Title: Subgroups of adults who drink alcohol at low-risk levels: diverse drinking patterns and demography

Running title: Subgroups of adult low-risk drinkers

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Introduction: A significant minority of Australians drink within the 2009 national guidelines. Despite encouragement of low-risk drinking as opposed to consumption patterns assodciated with greater harm, little is known about the drinking patterns of this group. This paper identifies subgroups of low-risk drinkers and their distinguishable characteristics.

Methods: Data were sourced from the 2016 National Drug Strategy Household Survey, specifically 8,492 adults (18+) who consumed 1-730 Australian standard drinks (ASD; 10 g ethanol) in the past year, and never 5+ ASD on a single occasion. Cluster analysis enabled identification of subgroups from drinking variables. Drinking patterns, socio-demographic characteristics, drinking context and alcohol-related perceptions of subgroups were examined.

Results: Three subgroups were identified. *Special occasion drinkers* (64.6%) drank low to moderate amounts very infrequently. *Regular moderates* (19.6%) and *Regular sippers* (15.8%) drank 5-6 days a week on average, with the average number of ASD per day 1.2 and 0.5 respectively. *Special occasion drinkers* tended to be younger than members of more regular drinking subgroups. Perceptions of regular alcohol use also differed between *Special occasion drinkers* and members of the other subgroups.

Discussion: Alcohol consumption patterns among low-risk drinkers are not homogeneous. Younger drinkers who consume at low-risk levels are more likely to report infrequent consumption than moderate regular consumption. A better understanding of low-risk drinkers may help increase the prominence and acceptability of this type of drinking, challenge the normativity of heavier drinking norms and help target campaigns as new information emerges on health risks associated with low-level drinking.

Key words: Low-risk, alcohol consumption, subgroups, adults, socio-demographic characteristics

Australians experience substantial rates of problems from alcohol, and drinking is widespread and socially accepted [1]. In this context, defining and encouraging low-risk drinking is a worthy health goal [2]. Furthermore, a key message in the draft of the revised Australian drinking guidelines is 'The less you choose to drink, the lower your risk of alcohol-related harm. For some people not drinking at all is the safest option' [3]. Despite this, information on low-risk drinkers, particularly various types of low-risk drinkers, has remained relatively underdeveloped, in contrast to the many studies investigating heavy or harmful drinking. Increasing our understanding of low-risk drinkers may inform discussions around less harmful drinking patterns and challenge the acceptability of risky alcohol use. Examining low-risk drinking is not about advocating alcohol use. Instead, it is an acceptance that people will continue to choose to drink, and a closer look at low-risk drinking patterns and those who drink at low-risk levels may offer insights into how heavier drinkers can reduce their consumption. This paper will identify how the concept of low-level drinking has been defined, before outlining recent studies investigating subgroups of non-risky drinkers.

Low-risk drinking, also referred to as 'moderate', 'light', 'responsible', 'occasional', or 'sensible', is considered relatively unproblematic compared with heavier drinking [4]. The various definitions of non-heavy alcohol use – in an epidemiological and socio-political sense – have been discussed at length in the literature [5-7]. For example, consuming alcohol monthly or less often has been described as occasional drinking [8], whereas 'responsible drinking' speaks to self-governance and notions of neoliberalism more than drinking patterns or volume [9]. Low-risk drinking in this study is defined as per the 2009 Australian drinking guidelines, which recommend (guideline 1) drinking no more than two Australian standard drinks (one ASD contains 10 g ethanol) per day, on average, to reduce the risk of long-term harm (e.g., chronic disease); and (guideline 2) drinking no more than four ASD on a day to reduce the risk of short-term harms arising from a single drinking occasion (e.g., injury) [10].

Accounting for both guidelines [10], 37% of the Australian population aged 12 and over drink at low-risk levels. A further 25% did not drink alcohol in the past year [11, 12]. In comparison, a US study

estimated that 22% of the population aged 18+ neither exceed daily limits (2.4 ounces for men; 1.8 ounces for women) nor weekly limits (measured as 'average daily ethanol intake' of 1.2 ounces for men; 0.6 ounces; for women) [13]. In the same study, 49% consumed fewer than 12 drinks or no alcohol in the previous year [13]. Some decades ago, Knupfer [14] noted how unusual the daily light drinker was among US adults (one or two drinks daily or almost every day, and never more; 2% in 1984). A more recent study has also shown that drinking daily, or nearly daily is typically associated with heavy consumption as opposed to low-risk drinking [15].

Across various definitions, adults who drink at lower levels (compared with heavier drinkers) are typically women [11, 16], those in older adulthood [17], married [18], and well-positioned socioeconomically [19, 20]. Low-risk drinking has also been linked to specific life stages such as parenthood [21], particularly for women [22], and social practices such as consuming wine at home with a meal [23], or the occasional drink on a night out or a celebratory toast (e.g., at a wedding) [24, 25].

Nearly 30 years ago Martin and Casswell [26, 27] identified subgroups of 'infrequent light drinkers' (43%) and 'liberal light drinkers' (35%) in a female-only sample and 'light drinkers' (43%) in a male-only sample. Light drinking was reflective of their low daily average intake (<20 ml); however, usual intake, particularly for men was not always light (i.e., <20 ml up to 100 ml) [27]. Attitudes and beliefs also distinguished subgroups with liberal light drinkers viewing drinking to intoxication as less favourable than infrequent light drinkers [26]. Negative attitudes towards drinking to intoxication was also a characteristic of male light drinkers [27]. Socio-demographic characteristics were not dissimilar to those described above.

Extending on their earlier work, but with a greater focus on drinking context, Martin and colleagues [28] identified subgroups who drank frequently but consumed low to moderate amounts of alcohol: 'frequent early evening drinkers' (18% males; 16% females) and 'frequent/daily family drinkers' (3% males; 4% females). These subgroups drank at home on at least four or more occasions a week and

drank in the company of their spouse or other family members. For both subgroups, the average intake per occasion was 26 mls among females; a higher amount was reported by males [28].

Another study [29] identified drinking subgroups, accounting for beverage type and drinking context. Subgroups characterised as 'occasional', 'nutritional', and 'social' typically drank 1-2 drinks per occasion. It's worth noting this was the minimum amount recorded and very infrequent drinkers were excluded [29].

The work of Martin and others [26-29] illustrates various drinking patterns among adults who did not necessarily drink at high-risk levels, as well as characteristics distinguishing subgroups of low-to-moderate drinkers. However, these studies did not assess light drinking against evidence-based thresholds, such as those in the 2009 drinking guidelines [10]. Without re-examining low-risk drinking, as specified in national guidelines, we cannot be certain that the subgroups identified in the literature translate to the current Australian population.

The focus of this study is the extent to which distinct types of low-risk drinkers exist within the Australian population. We use a large general population sample of adults who drink at low-risk levels (within the long-term and short-term drinking guidelines) to 1) identify subgroups of low-risk drinkers and 2) describe the profile of each subgroup in terms of socio-demographic characteristics, drinking context and alcohol-related perceptions. Where abstinence is not seen as a widely viable solution to alcohol problems (as is the case in Australia), encouraging low-risk drinking is a key health objective. The study concludes by offering suggestions for further ways to frame public messages about alcohol consumption.

Method

Sample

Data were from the 2016 National Drug Strategy Household Survey (NDSHS), a cross-sectional population-based survey of Australians aged 12 years and older [30]. The survey is conducted

triennially and provides detailed data on substance use and related factors. The 2016 NDSHS used a multi-stage stratified sampling design to randomly select residential households from statistical local areas within Australian states and territories. For households with more than one occupant aged 12 or older, the person who most recently had a birthday was selected. Selected respondents completed the survey on paper, online or via a telephone interview. The final sample included 23,772 respondents, and the response rate was 51.1%. Remuneration for participation was not offered. A detailed description of the method is reported elsewhere [31].

Only respondents aged 18 years and older who drank within both the long-term and short-term risk guidelines (see below) were retained for analysis.

Measures

Alcohol use and risk levels

Alcohol use was based on whether the respondent had consumed alcohol in the past 12 months (yes/no). The graduated frequency (GF) method was used to record drinking patterns in the past year by asking about the frequency in 8 categories (everyday graduating down to never) of drinking 8 different quantities (20+ ASD graduating down to none). The cumulative formulation of this method resulted in some respondents reporting more than 365 drinking days in the past year. For these respondents, an annual total volume was calculated from the heaviest 365 drinking days [32]. Based on the GF data, respondents with a total volume of 1-730 ASD were classified as 'long-term low-risk drinkers', and 12,925 respondents met this criterion. The cut-off of 730 is consistent with the 'two drinks per day, on average' (over a single year) interpretation of the 2009 Australian drinking guidelines - guideline 1 [33, 34]. GF responses were also used to assess compliance with guideline 2 (i.e., short-term harm). Respondents who did not consume five or more drinks on a single occasion in the past year were coded as short-term low-risk drinkers, and 8,910 respondents met this. A total of 8,492 respondents drank within both guidelines; this category is hereafter referred to as 'low risk' (61.9% female, mean age of 54.7 (unweighted)).

Socio-demographic variables

The socio-demographic factors included in this paper are sex, age (in age groups), marital status, household composition, employment status, household annual income and neighbourhood disadvantage. Socio-demographic factors were selected based on relationships with drinking status reported in the literature.

Neighbourhood disadvantage was based on multiple socio-economic indicators of a neighbourhood and is expressed as quintiles [35]. The first quintile equates to the 20% most disadvantaged neighbourhoods and the fifth quintile to the 20% least disadvantaged neighbourhoods.

Drinking context, beverage preferences and alcohol-related self-perceptions

All drinkers were asked the following questions:

- 'Where do you usually drink alcohol?' (Multiple options could be selected from a set list).
- 'What type of alcohol is your main drink, as in the one you drink most often?' (One option could be selected from a set list).
- 'At the present time do you consider yourself a…? (Select one of: non-drinker, ex-drinker, occasional, light, social, heavy, binge drinker).
- 'Do you personally approve or disapprove of regular alcohol use by an adult?' (One option could be selected from a 5-point Likert scale).

All available options are presented in Table 4.

Statistical analysis

The analysis aimed to identify groups of people who drank in a similar manner. A *k*-means partitional clustering method was used to identity clusters (i.e., groups) among the sample of low-risk drinkers, based on how frequently they consumed half a drink, 1-2 drinks and 3-4 drinks on an occasion in the past year. These three variables were treated as continuous data; thus, *k*-means was a suitable clustering method.

The *k*-means algorithm starts by generating random cluster means, then partitions 'each observation to the cluster to whose mean it was closest, and then recalculates the cluster mean' [36] in an iterative process until each observation remains in the same cluster [37]. The k-means method requires the number of possible clusters '*k*' to be specified from the outset, and in this case, two- to ten-cluster solutions were requested. The Caliński and Harabasz Pseudo-F-statistic [38] was used to identify the optimal number of clusters. This statistic provides a measure of the separation between clusters where higher values indicate greater separation between clusters [39]. Analyses were also conducted with the 2013 NDSHS data [40], and the same clusters were found, indicating that the findings based on the 2016 NDSHS data were robust (Table SI).

Descriptive statistics (proportions and means) were used to test for differences between the three clusters. Post-estimation tests, specifically the linear combination test (lincom command in Stata 14.1) provided the equivalence of a t-test for differences between clusters on drinking patterns, socio-demographic characteristics and alcohol-related beliefs and practices. Data were weighted to address any imbalances in the probability of a respondent being selected and to ensure that the data are as representative as possible of the general Australian population [41]. Proportions and means are based on weighted data, and sample numbers are unweighted.

Results

Cluster analyses were run with two-to ten-cluster solutions specified, and F statistics for these models are shown in Table 1. As per Caliński and Harabasz's [38] rule for deciphering cluster analyses, the three-cluster solution was retained, as it had the highest Pseudo F Statistic.

[Insert Table 1]

Drinking patterns of the three clusters are shown in Table 2. Cluster 1 was labelled *Special occasion drinkers* as respondents within this subgroup drank less frequently than the other two subgroups. On average, these respondents consumed half a drink only 16 days a year and 1-2 drinks 19 days a year. *Special occasion drinkers* consumed 3-4 drinks 9 days per year on average, which was higher relative to the other two groups. However, their mean number of drinks per day (0.2 ASD), were lower due to the low frequency of drinking occasions. *Special occasion drinkers* accounted for 65% of the adult low-risk drinkers.

Cluster 2 was labelled *Regular moderates* as members of this subgroup consumed 1-2 drinks approximately 5 days a week on average. They all consumed 1-2 drinks at least once in the past year. *Regular moderates* reported the highest mean number of drinks per day (1 ASD) and a significantly higher proportion of *Regular moderates* consumed 3-4 drinks at least once in the past year, relative to the other subgroups. The *Regular moderates* accounted for 20% of the adult low-risk drinkers.

Cluster 3 was labelled *Regular sippers* due to its members' more frequent consumption of less than one drink per occasion, relative to the other two subgroups. Members of this group reported a mean of 0.5 drinks per day, and they drank this amount roughly 5-6 days a week on average. The *Regular sippers* accounted for 16% of the adult low-risk drinkers.

[Insert Table 2]

Socio-demographic characteristics, drinking context and beverage preferences

Table 3 presents socio-demographic information by cluster and information on drinking practices, and self-perceptions are shown in Table 4.

Special occasion drinkers were more likely to be young adults (18-24) or early-to-middle aged adults (25-39). A higher proportion of these drinkers were single/never married, and they were more likely

to be a single parent or couple living with dependent children. A lower proportion was retired or on a pension, relative to the other two subgroups. In turn, a higher proportion of *Special occasion drinkers* were employed or engaged in studies or home management. *Special occasion drinkers* were more likely to live in the two most disadvantaged quintiles of neighbourhoods. Members of this subgroup were more likely to drink at a licensed venue or a house party, relative to the other two subgroups. They were also more likely to report low-strength beer, spirits or cider as their preferred beverage. A higher proportion of *Special occasion drinkers* self-identified as an occasional drinker, non-drinker or ex-drinker, relative to the other two subgroups. These drinkers were more likely to disapprove of regular alcohol use.

Regular moderates had a higher proportion of members aged 65 years and over, relative to the other two subgroups. Even though most *Regular moderates* were married, this group had a higher proportion of members who were separated or widowed, compared to the other two subgroups. A small yet higher proportion of *Regular moderates* lived in a household with children aged 16 years or older. Consistent with the older age of *Regular moderates*, a higher proportion were retired or receiving a pension. Similar to the *Regular sippers*, the majority of *Regular moderates* consumed alcohol at home. A lower proportion of *Regular moderates* usually drank at a location other than their own or partner's place (e.g., restaurant), relative to the other subgroups. Bottled and cask wine were their beverages of choice. Members of this subgroup were more likely to identify as a light or social drinker, and they were also more likely to approve of adults drinking regularly, relative to the other subgroups.

Regular sippers had a high proportion of women and members aged 40 years and older. They were more likely to live in a couple-only household, and a higher proportion lived in the least disadvantaged quintiles of neighbourhoods. A higher proportion of *Regular sippers* self-identified as an occasional drinker, and a higher proportion were indifferent in their approval of regular alcohol use by adults, relative to the other two subgroups.

[Insert Table 3]

[Insert Table 4]

Discussion

This study identified clusters of adult low-risk drinkers in a large population-based Australian sample. Based on low-risk drinkers' (62% of whom were women) alcohol consumption patterns over 12 months, three distinct clusters were identified as: *Special occasion drinkers* (64%), *Regular moderates* (20%), and *Regular sippers* (16%). *Special occasion drinkers*, comprising almost two-thirds of our sample, share characteristics with subgroups of drinkers identified in other studies [26, 27]. Furthermore, previous studies [14, 28] observed that frequent light drinking is atypical, as was found in our study with *Regular moderates* and *Regular sippers* making up approximately one-third of our low-risk drinkers, or approximately 13% of the population overall.

The drinking patterns of *Special occasion drinkers* suggest that they may drink in the context of a celebration or special event. This seems plausible given their tendency to drink infrequently together with the varying number of drinks per occasion, and the identified drinking setting (e.g., party at someone's place or licenced venue). It is also consistent with the notion of having an 'obligatory' drink to mark a significant event [25]. Special occasion drinking is often viewed as an opportunity to drink to intoxication [e.g., 42]; however, this group did not exceed the threshold of short-term risky drinking.

Our results also suggest that *Special occasion drinkers* were younger than members of the other two subgroups (i.e., *Regular moderates and Regular sippers*), and they were more likely to have parental responsibilities for young children and be engaged in study or work (in and outside of the home). Consistent with Bowden et al. [22] our findings suggest that having young children may be protective against more frequent drinking among low-risk drinkers. Furthermore, social role theorists have

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proposed that multiple roles may limit leisure time and opportunities to drink [e.g., 43], and this may be the situation for the *Special occasion drinkers*.

The lower socio-economic position of *Special occasion drinkers*, relative to the more regular drinkers suggests that infrequent light drinking may be associated with financial constraints. Previous studies have reported that abstinence or occasional drinking, as well as heavy drinking, is associated with socio-economic disadvantage [44] and our results are in keeping with this observation. However, it is important to note that the relationship between socio-economic status and alcohol use is complex, and results vary with utilisation of different measurements [19].

Regular moderates and *Regular sippers* both consumed alcohol frequently (approximately 5-6 days a week) with the average number of drinks per day differentiating the two groups: 1.2 drinks for the former and 0.5 drinks for the latter. The drinking frequency of *Regular moderates* and *Regular sippers* aligns with other reports of frequent light drinkers, for example, Martin et al.'s [28] frequent early evening drinkers and frequent family drinkers; however, the average amount consumed was lower in our study. This, of course, may simply reflect our sample including only low-risk drinkers, whereas Martin et al's. [28] included all drinkers.

Frequent consumption of small amounts of alcohol is considered an unusual pattern of drinking, associated with greater affluence [20, 28]; our findings concur with this. Other socio-demographic characteristics of these subgroups, namely being more likely to be married, live in a couple-only household, and retired are also consistent with previous work on low-level drinkers [26, 27]. For the most part, the discernible socio-demographic characteristics of *Regular moderates* and *Regular sippers* point to a stage in late middle age and older when their socio-cultural position may mean they have sufficient time and money to drink regularly.

The low-risk drinkers' classification of their drinking status and their attitude towards regular alcohol use is a noteworthy aspect of this study. *Special occasion drinkers* were more likely to self-identify as a non-drinker and were also more likely to disapprove of regular drinking by adults, relative to the

regular drinking subgroups. Together, these results may suggest a level of indifference about drinking; that their very occasional alcohol consumption was insignificant to their sense of self, which aligns with other studies involving infrequent light drinkers [20]. The case was different for *Regular moderates* who tended to approve of regular alcohol use and saw themselves as light or social drinkers. These results suggest that alcohol holds some value and meaning in their lives, albeit that they regularly have no more than two drinks. Exploring why these adults drink small amounts, rather than more or less is a necessary next step. Further research about the motivations for drinking or not drinking would provide a greater level of insight into the drinking behaviour and choices of low-risk drinkers. Extending our knowledge of *Special occasion drinkers* may present opportunities to challenge norms around heavy episodic drinking.

The 2009 Australian drinking guidelines are under review. One proposed change is lowering the long-term harm threshold from no more than two standard drinks per day, on average, to no more than 10 standard drinks per week [3]. If this comes into effect, the group of *Regular moderates* identified in this study may benefit from tailored messages about the increased risks associated with daily or nearly daily alcohol use. The two other subgroups – *Special occasion drinkers* and *Regular sippers* – offer alternative patterns of drinking. Narratives on low-risk drinking patterns may serve as vignettes in alcohol harm reduction messages encouraging heavier drinkers to reconsider their alcohol use.

Limitations

The present study has some limitations and strengths. The nature and purpose of cluster analysis are exploratory; therefore, solutions may reveal meaningful subgroups or results could be an artefact of the clustering algorithm. However, the cluster analysis that found these three groups were replicated using two separate datasets, with similar results found when using the same survey from 2013 (Table S1). This provides some confidence in the robustness of these findings. The response rate of 51.1% is not particularly high; however it exceeds the two previous NDSHS (2013: 41.1%; 2010: 50.6%)[29] and consumption trends based on NDSHS data are consistent with other Australian

sources [45]. Substance use of non-respondents is not available; however, underreporting of alcohol consumption is a constant problem in survey research, and low-risk drinkers are not precluded from such response bias [46].

The low-risk thresholds applied in this study were based on the 2009 NHMRC drinking guidelines. These thresholds are subject to change with new evidence on alcohol-related risks; thus, different thresholds for low-risk drinking may yield different results to those presented.

Conclusion

Studies of heavy drinking dominate the public health literature on alcohol. This study offers a different view, focusing on those who drink without exceeding Australian guidelines for alcohol consumption. Distinct patterns of alcohol consumption were found amongst low-risk drinkers. Results indicate that younger drinkers who qualify for the low-risk category are more likely to do so because of infrequent consumption rather than moderate regular consumption; the latter is typically reported by older low-risk drinking adults. Health promotion efforts may use these results to present alternative narratives to younger and older adults about ways to drink without increasing their risk of short-term or long-term alcohol-related harm.

Conflict of interest:

The authors report no conflict of interest.

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Table 1: Number of clusters and the Pseudo F Statistic

Number of clusters	Caliński/Harabasz Pseudo F Statistic
2	4757.26
3	**19194.51**
4	17289.97
5	16763.57
6	17310.06
7	15726.13
8	17265.64
9	15456.54
10	17211.93

Table 2: Alcohol consumption by low-risk subgroups

	Cluster 1 Special occasion	Cluster 2 Regular moderates	Cluster 3 Regular sippers	Total (all low-risk drinkers)
n (%)	5,484 (64.6)	1,662 (19.6)	1,346 (15.8)	8,492
Annual total volume (mean number of drinks)	69.7↓	437.5↑	200.1↑	153.1
Drinks per day (mean number of drinks)	0.2↓	1.2 ↑	0.5↑	0.4
Mean number of days amount consumed (in year)				
Less than one drink	16.3↓	33.1↓	289.0↑	60.4
1-2 drinks	19.0↓	261.1↑	26.3↓	62.0
3-4 drinks	9.5 ↑	8.4	4.6↓	8.5
Amount consumed at least once (% yes)				
Less than one drink	72.5	46.4↓	100.0↑	72.1
1-2 drinks	64.3↓	100.0↑	64.3↓	70.0
3-4 drinks	30.4↓	38.4↑	34.4	32.4

The up arrow ↑indicates a significant difference (p<0.05) in mean or proportion whereby the estimate of the single cluster is higher than the estimate of the other two clusters combined.

The down arrow ↓indicates a significant difference (p<0.05) in mean or proportion whereby the estimate of the single cluster is lower than the estimate of the other two clusters combined.

Estimates (mean and proportion) are weighted and subgroup total is unweighted.

One drink contains 10 g ethanol, the Australian standard drink classification.

Table 3: Socio-demographic characteristics by low-risk subgroups

	Special occasion	Regular moderates	Regular sippers	Total
	5,484	1,662	1,346	8,492
	%	%	%	%
Sex				
Male	42.0	44.0	38.5↓	41.8
Female	58.0	56.0	61.5↑	58.2
Age				
18-24	10.7↑	1.0↓	3.3↓	7.9
25-39	26.9↑	8.4↓	17.1↓	22.2
40-64	43.1	42.2	48.1↑	43.7
65+	19.3↓	48.4↑	31.5↑	26.2
Marital status				
Never married	20.8↑	6.6↓	10.3↓	16.8
Separate/divorced/widowed	12.5↓	16.3↑	14.5	13.5
Married/partner	65.7↓	76.6↑	74.8↑	68.9
Household				
Parent/s with dependents (aged 0-14[a])	36.5↑	23.6↓	34.6	34.0
Parent/s with non-dependents (>15 years old)	12.7	15.4↑	13.7	13.3
Alone	12.4	14.5	12.8	12.8
Couple only	21.2↓	41.2↑	30.9↑	26.1
Other	17.2↑	5.4↓	7.9↓	13.7
Employment status				
Employed	57.7↑	45.0↓	54.5	55.0
Student	5.8↑	0.9↓	2.2↓	4.4
Unemployed	6.0↑	2.3↓	3.6↓	5.0
Home duties	6.0↑	3.1↓	5.0	5.4
Retired/pension	19.8↓	44.9↑	30.3↑	25.7
Other	4.8	3.7	4.5	4.6
Household income				
$51,999 or less	18.5	20.8	18.8	18.9
$52,000 - $103,999	22.7	21.5	21.8	22.4
$104,000 or more	25.4	26.1	27.4	25.8
Neighbourhood disadvantage				
Most disadvantaged	18.2↑	15.6	15.5	17.3
2	20.3↑	17.4↓	19.2	19.7
3	20.6	18.7	19.1	20.0
4	20.2	20.2	20.6	20.3
Least disadvantaged	20.6↓	28.2↑	25.7↑	22.7

↑ Proportion of the single cluster is significantly (p<0.05) higher than the proportion of the other two clusters combined.
↓ Proportion of the single cluster is significantly (p<0.05) lower than the proportion of the other two clusters combined.
a Dependent children are children aged 0-14, or older children who are still financially dependent (e.g., full-time students)
Estimates (proportion) are weighted.

Table 4: Drinking context, beverage preferences and alcohol-related self-perceptions

	Special occasion	Regular moderates	Regular sippers	Total
	5,484 %	1,662 %	1,346 %	8,492 %
Place usually drink (yes %)				
Own, spouse's or partner's place	71.5↓	96.4↑	82.4↑	77.5
Friend's place	29.5	25.7↓	31.7	29.2
Party at someone's house	27.9↑	21.5↓	27.9↑	26.4
Restaurants/cafes	40.6↑	34.0↓	42.2	39.7
Licensed premise	28.9↑	22.5↓	28.3	27.7
Workplace	1.5↑	0.7	1.0	1.3
Main drink				
Cask wine	1.6↓	8.4↑	3.5	3.0
Bottled wine	39.6↓	55.2↑	45.9	43.3
Regular strength beer	11.7	9.4↓	11.0	11.2
Mid-strength beer	6.6	7.4	5.4	6.6
Low strength beer	5.9↑	3.6↓	5.7	5.5
Pre-mixed spirits	8.6↑	2.0↓	4.7↓	6.9
Spirits	15.3↑	9.0↓	14.9	14.1
Cider	5.9↑	0.6↓	5.8	4.9
Other	4.8	4.3	3.0↓	4.5
Alcohol self-identification				
Non-drinker	17.8↑	0.8↓	9.0↓	13.6
Ex-drinker	1.2↑	0.1↓	0.5	0.9
Occasional drinker	51.0↑	14.4↓	51.9↑	44.8
Light drinker	15.2↓	63.7↑	26.8	25.3
Social drinker	14.6	20.5↑	11.6↓	15.2
Heavy/binge drinker	0.2	0.5	0.2	0.3
Approval of regular alcohol use by adults				
Strongly approve	2.2↓	4.7↑	2.6	2.7
Approve	34.8↓	50.5↑	35.6	37.6
Neither	39.4	37.1	43.6↑	39.6
Disapprove	17.0↑	5.6↓	11.9↑	14.3
Strongly disapprove	6.6↑	2.1↓	6.2	5.8

↑ Proportion of the single cluster is significantly (p<0.05) higher than the proportion of the other two clusters combined.
↓ Proportion of the single cluster is significantly (p<0.05) lower than the proportion of the other two clusters combined.
Estimates (proportion) are weighted.

Supplementary material

Table SI: Number of clusters and the Pseudo F Statistic

Number of clusters	Calinski/Harabasz Pseudo F Statistic
2	6852.32
3	**19642.05**
4	14793.10
5	13105.65
6	11444.00
7	17684.05
8	12479.89
9	11065.87
10	10320.95