks on an occasion less than monthly 2.0% reported having 4 or more drinks on an occasion monthly 1.8% reported taking 4 or more drinks on an occasion weekly
Simbayi, et al, 2007	Capetown South Africa	Problem drinking defined as being unable to stop drinking (AUDIT score> or =9). Monthly consumption of 4 drinks for women on any single occasion defined as bingeing	STI Clinic attendees	92	25% of women reported problem drinking 9% of women reported Binge drinking
Vythilingum, et al.	Capetown South Africa	AUDIT score of 20 and above defined as problem drinking	ANC Attendees	323	25% of women reported problem drinking 9% of women reported Binge drinking
Williams, et al.	DRC Congo Brazaville	Consuming 4 or more drinks on single occasion defined as binge drinking	ANC attendees	3099	2.16%of all sampled women reported alcohol dependence/problem drinking 20.2% reported binge drinking during pregnancy

**Table 2:** Showing Prevalence of Excessive Alcohol Use and its Negative Consequences among Women in Reproductive Age group in Africa as Reported by Selected Studies (Health Facility Based Studies).



Reference	Country	Alcohol use definition	Study Population	Women	Prevalence of Alcohol Use
Anteab K, et al,	Bahir Dar City Northwest Ethiopia	Binging described as 4 or more drinks on single occasion	Pregnant Women	810	7.5% binged
Chukwuonye, et al,	Nigeria Abia State	Frequent drinking as drinking 5 or more days a week	General population	1428	0.9%
Jones, et al.	Capetown South Africa	Problem drinking	Pregnant and non-pregnant women	382	13.6%
Kabwama, et al.	Uganda	High end alcohol users defined as women consuming 4 or more drinks on an occasion in last 30 days	Women	1814	3.9% drunk daily 4.6% of women without partners drank daily. 7.0% Alcohol Abuse
Morojere, et al.	South Africa	-3 or more drinks on single occasion is risky drinking -Problem drinkers defined as those who "drunk too much"	Men and women	95	12.2% of all women problem drinkers 29.4% of all women were risky drinkers
Morojere, et al.	South Africa	Strict sense of AEP defined as Consuming 5 or more drinks per occasion	Urban and rural Women	1018	2.4% Urban 8.5% Rural
Siegfried, et al.	Lesotho	Hazardous drinking as Consuming more than 225g of ethanol per week for women and those engaged in bouts of heavy drinking for 1-2 days a month or more in last 12 months	General population	279	9% of women hazardous drinkers
Tumwesigye et al. & Kasirye, et al.	Uganda	Frequent Heavy drinker takes 5 or more drinks on an occasion and drank at least once in a month in last 12 months	General population	754	6.5% frequent heavy drinkers 17.6% of women near daily drinkers

**Table 3:** Showing Prevalence of Excessive Alcohol Use and Negative Consequences among Women in Reproductive Age group in Africa as Reported by selected Studies (Population/Community Based Studies).

Reference	Country	Heavy drinkers	Risky Single occasion drinkers	Sample size
Martinez P, et al.	Burkina Faso	33.5	31.0	2543
	Chad	41.3	57.5	2435
	Congo	5.2	15.3	1185
	Cote d'Ivoire	7.1	6.9	1339
	Ethiopia	5.3	1.8	2535
	Ghana	4.4	3.3	2159
	Kenya	14.0	12.4	2537
	Malawi	11.5	36.4	3082
	Mali	8.6	22.4	1749
	Mauritius	0.9	0.3	2016
	Namibia	12.1	17.8	2379
	Senegal	13.0	21.4	1223
	South Africa	15.6	30.5	1228
	Swaziland	8.8	18.5	1189
	Zambia	17.7	27.6	2088
	Zimbabwe	7.2	18.3	2553

**Table 4:** Showing Prevalence of Heavy and Risky Alcohol Use among women in 20 African Countries: Data from World Health Survey 2011.

Strengths of this study include a thorough search strategy for literature and well defined inclusion and exclusion criteria that was followed strictly. Findings of this study should also be interpreted carefully as each of the studies included has its own limitations. It was not possible to conduct meta-analysis on various forms of alcohol use among women of childbearing age for different countries as only a few countries had two or more studies that had reported particular forms of alcohol use. Even those that had two or more studies

reporting on specific forms of excessive alcohol use (binge drinking, heavy drinking, frequent drinking, risky drinking and hazardous drinking) had not all reported on confidence intervals and or standard errors so meta-analyses were not possible. Most information was self-reported and may suffer recall bias and excessive alcohol use may have been underreported due to social desirability. None the less, this study provides insight into the magnitude of the challenge

of excessive alcohol use among women of childbearing age on the continent.

## Conclusion

Recent research on prevalence of excessive alcohol use among women in Africa in particular is dismal. The differences in prevalence figures reflect differences in drinking culture and social attitudes toward drinking. It may also reflect differences in settings of respondents, their characteristics as well as differences in study protocols. Concerted efforts are therefore required by Health systems in this part of the world to promote behaviour change communication to shape the attitudes, knowledge and behaviour of these women.

Alcohol misuse is likely to pose a burden on resources of many African governments if measures are not instituted in place to reduce alcohol harm. Alcohol harm reduction strategies should be put in place.

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