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The who and what of women's drinking: Examining risky drinking and associated socio-demographic factors among women aged 40–65 years in Australia

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Abstract

Introduction. *Recent trends in Australian national survey data show an increase in alcohol use among middle-aged people, amidst declines in alcohol use among other population groups. There is limited research, however, on middle-aged women's alcohol use. This study aimed to examine patterns in alcohol use among Australian women aged 40–65 and the associated sociodemographic and contextual factors.* ***Methods.*** *Cross-sectional data from six waves of the National Drug Strategy Household Survey (2001–2019). We estimated the prevalence of long-term risky drinking (>2 Australian standard drinks per day) and risky-single occasion drinking (>5 Australian standard drinks on one occasion) among middle-aged women. Logistic regression models were estimated using 2019 data to examine demographic characteristics and contextual factors associated with alcohol use.* ***Results.*** *Since 2001, there has been a statistically significant increase in long-term risky drinking and risky-single occasion drinking amongst middle-aged women in Australia. Educational attainment, marital status and employment status were negatively associated with risky drinking, whereas rurality, age and location of use were positively associated with risky drinking. Beverage type was both positively and negatively associated with risky drinking.* ***Discussion and Conclusions.*** *Given the significant increase in alcohol use amongst middle-aged women in Australia, prevention efforts are needed for this group, which may focus in particular on home drinking and the impact of rurality on alcohol use.* [Miller M, Mojica-Perez Y, Livingston M, Kuntsche E, Wright CJC, Kuntsche S. The who and what of women's drinking: Examining risky drinking and associated socio-demographic factors among women aged 40–65 years in Australia. *Drug Alcohol Rev* 2022]

Key words: alcohol, midlife, women, gender.

Introduction

Alcohol use is responsible for 4.5% of the burden of disease and injury in Australia and is thus the sixth leading risk factor for disease in the country [1]. Traditionally, alcohol research has focused on young people or men's drinking, as young people's drinking patterns often result in visible, short-term harms, such as injuries and accidents [2] and men generally drink more often and in higher quantities [3]. Hunt *et al.* also note gender biases in the production of research, with most research until the 1990s focusing on male perspectives on alcohol and drug use, with research on females often focusing on pathologising use [4]. As such, it was assumed in the field until recently that the behavioural and health consequences of women's alcohol use were the same as for men [5]. However, a systematic review has shown that women have a higher susceptibility to alcohol-related health consequences, including heart disease, immune and infectious diseases and cancer, and develop alcohol-related medical problems after shorter durations and at lower levels of

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consumption compared to men [6]. The most recent Australian National Drug Strategy Household Survey (NDSHS) highlighted that in a context of population declines of alcohol use, people in their 50s and older were stabilising or increasing use over time [7]. Adult women's drinking has also been in the media spotlight due to social media trends relating to 'wine moms' [8] and women using wine to cope with the stresses of motherhood [9]. However, there is limited literature that has examined alcohol use among adult women and there is a particular paucity of research on women aged 40–65 years, an age range that broadly captures women in their midlife who are less likely to have reached retirement.

In Australia, it has been documented for both the period 1950–1980 and 2001–2013 that the gender gap in risky alcohol use reduced, due to an increase in alcohol consumption among women [10,11]. In the United Kingdom between 1988 and 2009, there were also significant increases in drinking amongst women and those in middle-age, identified across several different surveys and measures of alcohol use [12]. Data from the USA has demonstrated that between 2010 and 2016, increases in use and associated harms have been most pronounced amongst women aged 50–65 [13]. Further, emergency department statistics from the USA showed that the highest rates of chronic alcohol-related emergency department visits for women were in the 45–54 and 55–64 age ranges and acute-related visits for 45- to 54-year-olds [14]. It is unclear why use has increased so dramatically amongst middle-aged women; however, it has been posited that increased participation in the workforce and changing gender roles throughout the 20th century may be contributing factors [15,16] as women are now included in more environments where alcohol is consumed, and it is more socially acceptable for women to adopt more traditionally male behaviours of socialising using alcohol.

In the international literature, there are a number of sociodemographic factors linked to alcohol use among women; however, few studies have looked at this among middle-aged women. The evidence surrounding the relationship between educational attainment and alcohol use is conflicting [17,18] and often depends upon the measure of risky drinking used. Some studies demonstrate that women with higher levels of educational attainment generally consume a larger volume of alcohol over a 1-year period [19,20]; however, women with higher levels of educational attainment are less likely to display risky-single occasion drinking (RSOD) [19], particularly if they reside in higher-income countries [21]. Regarding rurality, research repeatedly demonstrates that people living in regional Australia (major cities outside of Melbourne, Sydney and Brisbane) and rural and remote Australia (all areas outside of major cities) are more likely to drink at harmful levels [22]. However, to our knowledge, no research specifically related to middle-aged women and rurality has been carried out.

There is a large body of literature showing that marriage is associated with reduced alcohol use [23,24]. A study with Australian women aged 30–45 years showed that single women who were never married, divorced or separated were more likely to engage in both long-term risky drinking and RSOD [25]; however, no recent research has been carried out with women in middle-age. Past research using NDSHS 2013 data has shown that those with children in Australia are less likely to exceed the alcohol guidelines than non-parents [26]. This study, however, also included younger parents (aged 25–40) and did not stratify by age, and thus does not help explain the unique impacts that parenting in middle-age may have on alcohol use. Employment is another factor associated with alcohol use, with studies demonstrating that unemployment is associated with risky drinking [27].

Further, there is a need to understand more about the context surrounding alcohol use of women in this age group so that suitable policy and program interventions can be designed. There is a body of evidence that suggests that beverage preference and location of consumption can be associated with different patterns of alcohol use; however, most of this research appears to have been undertaken with youth, male drinkers or those with alcohol-use disorders. While in the mid-late 20th century, studies showed that spirits were most associated with alcohol-related harm [28], more recent analyses based on individual-level data have shown that wine and beer are now more commonly consumed by heavier drinkers [29], but again this is not specific to middle-aged women. Locations of drinking have also been found to be associated with increased levels of alcohol use and harm [30], but again, there is no research available to inform prevention initiatives related to these contextual factors among middle-aged women.

In this study, we use data from seven waves (2001–2019) of Australia's largest alcohol and other drug survey, the NDSHS, to understand more about trends in alcohol use in Australian middle-aged women (aged 40–65). We also look specifically at data from the most recent wave to examine sociodemographic variables and contextual factors associated with long-term risky drinking and RSOD. Specifically, we aim to understand:

1. Has long-term risky drinking and RSOD increased in middle-aged women in Australia between 2001 and 2019, and by how much?

2. Is long-term risky drinking and RSOD in middle-aged women associated with selected demographic characteristics, and do these differ according to the type of drinking behaviour (long-term risky drinking and RSOD)?
3. What locations and beverage types are associated with risky alcohol use among middle-aged women?

Methods

Data collection

Data were obtained from seven waves of the NDSHS, conducted every 3 years from 2001 to 2019. Sampling for the surveys is stratified by geographical location, with regions randomly selected, and then households selected from each region and one respondent in the age range (14+) randomly selected within each household. The mode of data collection has changed, with earlier surveys using telephone, face-to-face and drop-and-collect paper forms, and surveys from 2010 onwards being purely drop-and-collect. Prior analyses suggest minimal differences between survey modes on key responses, so all samples are included in this study [31]. Alcohol measures remained unchanged over the period considered for this study. Full technical details of each survey are available in existing reports [32].

This study focused on female respondents aged between 40 and 65 leaving a total sample of 40 670 over the seven survey waves. To examine sociodemographic factors, drinking contexts and beverage choices and their association with risky alcohol use (research questions 2 and 3) data from the most recent survey (2019) was used. For the sociodemographic variables, 210 women had missing values on educational level, 69 for dependent children, 20 for marital status, 680 for rurality and 162 for employment. Cases with missing data were excluded from analyses. Women who were non-drinkers were excluded from the analysis regarding main drink and location of use ($n = 923$).

Measures

Alcohol use. Respondents were first asked whether they had consumed alcohol within the past 12 months. For those who had, alcohol use was measured using the graduated quantity-frequency method, by asking respondents how frequently they consume alcohol at various levels (20 or more, 11–19, 7–10, 5–6, 3–4, 1–2, less than 1, none). Mid-points of frequencies (every day, 5–6 days a week, 3–4 days a week, 1–2 days a week, 2–3 days a month, about 1 day a month, less often, never) and volumes were used to estimate an annual volume of consumption for each respondent. An annual estimate of total alcohol use (in standard drinks) was calculated by multiplying the mid-point of each category (e.g. 15 for the 11–19 drinks category) by the mid-point of each frequency category (e.g. 5.5 for 5–6 days per week*52). If a respondent reported more than 365 drinking occasions in the last 12 months, then their heaviest 365 occasions were used [33]. Based on these calculations, two key measures of alcohol use were derived, reflecting the Australian Drinking Guidelines [34]:

- *Long-term risky drinking*: whether or not a respondent consumed an average of more than two standard drinks per day in the last year.
- *Risky-single occasion drinking*: whether or not a respondent consumed five or more standard drinks on any occasion at least 12 times in the last year.

Independent variables. Independent variables were educational level (categorical, with four categories ranging from finishing high school or below to a university degree, with high school or below the reference group), marital status (categorical with three categories, including single, divorced/widowed, married/living with life partner, with single as the reference group), rurality (categorical with three categories, including metropolitan, inner regional, outer regional/remote/very remote, with metropolitan as the reference group), dependent children (aged 0–14 or older children who are still financially dependent) in the household (dichotomous, yes, no), employment status (categorical with three categories, including employed, unemployed/looking for work/student and solely engaged in home duties/retired, with employed as the reference group), main beverage consumed (categorial with participants able to choose one of seven categories, with bottled wine as the reference group) and usual location of alcohol use (categorial, with participants able to choose all that apply and summarised into four main categories). Educational level and employment status were used as indicators of socioeconomic status.

Statistical analysis

All statistical analyses were conducted using STATA 15.1 [35]. Sample weights were used to adjust for the probability of selection and non-responses, and results are presented with 95% confident intervals. Logistic regression models were used to determine if there were significant trends in long-term risky drinking and RSOD between 2001 and 2019. The relationship between demographic factors, beverage choices, main

Table 1. *Demographic statistics for female middle-aged respondents* (n = *5060)*

Variables	Frequency	Proportion using survey weights (%)
Educational level		
Year 12 or lower	1387	24.8
Certificate	1148	13.4
Diploma	63	32.0
Degree	1680	29.8
Dependent children		
Dependent children	2046	46.5
No dependent children	2945	53.5
Marital status		
Never married	584	8.7
Divorced/separated/ widowed	1165	18.5
Married/de facto/living with partner	3291	72.7
Rurality		
Major cities	3362	70.1
Inner regional	1018	20.5
Outer regional/remote/ very remote	680	9.4
Age, years		
40–55	3021	62.6
55–65	2039	37.5
Employment status		
Employed	3318	65.4
Unemployed/student	283	5.5
Retired/engaged in volunteer work	1297	25.1

location of alcohol use and long-term risky drinking and RSOD, amongst middle-aged women in 2019, was also tested using a multiple logistic regression model for each consumption variable.

Results

A demographic summary of the 2019 sample is shown in Table 1. The majority of participants had completed further study beyond high school (75.2%), lived in a major city (70.1%), did not have dependent children (53.5%), were married or living with a partner (72.7%) and were employed (65.4%).

Trends over time

The prevalence of abstinence from alcohol was stable over the time period (21.3% in 2001 compared to 20.9% in 2019). Our analyses found a significant increase in the prevalence of long-term risky drinking from 8.8% in 2001 to 11.7% in 2019 ($P < 0.01$) and a significant increase in the prevalence of RSOD from 13.5% in 2001 to 21.2% in 2019 ($P < 0.01$) (Table 2).

The results of the multivariate logistic regression models of sociodemographic and contextual factors using 2019 data are summarised in Table 3.

Women who reported having a bachelor degree or higher were significantly less likely to report RSOD than those without a degree. Women who were married or living with a partner were significantly less likely to report long-term risky drinking than women who were never married, and women who were married or living with a partner or women who were divorced, separated or widowed were significantly less likely to report RSOD. Compared to women living in major cities, those living in outer regional, remote or very remote areas reported a significantly higher risk of long-term risky drinking. Women who were retired, engaged in home duties or volunteering were significantly less likely to report RSOD than women who were employed. Women aged 55–65 were significantly less likely to report RSOD than women aged 40–55.

Women who drank pre-mixed spirits, cider or other beverages reported significantly lower likelihood of long-term risky drinking, those who drank beer reported significantly higher levels of RSOD and those who drank cider reported significantly lower levels of RSOD, compared to those who drank wine.

Women who consumed alcohol at home, at a partner or at a friends' home, and women who consumed

Table 2. *Long-term risky drinking and risky-single occasion drinking (RSOD) from 2001 to 2019, percentage in population surveyed*

Year	Long-term risky drinking (%)	CI (%)	RSOD (%)	CI (%)
2001	8.8	8.0–9.7	13.5	12.5–14.6
2004	9.2	8.4–10.0	15.4	14.4–16.4
2007	10.9	10.0–11.9	16.4	15.3–17.6
2010	11.5	10.7–12.5	17.5	16.4–18.6
2013	11.9	11.0–12.9	18.8	17.7–20.1
2016	11.9	10.9–12.9	19.2	18.0–20.5
2019	11.7	10.7–12.9	19.8	19.8–22.6

CI, confidence interval.

Table 3. *Sociodemographic and contextual factors and their association with long-term risky drinking amongst female middle-aged respondents (n = 3565) and risky single occasion drinking (RSOD) amongst female middle-aged respondents (n = 3567)*

	Long-term risky drinking	RSOD
Educational level		
Year 12 or lower	Reference	Reference
Certificate	0.94 (0.68–1.30)	0.82 (0.62–1.07)
Diploma	0.83 (0.57–1.21)	0.75 (0.53–1.03)
Degree	0.78 (0.56–1.08)	0.58 (0.45–0.76)*
Dependent children		
Yes	Reference	Reference
No	1.24 (0.92–1.66)	0.92 (0.74–1.16)
Marital status		
Single	Reference	Reference
Divorced/separated/widowed	0.74 (0.59–1.11)	0.66 (0.47–0.94)*
Married/de facto/living with partner	0.58 (0.40–0.83)*	0.42 (0.31–0.57)*
Rurality		
Major cities	Reference	Reference
Inner regional	1.10 (0.82–1.48)	1.03 (0.80–1.32)
Outer regional/remote/very remote	1.86 (1.32–2.62)*	1.29 (0.56–1.93)
Employment status		
Employed	Reference	Reference
Unemployed/student	0.66 (0.37–1.18)	0.70 (0.44–1.11)
Retired/home duties/volunteering/other	0.84 (0.72–1.13)	0.72 (0.56–0.93)*
Age, years		
40–55	Reference	Reference
55–65	0.81 (0.60–1.09)	0.48 (0.37–0.61)*
Main beverage consumed		
Wine	Reference	Reference
Cask wine	1.65 (0.92–2.89)	1.71 (0.96–2.69)
Beer	1.29 (0.90–1.82)	1.46 (1.07–1.98)*
Pre-mixed spirits	0.36 (0.19–0.67)*	0.83 (0.56–1.23)
Bottled spirits	0.69 (0.49–0.99)	1.06 (0.80–1.39)
Cider	0.12 (0.40–0.34)*	0.47 (0.24–0.89)*
Other	0.18 (0.48–0.70)*	0.60 (0.22–1.58)
Alcohol consumed at home/at a partner's or friend's home		
No	Reference	Reference
Yes	9.38 (3.60–24.48)*	4.38 (2.67–7.19)*
Alcohol consumed at a restaurant or licensed premise		
No	Reference	Reference
Yes	0.80 (0.63–1.02)	1.33 (1.08–1.63)*
Alcohol consumed in the workplace		
No	Reference	Reference
Yes	0.99 (0.44–2.24)	1.05 (0.54–2.07)
Alcohol consumed in public places		
No	Reference	Reference
Yes	2.98 (1.58–5.61)*	3.24 (1.75–6.00)*

* $P < 0.05$.

alcohol in public places, were more likely to report both long-term risky drinking and RSOD. Women who consumed alcohol at a restaurant or licensed premise were more likely to report RSOD.

Discussion

Our analysis sheds new light on trends in alcohol use amongst middle-aged women in Australia between 2001 and 2019 using a nationally representative sample. Importantly, we have also added to knowledge on associations between risky drinking and a range of sociodemographic characteristics and contextual drinking variables in an understudied population. Examining alcohol use among middle-aged women is important as they have historically been an overlooked group in addiction research, partly as the harms they experience from alcohol are less visible [2] and partly due to gender and age biases in alcohol and drug research [4].

Our analyses found that in 2019 middle-aged women in Australia were significantly more likely to consume alcohol at risky levels than women of the same age group in 2001; this was demonstrated in measures of both long-term risky consumption and RSOD. There may be a number of explanations for this increase. Whereas it was previously moralised and stigmatised, alcohol use amongst women is now socially acceptable and normalised [36], a change which may reflect the financial and social freedoms that many women now have due to increased participation in the workforce and changing gender roles [15,16]. This normalisation of alcohol has resulted in less stigma and more opportunities for women to consume alcohol. Additionally, studies show that women are more likely to drink to cope with negative affect and stress than men [37] and with diagnosed depression and anxiety increasing amongst Australian middle-aged women from 13% in 2009 to 19% in 2019 [38], this may help to explain the increase in alcohol use. Qualitative research with women in this age group demonstrates that using alcohol provides women with reward and relief that helps to provide a 'time-out' from work and child-care responsibilities [39]. Providing women with alternative ways to experience pleasure and reward and cope with the stressors arising due to increased workforce participation and changing gender roles may be a meaningful way to reduce alcohol use. Further, the proliferation of alcoholic beverages designed to target women and the increase in marketing of these products [40,41] could also help explain this increase in alcohol use. Alcohol marketing of products aimed at women capitalises on the associations between women's drinking, pleasure and autonomy [41] and thus may be working to reinforce and perpetuate these behaviours and norms. As such, stronger regulation of alcohol marketing is required, including a shift away from the industry-led, voluntary Alcohol Beverages Advertising Code in Australia to an independent scheme.

Women without a university degree were more likely to drink at levels that put them at risk of short-term harms compared to those with a degree, which is consistent with the literature regarding alcohol use amongst women in high-income countries [21] and in the literature more broadly [42]. Higher educational attainment may be associated with an overall greater knowledge about health, and as women age and become more cognisant of their own health, they may be motivated to reduce their alcohol use [20]. This might imply that providing education to middle-aged women about their health and the harms of alcohol use may be an effective way to reduce risky drinking.

Women who were single were more likely to report RSOD than women who were married or living with a partner and women who were divorced or separated. Women who were single were also more likely to report long-term risky drinking compared to those who were married. Marriage has been previously found to be protective for risky drinking [23,43] and women who are single may have more opportunities to engage in risky drinking due to possible reduced domestic or parenting responsibilities.

The association between rurality and alcohol use is well established in the Australian literature for both gender and a variety of age groups [22], and this study confirms the association for middle-aged women and long-term risky drinking. Possible explanations for this association include limited access to leisure and social venues in regional and remote areas and a higher density of alcohol-serving outlets in these settings [22]. Some qualitative research has demonstrated that those in rural Australia view alcohol use as central to their local culture, with strong normative pressure to drink and a sense of belonging associated with alcohol use [44]. As such, interventions that address cultural factors specific to rural communities may be advantageous, as well as population-wide interventions around outlet density.

The finding regarding employment is in line with previous research which demonstrates that employment is protective for risky drinking, as those who are employed are likely to have fewer financial challenges and higher interpersonal support through the workplace, and thus have reduced stress, which as mentioned above is a significant risk factor for alcohol use. This is exemplified in a recent study of 2411 adults in the USA (mean age 42 years, 67% female) which found that loss of employment related to the COVID-19 pandemic was associated with increased alcohol use, with the main self-reported reasons for increased use being more time, boredom, less responsibility, worry and loneliness [45].

Our study also found that younger women in the sample were more likely to engage in RSOD than their older counterparts. Past research has shown that individuals mature out of RSOD as they age [46,47], and our results support this association, but demonstrate that RSOD behaviours previously identified only in younger women are now also presenting in midlife women.

Women who drank at home and women who drank in public places were significantly more likely to report both types of risky drinking than women who did not drink at home and women who did not drink in public places, respectively. Additionally, women who drank in licensed premises were more likely to report RSOD than women who did not drink in licensed premises. Whilst historically alcohol research and policy has focused on drinking outside of the home due to the

visible harms, more recent research is demonstrating that risky drinking in the home may be equally as harmful [30,48]. From a policy and prevention perspective, our findings indicate that regulation of off-premise purchasing, such as the regulation of online sales and home delivery [49] may be as important for this age group as regulation of on-premise purchasing.

Our study also demonstrated that middle-aged women who drank beer were more likely to drink at risky-single occasion levels, and those who drank cider were less likely to drink at both levels of risk. A body of evidence has demonstrated that the consumption of beer is associated with risky drinking [50,51], and that amongst the heaviest drinkers, beer makes up the most of their consumption volume, although this is often a phenomenon studied amongst certain population groups, such as young men [52]. Our study extends this finding to demonstrate that middle-aged women who engage in RSOD are more likely to drink beer. Modelling suggests that there is a range of pricing policy options that will specifically see effects among middle-aged people drinking at moderate or hazardous levels, including Minimum Unit Price policies and applying uniform excise tax rates equal or above the current tax rate on spirits [53]. This has been demonstrated practically in the Canadian context, where an increase in minimum prices resulted in the greatest reduction in beer consumption [54].

When interpreting these results, some limitations should be kept in mind. Self-report measures are subject to recall bias, which can lead to an underestimation of alcohol use [55]. However, it is unlikely that these tendencies changed over the period examined in this study and as such are unlikely to effect changes over time and associations among variables. A further limitation is the cross-sectional design used to assess the relationship between sociodemographic factors and alcohol use, which means that conclusive statements about causality cannot be formulated. Additionally, the NDSHS tends to underestimate alcohol use; however, this underestimation has been shown to be stable over time [56].

Conclusion

To conclude, our study demonstrates that increasing proportions of middle-aged women are drinking at levels that put them at risk of both short-term and long-term harms. While alcohol use in this demographic is still lower than men and young people, their increases in drinking come in the context of population level declines in alcohol use. This, coupled with women's increased susceptibility to alcohol-related health conditions, is a cause for public health concern. This study identifies a number of sociodemographic and contextual factors significantly associated with risky alcohol use in middle-aged women. This knowledge can be used to guide future research and inform the design of interventions and policies that will help reduce alcohol use in women of this age group.

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Conflict of Interest

The authors have no conflicts of interest.

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