

# Understanding alcohol use among males in Colombo district: a cross-sectional survey

Mahesh Kumbukage <sup>1</sup>, Neil Thalagala,<sup>2</sup> Vindya Kumarapeli<sup>3</sup>

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<sup>1</sup>Postgraduate Institute of Medicine, University of Colombo, Colombo, Sri Lanka

<sup>2</sup>Research Unit, Family Health Bureau, Colombo, Sri Lanka

<sup>3</sup>Policy Analysis and Development Unit, Ministry of Health, Colombo, Sri Lanka

**Correspondence to**  
Dr Mahesh Kumbukage;  
[mpkumbukage@gmail.com](mailto:mpkumbukage@gmail.com)

## ABSTRACT

**Background** Alcohol consumption is a significant public health concern in Sri Lanka, which is linked to a variety of diseases and socioeconomic consequences. There is a rising trend in the overall per capita consumption and associated economic and disease burden in Southeast Asian countries, including Sri Lanka. This study aimed to assess the prevalence and patterns of alcohol consumption among adult males in the Colombo district.

**Methods** A community-based analytical cross-sectional study was carried out between June 2019 and June 2020 among 1160 participants selected through multi-stage cluster sampling with a cluster size of 20. 58 clusters represented all administrative divisions of the district.

**Results** A total of 1106 adult males with a mean age of 45.7 (SD=17.4) years participated, of which the majority (n=859, 77.7%) were urban residents, while 228 (20.6%) were from rural areas. The study revealed that 53.4% of adult males in the Colombo district have ever consumed alcohol, with 29.3% having done so in the past 30 days. Findings indicate that alcohol use remains prevalent among adult males, with consumption patterns varying across socio-demographic groups. While a notable proportion of individuals reported alcohol consumption in the past year, there was a marked reduction in binge drinking and daily alcohol use compared with global and national figures. The study also highlights higher alcohol consumption among temporarily employed individuals and older age groups.

**Conclusions** These insights contribute to a more comprehensive understanding of alcohol consumption trends in Sri Lanka and emphasise the need for continued research and policy efforts to address the health and social impacts of alcohol use.

## BACKGROUND

Alcohol is an ethanol-based drink that causes intoxication and, in many cases, disruptive behaviour. It is a big contributor to health problems and social issues worldwide.<sup>1</sup> The WHO has identified alcohol as a major public health concern, stressing the need for better strategies to deal with its effects.<sup>1</sup> In countries like Sri Lanka, excessive drinking is linked to serious illnesses like liver cirrhosis, heart disease, strokes and even

## WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Alcohol consumption in Sri Lanka, particularly among males, contributes significantly to health, social and economic burdens. While the global prevalence of male ever drinkers is 65.5%, national estimates suggest a lower prevalence, with substantial regional and ethnic disparities. Existing data highlight the urgency for accurate and localised assessments to inform public health interventions.

## WHAT THIS STUDY ADDS

⇒ This study revealed that 53.4% of adult males in the Colombo district are ever drinkers, with 29.3% consuming alcohol in the past 30 days. It also highlighted key socio-demographic patterns, such as higher consumption among temporarily employed individuals and older age groups, alongside a significant reduction in binge drinking and daily alcohol consumption compared with global and national figures.

## HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ The findings underscore the need for targeted alcohol prevention programs addressing vulnerable groups in urban settings. Additionally, the data provide a foundation for policy revisions and the development of context-specific preventive interventions.

some cancers.<sup>2–4</sup> In 2015, the economic cost of alcohol-related conditions in Sri Lanka was US\$885.86 million, which made up 1.07% of the country's GDP.<sup>5</sup> These numbers show why having accurate data is so important for planning better alcohol policies.

Alcohol drinking in Sri Lanka is mostly seen among men, with a huge gap between male and female drinkers.<sup>2 6 7</sup> According to the WHO, about 28.7% of adults in Sri Lanka drink alcohol, but when broken down, it is mostly men (34.8%) while women barely drink at all (0.5%).<sup>1</sup> The most common type of alcohol consumed here is spirits (84.9%), followed by beer (13.2%) and a very small amount of wine (0.3%).<sup>8</sup> A lot of people drink arrack, a strong local spirit made from coconut sap or molasses. But illicit alcohol

such as homemade moonshine and other unregulated brews is also common.<sup>3 6 9</sup>

One of the big challenges in studying alcohol use in Sri Lanka is that a lot of drinking happens off the record.<sup>9</sup> Unregulated alcohol is not included in official sales or surveys, so the real alcohol consumption could be much higher than what is reported.<sup>10</sup> The WHO says that per capita alcohol consumption in Sri Lanka is 4.3 L, with men drinking around 7.7 L per year. But in reality, it is hard to track how much people actually drink, especially with homemade and illegal alcohol available.<sup>1</sup> In Colombo, alcohol consumption was officially recorded as 4.42 L per person in 2004, but later dropped to 3.26 L in 2016.<sup>7</sup> The numbers make it look like drinking is going down, but since unregulated alcohol is so common, this might not be the full picture.

From 2015 to 2020, there were major gaps in alcohol data in Sri Lanka. The 2015 STEPwise approach to NCD risk factor Surveillance (STEPS) suggested alcohol use was declining, but it did not provide detailed or up-to-date information.<sup>11</sup> Also, social stigma can make people lie about their drinking habits, especially in certain ethnic and religious groups, which further distorts the data.<sup>12–15</sup> Without accurate numbers, it is really hard to understand the true situation.

This study aims to fill that gap by looking at alcohol consumption among adult males in Colombo, one of the most diverse and densely populated areas in the country. By examining patterns of drinking and the factors that influence them, the research hopes to help policymakers make better decisions and create more effective alcohol control programmes.

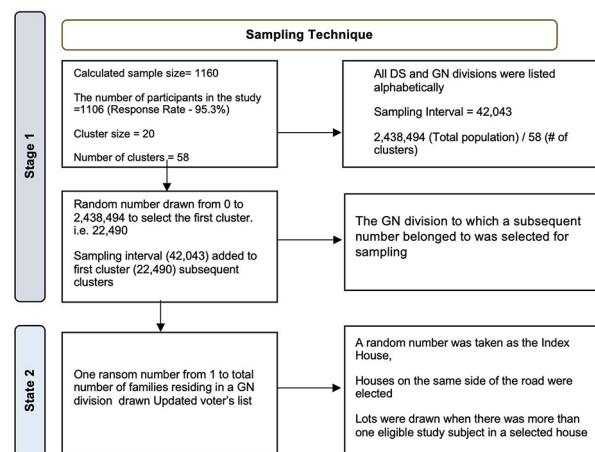
## METHODS

### Study setting

A community-based descriptive cross-sectional survey was conducted in the Colombo district from June 2019 to June 2020, situated in the Western Province of Sri Lanka, to understand the prevalence of alcohol consumption among Sinhala-speaking adult males who were 18 and older residing in the Colombo district over 6 months. Females were not included in the study as the prevalence of alcohol consumption among Sri Lankan females is very low. The Colombo district exhibits a diverse blend of ethnicities and socioeconomic backgrounds, with its population spread across urban, rural and estate sectors. The urban sector alone comprises 1 802 904 people, accounting for 77.6% of the district's total population. Colombo district comprises 13 administrative divisions called 'Divisional Secretariat' (DS) divisions. The 13 DS divisions in the district of Colombo are further divided into 557 Grama Niladhari (GN) divisions.

### Sampling technique

A two-stage cluster sampling method (figure 1) was employed in this study to select 1160 study units. Initially, all 13 DS divisions in the district were listed alphabetically,



**Figure 1** Two-stage cluster sampling procedure. This figure illustrates the sampling process of the study. It describes the sample size calculation and the two-stage cluster sampling process. DS, Divisional Secretariat; GN, Grama Niladhari.

followed by the listing of corresponding GN divisions within each DS division, along with their cumulative population figures. Each cluster was defined as a group of 20 households within a GN division, requiring a total of 58 clusters. These clusters were selected by dividing the total cumulative population of Colombo District (2 438 494) by the number of clusters (58), resulting in a sampling interval of 42 043. The first cluster was selected by generating a random number (22 490) using Microsoft Excel and identifying the GN division where the cumulative population was included. Subsequent 57 clusters were chosen systematically by adding the sampling interval to the first cluster until the target sample size was reached. This approach ensured that selected 58 GN divisions, covering all 13 DS divisions in Colombo District, were randomly and proportionally selected.

The first study unit within a GN division was selected randomly from the updated voters list of the respective GN division. For this, initially, the total number of families registered in the voters list was collected from GN. By using a random number-generating mobile application (Random Number Generator Plus), a number was selected randomly between 1 and the total family number in the GN area. The house belonging to the randomly selected number was selected as the index house of the survey, and the name and address of the house were collected from the GN. Thereafter, the eligible people in that house were invited to participate in the study, and all the houses on the same side of the road were selected to visit in search of eligible study units. When a household was visited, the household members were inquired into the presence of eligible study units among the members living in that household. A study subject was excluded from the study when he was living/working abroad, who was hospitalised, permanently unavailable or mentally unfit at the time of data collection. When there was more than one study unit in the same house that matched the inclusion criteria, one person was selected randomly for

the survey by drawing lots. In the event of finding no eligible person in a household, the search continued in consecutive households until the desired subject was found. When visiting the houses, the immediate adjacent house to the right front door of the index house was selected as the second house. The same process was followed until the required number of eligible study units (20) was selected.

### Development of the study instrument

A pretested interviewer-administered instrument in English was developed through a literature review and item generation process, which was then translated into Sinhala by proficient translators. The Sinhala instrument was back-translated to English by an independent translator to check for consistency in the meanings of items during translation. The instrument was pretested among 20 adult Sinhala-speaking males in an unsampled GN division. The Sinhala translation of the English questionnaire was well accepted during the pretest. The developed instrument possessed acceptable face, content and consensual validity assessed by a group of three subject experts. Test-retest reliability was assessed by re-administering the study instrument to 5% (n=55) randomly selected study participants from the study population within 1 week of data collection to ensure the reliability of the data. The instrument returned good reliability statistics ( $R=0.7$ ).<sup>16</sup>

### Data collection

Only one eligible person from a household was chosen as a study subject. Trained pre-intern medical graduates collected data. They obtained informed written consent from the study subjects before data collection. Data collectors informed the study subjects that participation was totally voluntary, maintained strict confidentiality of the information revealed and maintained privacy during data collection considering the social and psychologically sensitive nature of the interviews. The interviewers ensured that the interviews were conducted in a private area of the house, away from other family members, to prevent any potential emotional distress for the families. The survey was conducted only in the Sinhala language. Data were saved on an Epicollect5-based electronic version of the study instrument installed in mobile devices. Real-time data backups were done to a central server under the principal investigator's supervision. Data collectors underwent a structural training programme to reduce information bias. The data collectors provided sufficient information to the study subjects to reduce information bias, non-response bias and social desirability bias. Researchers paid a maximum of two additional data collection visits when a study subject was unavailable at the household.

### Data analysis

Data from Epicollect5 was imported into Statistical Package for the Social Sciences (SPSS) V.20 for analysis.

Descriptive statistics were presented as frequencies, percentages and measures of central tendency and dispersion.

### Operational variables

Prevalence of alcohol consumption was calculated by STEPS and WHO criteria for current drinkers, never drinkers, former drinkers, current daily drinkers, ever drinkers and binge drinkers.<sup>11</sup> A standard drink was considered as 10 g of pure ethanol, which roughly corresponds to a 330 mL bottle of beer or 120 mL glass of wine or 40 mL of hard liquor (distilled spirits such as whiskey or arrack).<sup>17</sup> To facilitate the data collection further, the 'Alcohol Visual Guide' was developed using the images of the standard volumes of different types of alcohol. All data collectors received printouts of this guide, which they presented to participants to determine the type and quantity of alcohol they consumed. Prevalence rates were disaggregated by socio-demographic factors (age, education, marital status, and occupation) and CIs were calculated for each prevalence category.

### Definitions of different alcohol drinking patterns by the drinker

A **current drinker** (STEPS criteria) is defined as a person who has consumed an alcoholic beverage in the past 30 days. A **non-current drinker** (STEPS criteria) is someone who has consumed alcohol within the last year but not in the past 30 days. According to the WHO criteria, a **current drinker** is someone who has consumed an alcoholic beverage in the past year. A **former drinker** is defined as a person who has consumed alcohol in the past but not within the last year. An **ever drinker** is someone who has consumed alcohol at any point in their life, while a **never drinker** has never consumed alcohol. A **high-end level drinker** (binge drinker) is defined as a person who has consumed at least 60 g or more of pure alcohol on at least one occasion in the past 30 days. A **current daily drinker** is someone who has consumed alcohol daily in the past 30 days.

### RESULTS

1106 individuals responded to the study, leaving a response rate of 95.4%. The mean age of the population was 45.7 (SD=17.4) years. The majority (n=859, 77.7%) were urban residents, while 228 (20.6%) were from rural areas. Ethnic distribution comprised of 75.6% Sinhalese, 14.4% Muslim, 9.9% Tamil and 0.1% Burghers.

The majority of the population (85.4%) were educated above the General Certificate of Education (G.C.E.) Ordinary Level, while only a few (4.1%) had no formal schooling. 731 (66.1%) disclosed income information. The mean monthly income among the participants was US\$163 (SD=127.9). 351 (31.7%) had at least one chronic disease. Nearly 30% (n=325) of the study participants were suffering from cardiovascular diseases, while 17.4% (n=192) were suffering from diabetes mellitus. Other diseases include chronic respiratory diseases



**Table 1** Socio-demographic characteristics of the study population (N=1106)

Basic characteristics	n	%
Age		
18–29 years	275	24.9
30–44 years	273	24.7
45–59 years	242	21.9
60–74 years	280	25.3
75–88 years	36	3.2
Ethnicity		
Sinhala	836	75.6
Tamil	110	9.9
Muslim	159	14.4
Burgher	1	0.1
Religion		
Buddhism	787	71.2
Hindu	81	7.3
Islam	159	14.4
Roman Catholic/Christian	79	7.1
Educational qualification		
No formal schooling	45	4.1
Elementary education 1–5	11	1
Secondary	757	68.4
Tertiary (degree or above)	293	26.5
Employment status		
Employed (permanent)	212	19.2
Employed (temporary)	246	22.2
Self-employed	270	24.4
Retired	71	6.4
Unemployed	307	27.8
Marital status		
Unmarried	339	30.7
Married	752	68
Separated/divorced	6	0.5
Widowed	9	0.8
Personal average monthly income (US\$)		
Less than US\$83.3	68	6.1
US\$83.3 to US\$166.6	370	33.5
US\$166.7 to US\$250	211	19.1
US\$250.1 and above	82	7.4
No response	375	33.9

(n=34, 3.1%), cancer (n=2, 0.2%) and mental illness (n=2, 0.2%) (table 1).

### Prevalence of alcohol consumption among adult males in Colombo district

The prevalence of ever drinkers among adult males in Colombo district was 53.4% (n=591, 95% CI: 50.5% to

56.4%). Table 2 illustrates alcohol prevalence according to the WHO and STEPS criteria.

Table 3 illustrates that the current drinkers (last 30 days) recorded the highest prevalence among the 45–59 age group, with 46.7% (n=113). Among drinkers in the last 1 year, this age category also led with 52.9% (n=128). In contrast, the 18–29 age group exhibited the lowest prevalence among current and ever drinkers. Sinhala participants had the highest current drinking prevalence (n=273, 84.3%), whereas the Muslims had the lowest prevalence (n=0, 0%). Participants with no schooling or only Grade 1–5 education showed the highest prevalence among current drinkers (last 30 days) at 41.1% (n=23), whereas those with tertiary education had the lowest prevalence at 16.7% (n=49). Among current drinkers (last year), individuals with secondary education recorded the highest prevalence at 43.0% (n=326), while those with tertiary education had the lowest prevalence at 24.9% (n=73). Ever drinkers demonstrated the highest prevalence in the low-educated categories, with 68.2% (n=73) in the ‘secondary education’ category and 64.3% (n=73) in the ‘no schooling/Grade 1–5’ category. Unmarried participants consistently showed the lowest prevalence of alcohol consumption across all three categories, while temporarily employed individuals recorded the highest prevalence. Among temporarily employed current drinkers (last 30 days), the prevalence was 45.9% (n=113), and among ever drinkers, it was 69.1% (n=170). Every socio-demographic variable that is indicated in table 3 showed a statistically significant difference ( $p<0.001$ ) in drinking prevalence within each variable.

### Prevalence of current daily drinkers and high-end level drinkers

Current daily drinkers constituted 6.1% of the participants (n=68). High-end level (binge) drinking occurred in 3.4% (n=38), as these participants reported consuming more than six standard drinks on one occasion in the past 30 days. Among the 324 current drinkers in the past 30 days, 69 (21.3%) consumed alcohol daily, while 26 participants (8.0%) reported drinking three to four times per week. The most common alcohol consumption pattern was ‘1–2 times per week,’ observed in 34.9% (n=113). Former drinkers had a mean alcohol consumption duration of 30.54 years (SD=15.07), whereas current drinkers reported a mean duration of 26.21 years (SD=13.54). Table 4 presents the mean number of standard drinks among current drinkers (30 days). The analysis included 324 participants who consumed alcohol within the last 30 days.

Drinking levels were fairly consistent, ranging from 3.6 to 4.1 drinks on average, except in the oldest group (75–88 years), where the small sample size skewed the data. The 18–29 age group averaged 3.6 drinks, while those aged 30–44 and 60–74 averaged 3.9 and 3.8 drinks, respectively. The 45–59 group showed the highest average at 4.1 drinks. Across all 324 participants, the overall average was

**Table 2** Prevalence of alcohol consumption according to STEPS criteria

Type of consumer	STEPS criteria			WHO criteria		
	n	%	95% CI	n	%	95% CI
Current drinker	324*	29.3	26.7 to 32.0	423†	38.2	35.4 to 41.1
Consumed last 12 months (not current)	99	8.9	7.4 to 10.8	–	–	–
Former drinker	168	15.2	13.2 to 17.4	168	15.2	13.2 to 17.4
Lifetime abstainer	515	46.6	43.6 to 49.5	515	46.6	43.6 to 49.5

STEPwise approach to NCD risk factor Surveillance (STEPS)  
 \*Current drinker (30 days).  
 †Current drinker (who consumed alcohol within the last 1 year).

3.9 drinks. The results suggested similar drinking habits across most age groups, with minimal variation.

The mean number of standard drinks per occasion was 3.9 (SD=1.8). Standard drinks per occasion ranged from 1 to 16. The highest mean number of drinking occasions was reported among the 45–59-year-old category with 4.1 drinks per occasion.

### Attempts to quit alcohol consumption

The participants were questioned if they had ever attempted to quit alcohol in their lives and the number of quitting attempts. The categories described below are the current drinkers who consumed alcohol in the last 1 year. Out of 423 current drinkers who consumed alcohol

**Table 3** Prevalence of different types of drinkers by socio-demographic variables

Socio-demographic variable	Current drinkers (30 days)		Current drinkers (1 year)		Ever drinkers	
	n	%	n	%	n	%
Age						
18–29 years	30	10.9	53	19.3	58	21.1
30–44 years	97	35.5	137	50.2	148	54.2
45–59 years	113	46.7	128	52.9	164	67.8
60–74 years	81	28.9	102	36.4	200	71.4
75–88 years	3	8.3	3	8.3	21	58.3
Ethnicity						
Sinhala	273	84.3	355	83.9	494	83.6
Tamil	39	12.0	53	12.5	73	12.4
Other	12	3.7	14	3.3	23	3.9
Muslim	0	0.0	1	0.2	1	0.2
Level of education						
No schooling/Grade 1–5	23	41.1	24	42.9	36	64.3
Secondary	252	33.2	326	43	454	59.9
Tertiary	49	16.7	73	24.9	101	34.5
Marital status						
Unmarried	68	20.1	89	26.3	97	28.6
Married	249	33.1	327	43.5	486	64.6
Separated/divorced/widowed	7	46.7	7	46.7	8	53.3
Employment status						
Permanently employed	63	29.7	98	46.2	112	52.8
Temporarily employed	113	45.9	141	57.3	170	69.1
Self-employed	106	39.3	125	46.3	152	56.3
Retired	8	11.3	17	23.9	40	56.3
Unemployed	34	11.1	42	13.7	117	38.1
Total	324	29.3	423	38.2	591	53.4

**Table 4** Types of alcohol used by alcohol consumers

Type of alcohol beverage	Current daily drinkers (N=68)		Current nondaily drinkers—1 year (N=355)		Former drinkers (N=168)	
	n	%	n	%	n	%
Beers	28	41.2	279	78.6	110	65.5
Wines	3	4.4	35	9.9	13	7.8
Spirits	54	79.4	309	87.1	179	106.5
Moonshine & others	27	39.7	158	44.5	106	63.1
Any of above	307		99	100.0	167	100.0

during the last year, 385 (91%) had not attempted to quit alcohol, while 38 participants (9.0%) had tried to quit alcohol consumption during the last 1-year period.

Among the current drinkers, the highest number of stop attempts was 2–5 (n=19, 50.0%) among current drinkers during the last year, followed by a single attempt by 11 individuals (28.9%). The mean number of quit attempts by a study subject has been 5.61.

### Consumption of alcohol at home

The participants were asked if they had ever consumed alcohol at home. Among the total of 423 participants who consumed alcohol during the last year, there were 135 (31.9%) who had ever consumed alcohol at home.

### Patterns of alcohol consumption among the ever users of alcohol

The commonest type of alcohol consumed by current daily users (n=54, 79.4%) was spirits. Beers were the most commonly consumed alcohol type among non-daily drinkers (n=279, 78.6%) and former drinkers (n=110, 65.5%) (table 4).

## DISCUSSION

The study of 1106 adult males in Colombo revealed that 53.4% (n=591, 95% CI: 50.5% to 56.4%) were ever drinkers, with 29.3% (n=324, 95% CI: 26.7% to 32.0%) consuming alcohol in the past 30 days and 38.2% within the past year. Daily drinking was reported by 6.1% (n=68, 95% CI: 4.8% to 7.7%), while 3.4% engaged in binge drinking. Alcohol use was more prevalent among older individuals (45–59 years), temporarily employed people and those with lower education levels. Beer was the most common drink among non-daily users, while spirits were predominant among daily drinkers. Mean consumption was 3.9 standard drinks per occasion, with the highest levels among 45–59-year-olds. Despite 31.9% drinking at home, 91% of current drinkers had not attempted to quit within the past year. Socioeconomic factors, including urban residency and low income, influenced consumption patterns, underscoring the need for targeted prevention programmes.

The patterns of alcohol use among adult males in Colombo can be understood using a few well-known theories. Jessor and Jessor's Problem Behavior Theory

explains that behaviours like alcohol drinking are influenced by personality, environment and behaviour system together.<sup>18</sup> This theory has been useful in studying young people's drinking but can also help understand the social and economic factors affecting alcohol use in Colombo. Also, cognitive-behavioural theories say alcohol drinking is a learnt behaviour, shaped by what people expect from it and what they see around them.<sup>19–21</sup> Social causation theory also describes how those who do not attain high education status have high alcohol consumption.<sup>22</sup> These ideas show how both personal thoughts and social surroundings play a role in drinking habits. The WHO also talks about how things like living in cities, money problems and cultural traditions change drinking patterns in different places.<sup>17</sup> Looking at the findings of this study with these theories shows why it is important to consider personal, social and cultural reasons when making plans to reduce alcohol use in Colombo.

Existing literature indicated alcohol consumption among males ranged from 34.8% to 40.9%.<sup>1 5 6</sup> A study by De Silva *et al* in 2009 reported that 14.7% of daily wage labourers were current alcohol users, highlighting a significant association between this occupation and alcohol use.<sup>23</sup> The nature of daily wage work often involves financial instability and strenuous labour, which may lead individuals to use alcohol as a coping mechanism for stress and physical exhaustion, as explored by Sorensen *et al*.<sup>9</sup> Daily workers in Sri Lanka often turn to alcohol to cope with financial strain, job insecurity and stress.<sup>24</sup> Limited education and lack of awareness of health risks, along with social acceptance and peer pressure, further encourage alcohol consumption.<sup>23 25</sup> Without workplace restrictions discouraging drinking, many engage in it freely without fear of consequences.<sup>26</sup> A prior survey in Colombo revealed a wide male-female disparity in alcohol use (48.0% vs 1.0%).<sup>26</sup> However, social acceptance, stigma and gender dynamics significantly influence consumption patterns, with alcohol being more socially accepted among men. Religious beliefs, including Buddhism and Islam, discourage alcohol use, especially among women. Additionally, a legal ban on women buying alcohol or working in alcohol-selling establishments existed in Sri Lanka until 2018, which discouraged women even more from consuming alcohol. Lifetime alcohol use on 12 or more occasions was estimated at 63.1% in men and only

3.7% in women, indicating a significant gender disparity.<sup>2</sup> Sri Lanka's average alcohol consumption appears low in global comparisons, but this statistic is misleading. Since a significant portion of the population, particularly women, does not drink at all, the national average is artificially lowered when divided across the entire population. However, among those who do drink, alcohol consumption is significantly higher than the numbers suggest. As a result, Sri Lanka seems to have low alcohol consumption compared with countries where drinking is more evenly distributed between men and women, even though heavy drinking remains a serious issue in specific groups. A large sample size would have been required for precise estimates of both sexes.

Studies have shown that hazardous drinking in Sri Lankan males is highest among those with the lowest levels of education.<sup>23</sup> People with lower levels of education in Sri Lanka tend to drink more than those with higher education due to a combination of economic, social and cultural factors.<sup>2</sup> Lower-income individuals, often in manual labour or daily wage jobs, face financial stress and use alcohol as a coping mechanism, with drinking commonly embedded in their work culture.<sup>27</sup> They also have limited awareness of the health risks associated with alcohol and may consume cheaper, illicit alcohol like kasippu.<sup>28</sup> In contrast, more educated individuals are typically more aware of the dangers of excessive drinking, adhere to cultural or religious beliefs that discourage alcohol, and work in professional environments where drinking is less accepted and can harm career prospects. Social and peer pressures, especially in rural areas, further reinforce these patterns.<sup>9 25</sup>

The ethnic majority in Colombo were Sinhalese (75.6%,  $n=836$ , 95% CI: 72.92% to 78.03%), consistent with the 2012 census (76.5%).<sup>29</sup> Socio-demographic variables such as religion, marital status, geographical distribution (urban, rural, and estate) and mean household income aligned with national data.<sup>1 5 30</sup>

The prevalence of ever drinkers among adult males in Colombo was 53.4%, with 29.3% drinking in the last 30 days and 38.2% in the past year ( $n=423$ , 95% CI: 35.4% to 41.1%). Lifetime abstainers comprised 46.6% (95% CI: 43.6% to 49.5%). A STEPS survey reported male ever drinkers at 59.8% and lifetime abstainers at 40.2% (95% CI: 37.0% to 43.4%).<sup>11</sup> The global prevalence of alcohol consumption among males is 65.5% (WHO), with lower rates in Colombo likely due to the low alcohol prevalence among Muslims.<sup>1</sup> Low drinking among Muslims is explained by cultural and religious influence.<sup>2 9 12 31</sup> The rates of alcohol consumption among Sinhalese (59.1%, 95% CI: 55.7% to 62.4%) and Tamil (66.4%, 95% CI: 57.1% to 74.5%) ethnic groups were similar to or higher than those reported in the STEPS survey findings.<sup>11</sup> Under-reporting leading to underestimation of drinking prevalence might have been a cause for lower drinking prevalence in the present study, as reported by many studies in both High Income Countries (HICs) and Lower Middle Income Countries (LMICs).<sup>12 15 32 33</sup>

The prevalence of past 30-day drinkers was 29.3% (95% CI: 26.7% to 32.0%), lower than the STEPS survey's 34.8%. Similarly, the 1-year prevalence was 38.2% (95% CI: 35.4% to 41.1%) lower than global figures.<sup>1 11</sup> The WHO reported that 40.6% of males consumed alcohol in the past year, while STEPS (2015) and Somathunga *et al* (2014) reported rates of 50.1% and 51.5%, respectively.<sup>7 17</sup> The study suggests a decline in recent alcohol consumption in Colombo compared with global and national trends, possibly due to the district's relatively high Muslim population (14.4%, 95% CI: 12.43% to 16.57%).<sup>34</sup> Binge drinking (60 g or more per occasion) was reported by 3.4% (95% CI: 2.5% to 4.6%) of participants, aligning with STEPS findings (3.5%) but lower than WHO's 16.6%.<sup>1 11</sup> Low rates among younger people may explain this difference due to changing practices of socialisation, decreased alcohol affordability and changed attitudes towards risk and self-governance, as described by researchers.<sup>2 6 35</sup> Daily drinkers (6.1%,  $n=68$ , 95% CI: 4.8% to 7.7%) were fewer than Alcohol and Drug Information Center (ADIC) estimates (13%,  $n=138$ ), potentially reflecting district-specific patterns.<sup>8</sup>

Spirits were the most commonly consumed type of alcohol among daily and non-daily users. Spirits were consumed by 79.4% ( $n=363$ ) of daily drinkers, which is higher than the ADIC data (61.9%).<sup>8</sup> Beer was consumed by 72.5% of past-year drinkers ( $n=307$ ), which is a reduction compared with ADIC's 77.8%. Moonshine use was reported by 2.6% ( $n=11$ ), slightly higher than ADIC's estimate (1.6%). However, these figures may be underestimated due to participants' reluctance to disclose illicit alcohol use.<sup>9 36</sup> The mean number of standard drinks consumed (3.9, 95% CI: 3.7 to 4.1) did not exceed high-risk thresholds, similar to patterns in Western nations.<sup>37 38</sup> Quit attempts averaged 5.61, comparable to a US national survey of 39 809 individuals.<sup>39</sup>

The survey used a multi-stage cluster sampling method to assess alcohol consumption prevalence. However, the analysis was limited as it did not consider clustering effects. The cluster size of 20 study units per cluster was chosen, which could have influenced the prevalence estimate. If fewer participants were taken from each cluster, a more precise prevalence estimate could have been obtained. Due to feasibility issues, the cluster size was kept at 20. The sampling interval should have used a GN-specific male population, but due to availability, the GN-specific cumulative population was used.

The study may have overestimated alcohol prevalence due to cluster sampling and did not account for female alcohol use. However, findings are generalisable to Colombo's male population and its ethnic subgroups.

This highlights some key public health and social concerns. Even though drinking rates are lower than global averages, heavy alcohol use is still common, especially among older, less-educated and financially struggling individuals. High spirits consumption and low quit attempts suggest weak intervention efforts. Cultural factors play a role, while under-reporting hints at gaps



in regulation and cultural stigma. The findings show the need for stronger alcohol policies, better public health programmes, and more research on illicit alcohol. The international community should take note, as these issues connect to broader challenges in alcohol control and public health.

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#### ORCID iD

Maresh Kumbukage <http://orcid.org/0000-0001-9685-6361>

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