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Alcohol consumption among the over 50s: international comparisons

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Abstract

Aim: Research exploring alcohol consumption patterns and behaviour change among older adults is relatively scarce, often necessitating reliance on international evidence. To understand the degree to which findings may be generalisable across countries, this review compares recent epidemiological evidence from developed countries on the prevalence of abstinence and potentially problematic alcohol consumption in older adults.

Methods: Medline, EMBASE, Web of Science and PsychInfo were searched for English language publications, identifying 21 peer-reviewed publications and six reports, including data from 17 national surveys and 10 general practice and community samples published since 2000.

Results: Of the developed countries for which data are available on adults aged over 50 years, rates of past 12-month abstinence and former drinking are lowest in England and Finland, and highest in Korea and the USA. The prevalence of binge drinking varies widely between studies, whilst rates of alcohol dependence are broadly similar.

Conclusions: Older adults in developed countries report different rates of abstinence and alcohol consumption. This places obvious limitations on the extrapolation of results from specific research findings and policy strategies to other countries.

Introduction

In the UK alcohol consumption peaks in young adulthood and declines with increasing age (e.g. Meng et al. 2014). Reasons for decreasing consumption with age include an ageing effect (i.e. that people drink less as a result of physiological, biological and social changes that occur during chronological aging), cohort effects (i.e. that groups of people born at different times use alcohol differentially, with older cohorts typically consuming less alcohol), and the mortality hypothesis (i.e. that heavier drinkers die younger) (Pabst et al. 2012; Stall, 1987). Despite declines in alcohol consumption with increasing age, many older adults drink at a level that is considered hazardous or harmful to health. For example in England, 19.3% of adults aged 55-64 years, 14.1% of adults aged 65-74 years, and 10.5% of adults aged 75 years and older were considered hazardous or harmful drinkers when assessed using the Alcohol Use Disorders Identification Test (The NHS Information Centre, 2009).

Drinkers may experience a range of acute and chronic health implications of their alcohol consumption, as well as social, financial and legal implications for both the individual and those around them (Corrao et al. 2004). Patterns of alcohol consumption that may be problematic include persistent drinking in excess of government guidelines (defined here as “excessive drinking”), binge drinking and dependent drinking. Research typically focuses on hazardous and harmful alcohol consumption among younger adults but there are many reasons for public health concern with respect to levels of alcohol consumption among older adults too. Older adults are at risk of the same negative outcomes from the misuse of alcohol as the general adult population as well as problems that are more specific to drinking in old age. For example, the risk of experiencing some health harms from a given level of alcohol consumption increases as a result of aging-associated physiological changes such as decreased efficiency of liver enzymes, decreases in body water and increases in body fat (Crome et al. 2012; Simmill-Binning et al. 2009; O’Connell et al. 2003). Additionally, older adults are more likely to have chronic health problems and alcohol can worsen the symptoms of certain long-term conditions, affect the progression of disease and interact with

prescribed medications. Alcohol consumption has also been linked to increased risk of falls in older adults (Mukamal et al. 2004). Finally, alcohol-related problems may be harder to recognise and less frequently diagnosed in older adults for reasons that include many of the symptoms of alcohol-related problems are similar to signs of aging. Differences in health practitioner's awareness of and attitudes to drinking in older adults, and suboptimal screening tools for the older population (Dar, 2006), may also mean harmful levels of drinking are less likely to be recognised.

Raising awareness of levels of drinking among older adults should improve recognition of the plethora of alcohol-related issues older drinkers may encounter. This is especially relevant given current demographic trends whereby the populations around the world are aging (Wiener & Tilly, 2002); for example, it is predicted that by 2034, the percentage of the UK population aged 65 and older will have increased by two-thirds to 22% (Bayliss & Sly, 2010).

By comparing alcohol consumption across countries we will develop a better understanding of drinking behaviour in this growing population. Given that much research on alcohol consumption behaviour is focused on younger adults, we often have to search much harder for evidence related to alcohol consumption behaviour in older adults. Much of the evidence we have on alcohol consumption behaviour and change over time originates from the USA. It is therefore important to examine variations in drinking patterns between countries to begin to understand how transferrable evidence might be between older adults in different countries. Exploring drinking patterns in older adults also highlights the heterogeneity of behaviour in this population and the potential for alcohol-related harm that may be related to international differences in alcohol availability and culture that may be amenable to intervention. The aim of this review is to identify and compare recent epidemiological evidence from developed countries on the prevalence of abstinence and potentially problematic alcohol consumption in older adults.

Methods

An initial scoping exercise established that the relevant sources of evidence required to address the aim of the research were heterogeneous, including peer-reviewed journal articles and government reports that publish data from national surveys. As such, defining stringent inclusion and exclusion criteria risked excluding relevant evidence. We applied the general principles of systematic reviewing to conduct a narrative literature review that used a systematic approach (Aveyard, 2007) in the search for, critique and synthesis of the current research evidence related to alcohol consumption patterns among older adults. The evidence identified using this approach provides a broad overview of the alcohol consumption behaviour of older adults in different countries.

Studies included were identified by keyword searches of Medline, EMBASE, Web of Science and PsychInfo. The search strategy used a 'building blocks' approach (Booth, 2008). Key terms included: alcohol* and drink* together with aging, older adults, senior citizens and elderly. Databases were searched for English language publications between 1990 and August 2014, the date of the final search. Topic specific journals (including alcohol-related, older people-related and public health journals) and sources of non-peer reviewed material (such as websites, books and proceedings of meetings) were manually checked and the bibliographies of selected literature were searched by hand for further relevant articles.

Studies were included within the review if they reported alcohol consumption frequency and quantity among adults aged 50 years or older. Within the substance use epidemiological literature many studies use a cut-off of 50 years to define older adults as: 1) there is a belief that people with chronic substance misuse problems age prematurely and 2) the lower cut-off point means more people with substance use problems fall into the older age category to justify specialist service provision. We use a 50 years cut-off to be inclusive of the relevant literature. Quality assessment tools provided by the Critical Appraisal and Skills Programme (CASP) were used to aid in the quality

assessment of papers (CASP, 2010). Key quality assessment questions were focused around the clarity of the research aims and appropriateness of the methods chosen. The use of CASP tools facilitated a consistent approach to quality appraisal, ensuring assessment of studies of similar design was made using the same criteria.

INSERT TABLE 1 HERE

In total, 21 peer-reviewed publications and six reports were included in the review. This included data from 17 national surveys and 10 general practice and community samples published since 2000 (see Table 1). Where the national surveys were conducted at repeated time-points, the most recent available data was included for analysis.

Data was extracted using a pro-forma developed specifically for the research aim that is the focus of the current paper, drawing out information on methods, rates of abstention, excessive, binge and dependent drinking among older adults as well as demographic variations in alcohol consumption where available. Older adults who reported abstention in at least the past 12-months were defined as abstainers; this category may have included lifetime non-drinkers. Where data was available, former drinking is reported separately, defined as the current abstention of a previous drinker. Excessive drinking was defined as consuming more than 24g ethanol per day for women and 32g for men or consumption of more than 112g ethanol per week for women and 168g for men, derived from UK drinking guidelines (Department of Health 2011; BMA Board of Science 2008). This definition aligns reasonably well with daily drinking guidelines in a number of other countries such as New Zealand, the USA, France and Austria, although weekly drinking guidelines in New Zealand, Ireland, and Denmark are between 20% and 40% higher than the UK recommendation (ICAP, 2010). Binge drinking was defined as consumption of more than 64g ethanol in a day for men and 48g ethanol for women. Finally, dependent drinking was identified using either the Severity of Alcohol Dependence Questionnaire or DSM IV criteria for alcohol abuse or dependence.

Inter-country comparisons were challenging due to variations in standard drink sizes and alcohol consumption guidelines, but to facilitate this comparison alcohol consumption was converted to grams of ethanol and presented within the following categories:

- low (<16g/day for men & <12g for women or <84g/week for men & <56g for women)
- mid (16-32g/day for men & 12-24g for women or 84-168g/week for men & 56-112g for women)
- excessive (>32g/day for men & >24g for women or >168g/week for men & >112g for women)
- binge (>64g ethanol/day for men & 48g for women)

Results

Abstention and former drinking

Rates of past 12-month abstention vary widely between developed countries (see Figure 1a). For example, among adults aged 65 years and older abstention is highest in the USA at 63.2% in men & 81.0% in women (Lang et al. 2007) and Korea at 45.1% in men and 90.9% in women aged 65-74 years (French et al. 2014). In Europe, rates of abstention range from 15% of men and 27% of women in England (Robinson & Harris 2011) to 31.1% of men and 59.4% of women in Finland (Halme et al. 2010). Some studies report abstention rates in the over 75s only, finding rates are higher in this age group compared with the over 65s in Europe and the UK (Weyerer et al. 2009; Ganry et al. 2001), but similar in the USA (Moos et al. 2009).

Few studies report former drinking (see Figure 1b), but this information may be of particular importance for understanding propensity to quit drinking in older adulthood. Former drinking is more common among older adults in the USA and Canada and less common in England and Scotland. 19% of men and women aged 50 years and older (Chen & Hardy, 2009), 31.2% of men and 27.5% of women aged 65 years and older (Balsa et al. 2008), and 19.7% of men and 21.3% of women aged 75-85 years (Moos et al. 2009) report former drinking in North America. In comparison, 12% of men and 11% of women aged 65 years and older in Scotland (Bromley & Mindell, 2011) and 6.1% of men and

women aged 75 years and older in England report being former drinkers (Hajat et al, 2004). This finding may suggest that older adults in North America are more likely to stop drinking as they age compared with older adults in the UK.

INSERT FIGURE 1 HERE

Excessive drinking among older adults aged less than 75 years

Prevalence of excessive weekly and daily drinking is consistently lower among women than men in all countries. Focusing on excessive weekly alcohol consumption, Figure 1c illustrates large variations both between and within countries in the prevalence of this type of drinking. Between countries, excessive weekly drinking is reported from 14.3% (Lang et al. 2007) to 35.6% (Merrick et al. 2008) for men and from 3.8% (Greene et al. 2003) to 14.8% (Merrick et al. 2008) for women. There is no clear pattern of regional or country difference evident within the data. Within countries, some stark contrasts in reported prevalence of excessive weekly drinking are evident. For example, in the USA excessive weekly drinking among men is reported at 14.3% in one study (Lang et al. 2007) and 35.6% in another (Merrick et al. 2008).

When measured using alcohol consumption on the heaviest drinking day, there is a clearer pattern of regional differences in excessive alcohol consumption (see Figure 1d). Prevalence of excessive drinking is highest among men and women in the UK, reported at between 22–34% for men and 11–32% for women (Bromley & Mindell, 2011; The NHS Information Centre, 2010; The NHS Information Centre, 2011). Excessive daily drinking is also reported separately for men and women in the USA, with prevalence comparable between studies at 16–18% for men, but more variable for women at 6.1% and 11.0% (e.g. Blazer & Wu, 2009; Breslow and Smothers, 2004).

Excessive drinking among adults aged 75 years and older

In Australia, 11.1% of men & 6.4% of women report high levels of weekly drinking (Dent et al. 2000). In Europe, excessive daily drinking is reported at 5.7% among women in a French study (Garry et al. 2001) and 9.6% of women and 16.5% of men in Germany (Weyerer et al. 2009). Finally, in a US study that combines weekly and daily drinking measures, 27.1% of women and 55.4% of men are excessive drinkers (Moos et al. 2009). Only two studies report binge drinking rates among the over 75s, with prevalence among women comparable at 1.2-1.3%, but varying among men at 1.6% in Germany and 4.9% in Australia (Weyerer et al. 2009; Dent et al. 2000). Overall, the prevalence of excessive drinking among the over 75s is at the lower end of the range of excessive drinking in adults aged less than 75 years.

Binge drinking among adults aged 50 years and older

There is a clear gender difference in almost all countries that measure prevalence of binge drinking, with older women less likely to report this behaviour than their male counterparts, illustrated below. Rates of binge drinking are broadly comparable among women from Australasia (Dent et al. 2000), the UK (Bromley & Mindell, 2011; Robinson & Harris, 2011; The NHS Information Centre, 2011) and continental Europe at under 2% (Weyerer et al. 2009; Immonen et al. 2011), with the exception of data from the Opinions Survey in England where binge drinking rates are reported at 5% in women (The NHS Information Centre, 2010). In the USA, binge drinking among women is reported at 6% (Balsa et al. 2008; Blazer & Wu, 2009) and 1.8% (Breslow & Smothers, 2004) across three studies.

Among men, data from the USA reports wide variations in binge drinking rates of between 20% (Blazer & Wu, 2009) and 4.8% (Breslow & Smothers, 2004). The prevalence of binge drinking is around 8-9% in the UK (The NHS Information Centre, 2010; Bromley & Mindell, 2011; Robinson & Harris, 2011), and varies between 5% and 13.9% in Australasia (Dent et al. 2000; New Zealand Ministry of Health, 2008; Ilomaki et al 2013). Only two studies from the European continent, both in Finland, report binge drinking, with rates among men at 3.9% (Immonen et al. 2011) and 11.3%

(Ilomäki et al. 2009). Whilst binge drinking is reported less frequently than data on other patterns of drinking, it is evident that reported rates vary widely between and within countries.

Dependent drinking among adults aged 50 years and older

Few studies report prevalence of alcohol dependence among older adults; however, among those that do broadly comparable rates for men and women are reported whether measured using DSM IV criteria for alcohol abuse (Grant et al. 2004; Pirkola et al. 2005; Balsa et al. 2008; Castro-Costa et al. 2008; Blazer & Wu, 2011) or dependence or the Severity of Alcohol Dependence Questionnaire (The NHS Information Centre, 2011). In Brazil, 2.9% of men aged 60 years and older are estimated to be alcohol dependent (Castro-Costa et al. 2008), similar to 3.0% of men and 0.6% of women aged 65-74 years in England (The NHS Information Centre 2011), and three US studies that report dependence rates at between 2.4 - 4.8% of men and 0.4 - 1.2% of women (Blazer and Wu 2011; Balsa et al. 2008; Grant et al. 2004). In contrast, alcohol dependence among older adults in Finland is reported to be much lower at 0.6% of all adults aged 65 years and older (Pirkola et al. 2005). Prevalence of alcohol dependence is consistently lower among older women than men.

Demographic variations in drinking among older adults

With the exception of gender, relatively few studies examine demographic variations in drinking among older adults (Dent et al. 2000; Ganry et al. 2001; Hajat et al. 2004; Merrick et al. 2008; Weyerer et al. 2009; Halme et al. 2010; The NHS Information Centre 2010). The studies identified in this review focus on variations by marital status/living arrangements, education and income.

Cohabiting older women in England and married older adults in Germany are more likely to drink in excess of government guidelines compared with single, divorced or widowed people (Hajat et al. 2004; Weyerer et al. 2009). Conversely, in Finland, living alone is associated with excessive drinking among older adults (Halme et al. 2010). Across countries with varied drinking patterns among older

adults, having a higher level of education is positively associated with alcohol consumption, and drinking more alcohol, but research also suggests that a higher level of education is associated with lower rates of binge drinking (Halme et al. 2010; Ganry et al. 2001; Dent et al. 2000). In England, higher income is associated with excessive and binge drinking (The NHS Information Centre 2010). In the USA however, although higher income is associated with excessive drinking, it is not associated with binge drinking (Merrick et al. 2008).

Discussion

This review compares different levels of drinking among older adults from different countries. We found that rates of lifetime abstinence and former drinking vary widely between countries, with the lowest levels of non-drinking reported in England and Scotland. Additionally, older adults in England and Scotland are more likely to report excessive daily alcohol consumption than older adults in other countries of Europe, North America and Australasia. Prevalence of excessive weekly drinking showed wide variation between and within countries. Measures of binge drinking and dependent drinking were less frequently reported than drinking frequency and quantity; however the data available reports the prevalence of binge drinking to vary widely between and within countries, whilst rates of dependent drinking are more broadly comparable. Across all patterns of drinking measured, women consistently reported lower levels of potentially harmful consumption than men.

Explanations for lower levels of abstinence and higher levels of excessive daily alcohol consumption among older adults in the UK may be related to the drinking culture in Britain and the era in which today's older adults have matured. Alcohol consumption is a common social practice in England and has been a part of British culture for centuries, but older adults in the UK today have lived through decades in which drinking has gradually increased over time (Smith & Foxcroft, 2009). Over recent years both the availability and acceptability of alcohol consumption has increased (University of Stirling, 2013; Smith & Foxcroft, 2009), with consumption of higher levels of alcohol normalised over

time (Emslie et al. 2012). Abstention is considered abnormal behaviour in many cultures (SIRC, 1998) and it can be argued that the social culture of Britain is no exception, with drinking considered to be 'normal' behaviour. For example, in the 2007 Scottish Social Attitudes Survey, 67% of respondents reported that drinking is a major part of the Scottish way of life and 48% of abstainers (who comprised 12% of the sample) said that people find their decision not to drink odd (Ormston & Webster, 2008). These findings help to illustrate the abstention is unusual in Britain, with drinking behaviour related not just to the availability of alcohol but also to the acceptability of alcohol consumption and social norms.

The studies included in this review report on a range of older age samples, enabling comparison of the prevalence of abstention and excessive drinking at difference stages of older adulthood.

Abstention was higher and excessive drinking lower among the oldest older adults (over 75s), likely reflecting pre-existing understanding on decreasing consumption with age that is related to factors including physiological, biological and social changes during chronological ageing and cohort variations in alcohol consumption behaviours (e.g. Pabst et al. 2012). These differences in drinking within different age groups of older adults highlight the importance recognising the heterogeneity of older adults drinking behaviour.

Rates of both binge drinking and alcohol dependence appear to be broadly comparable between the different countries. However, few of the studies included indicators for either binge drinking or alcohol dependence so this finding may not be representative of all the countries included in this review. Furthermore, the findings for alcohol dependence should be interpreted with caution for two reasons: 1) the prevalence figures reported in some samples are based on very small numbers (e.g. Castro-Costa et al. 2008 (n=12)) and 2) it is plausible that we are not good at measuring alcohol dependence among older adults. Factors that make it difficult to identify alcohol dependence in this population include social myths surrounding alcohol consumption in older adulthood and similarities

between the symptoms of alcoholism and those of other conditions (Dar, 2006). Dependence may be particularly difficult to measure in older adults because many of the screening instruments we use were not designed to be used with older drinkers (Dar, 2006); for example, CAGE has poor validity amongst older adults and particularly older women (Adams et al, 1996).

Variations in abstinence and drinking volume between older adults in different countries have implications for the transferability of evidence on older drinkers between countries. Of particular importance are the differences in rates of 12-month abstinence and former drinking, which might indicate that older adults in some countries are less likely to quit drinking as they age. For example, most of the evidence relating to how older adults change their drinking behaviour when they experience health deterioration originates from the US, and some of this evidence suggests that older adults who experience health deterioration are more likely to become former drinkers (e.g. Perreira & Sloan, 2001). However, if older adults in the US are more likely to report former drinking then this evidence may not be generalisable to countries such as the Scotland and England, where 12-month abstinence rates and former drinking are lower.

Limitations

Most limitations are focused on the comparability of the methodology of the underlying studies. Four key variations are identified here. First, some studies used different measures of alcohol consumption (quantity and frequency) and different definitions of binge drinking, both between and within countries. For example, some studies reported mean alcohol consumption averaged over drinking and non-drinking days (Dent et al. 2000; Ganry et al. 2001; Hajat et al. 2004; Lang et al. 2007; Australian Bureau of Statistics, 2009; Chen & Hardy, 2009; Ilomaki et al. 2009; Halme et al. 2010; French et al. 2014) whilst others used average consumption on drinking days only (Breslow & Smothers, 2004; Balsa et al. 2008; Blazer & Wu 2009; Immonen et al. 2004; Ilomaki et al. 2013). The former could underestimate hazardous drinking patterns as excessive drinking occasions are

combined with non-drinking days to give lower overall consumption. Some studies also reported consumption on the heaviest drinking day in the past week (The NHS Information Centre, 2010; Bromley & Mindell, 2011; The NHS Information Centre, 2011). These studies were more likely to report greater numbers of excessive drinkers than research measuring mean consumption.

Additionally, some studies did not specify a recall period for abstention, asking a question such as 'do you ever drink any alcoholic beverage such as beer, wine or liquor?' (Ganry et al. 2001; Greene et al. 2003; Lang et al. 2007; Weyerer et al. 2009; Immonen et al. 2011; French et al. 2013), whilst others record past 12-month drinking frequency (Breslow & Smothers, 2004; Hajat et al. 2004; Balsa et al. 2008; Blazer & Wu, 2009; Chen & Hardy, 2009; Halme et al. 2010; Ilomaki et al. 2013). Thus, there is some ambiguity around the time frame of reference for some of the frequency data; however, studies using different measures of abstention report broadly comparable findings.

Second, there was a 20 year variation in the study period, risking that alcohol consumption behaviour could be affected by period effects. However, examining within country variations in drinking between studies, there is no clear pattern of change over the period of the studies. Third, the studies included used different modes of data collection, including face-to-face interviews (Dent et al. 2000; Greene et al. 2003; Hajat et al. 2004; Balsa et al. 2008; Merrick et al. 2008; Australian Bureau of Statistics, 2009; Blazer & Wu, 2009; Weyerer et al. 2009; Wilson et al. 2013, French et al. 2014) and postal questionnaires (Moos et al. 2009; Immonen et al. 2011). Different approaches may elicit different response rates and the accuracy of responses may vary, with self-completion options purported to elicit more honest responses because of the greater anonymity of this mode of data collection (Bronner & Kuijlen 2007). Finally, many studies have examined alcohol consumption in overlapping but different age ranges (see Table 1), which may affect the direct comparability of evidence. To ameliorate concerns associated with different sample ages, we have compared studies that report on older adults aged under and over 75 years of age separately. Despite these

limitations, given the limited evidence base for alcohol consumption in older adults we believe the merits of this cross-national comparison outweigh the challenges.

A final limitation of this review is use of current UK government drinking guidelines to define older adults as low- and mid- versus excessive drinkers. These guidelines, described above, apply to all adults but it has been questioned as to how appropriate they are for the older adult population who may suffer from co-morbidities or take medications that may interact with alcohol. Crome et al. (2011) have suggested that drinking guidelines for older adults should be set much lower, at 1.5 units per day or 11 units per week, with binge drinking defined as over 4.5 units for men and 3 units for women. There is little evidence to support the numbers chosen for these lower drinking guidelines, but they do aim to reflect the increased risks of drinking alcohol in older age. The decision was taken here to use limits given in current national guidelines because these are widely used in advice to individuals including older adults, except where individuals receive tailored advice from a healthcare professional.

Implications for researchers and policymakers

The implications of this review for future research and policy are threefold. Firstly, researchers and policymakers should be cautious when using evidence from other countries to understand alcohol consumption among older adults in their own country. Secondly, our understanding of demographic variations in alcohol consumption among older adults is limited by the paucity of research that has examined socio-demographic variations in drinking in this population. We may be able to better understand and prevent alcohol-related harm among older adults if we can identify population subgroups at heightened risk of harm. Finally, we should examine why such a substantial minority of adults aged 50 years and older in many countries are drinking excessively. In the UK, where the highest levels of excessive daily drinking are reported, there may be the potential to significantly

reduce preventable ill health resulting from excessive alcohol consumption in this population through developing a better understanding of what drives this behaviour.

Conclusion

Data on alcohol consumption patterns and changes in behaviour over time among older adults is relatively scarce in many countries and therefore international evidence is often used to help understand drinking behaviour in this population. However, it may not be appropriate to generalise from the international evidence if drinking patterns in older adults are significantly different between countries. This literature review sought to examine alcohol consumption patterns of older adults in different countries to begin to understand how generalisable research might be between countries. We found that levels of lifetime abstinence and former drinking, as well as excessive drinking, varied widely, with implications for the generalisability of research on alcohol consumption behaviour between countries.

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Drinking among older adults

Tables

Table 1: Alcohol consumption among older adults in developed countries, with demographic variations

Author & Date	Country	Study Population	Survey Year	Sample Size	Measure of Consumption	Key Findings
Australian Bureau of Statistics (2009)	Australia	National Health Survey – aged ≥55	2007-2008	5,700	Lifetime abstention (LA), daily consumption on up to 3 days in past week	<ul style="list-style-type: none"> – Lifetime abstention increases with age – Among drinkers, excessive drinking*** is fairly stable with increasing age among women at 12-13%, but decreases among men from 16.9% aged 55-64, to 11.5% aged 65-74 years
Balsa et al. (2008)	USA	National Epidemiologic Survey on Alcohol & Related Conditions – aged ≥65	2001-2002	6,861	LA, frequency quantity consumed over 12 months, DSM diagnosis	<ul style="list-style-type: none"> – 31.2% of men & 27.5% of women were former drinkers – 6% of women & 14% of men reported binge drinking† in past month – 1.2% of women & 4.8% of men were dependent on alcohol
Blazer & Wu (2009a), Blazer & Wu (2009b)	USA	National Survey on Drug Use & Health – aged ≥50	2005-2006	10,953	12-month abstention, usual number of drinks/drinking day, frequency of drinking 5+ drinks, DSM IV alcohol use disorder	<ul style="list-style-type: none"> – 30.8% of men & 37.7% of women aged 50-64, and 39.2% of men & 54.8% of women aged ≥65 years reported abstention – 27.5% of men and 20.9% of women aged 50-64 reported excessive drinking compared with 21.4% of men & 17.9% of women aged ≥65 – Binge drinking decreased with increasing age in men and women – 3.0% of men and women had an alcohol use disorder
Breslow and Smothers (2004)	USA	National Health Interview Survey – aged ≥60	1997-2001	40,556	Average drinks/drinking day, frequency, average drinks/day	<ul style="list-style-type: none"> – 47.2% of men & 62.8% of women abstained – 18.7% of drinking men & 6.1% of drinking women were excessive drinkers and 4.8% of drinking men & 1.8% of drinking women binged
Bromley & Mindell (2011)	Scotland	Scottish Health Survey – aged ≥65	2008-2010	4,226	Lifetime abstention, former drinking, usual weekly and daily consumption	<ul style="list-style-type: none"> – 5% of men & 16% of women never drinkers – 12% of men & 11% of women ex-drinkers – 21% of men & 8% of women were excessive weekly drinkers, whilst 24% of men and 11% of women were excessive daily drinkers – 8% of men and 2% of women reported binge drinking
Chen & Hardy (2009)	Canada	National Population Health Survey – aged ≥50	2004-2005	4,187	LA, former drinking, past-week daily drinking	<ul style="list-style-type: none"> – 11.2% reported lifetime abstention and 19% were former drinkers – 4.9% of drinkers were excessive consumers
Dent et al. (2000)	Australia	General population sample – aged ≥75	1991-1995	630	Beverages consumed, drinking frequency, drinks per occasion	<ul style="list-style-type: none"> – Abstention rates were reported as 28% of men & 46% of women – 11.1% of men & 6.4% of women drank excessively – 4.9% of drinking men & 1.2% of drinking women binge drank

* Low-level drinkers – up to half weekly or daily alcohol intake limits (approximately 16g/day for men & 12g/day for women)

** Mid-level drinkers – half to maximum recommended weekly or daily intake limits (between approximately 12-16g/day for men-women & 24-32g/day for men-women respectively)

*** Excessive drinkers – exceeding recommended weekly or daily alcohol intake limits (>168g/week for men and 112g/week for women, >32g/day for men and >24g/day for women)

† Binge drinkers – exceeding double the recommended daily alcohol limits (>64g/day for men & >48g/day for women)

Drinking among older adults

Table 1: Alcohol consumption among older adults in developed countries, with demographic variations

Author & Date	Country	Study Population	Survey Year	Sample Size	Measure of Consumption	Key Findings
Fink et al. (2002)	USA	Sample from academic and community primary care clinics – aged ≥65	Not reported	549	Frequency of drinking days, usual number of drinks	<ul style="list-style-type: none"> – 67% of people reported low-level consumption* – 23% of people reported mid-level consumption** – 10% of people reported excessive consumption
French et al. (2014)	Australia	Household, Income and Labour dynamics in Australia – aged ≥55	2006	3205	Current drinker, drinking days/week, typical drinks/occasion	<p>In Australia:</p> <ul style="list-style-type: none"> – 15.3% of men and 22.8% of women aged 55-64 were abstainers – 16.0% of men and 31.3% of women aged 65-74 were abstainers – 20.6% of men and 35.1% of women aged 75-83 were abstainers – 15-20% of men and 3-5% of women reported excessive drinking across the 3 age groups
	Korea	Korean Longitudinal Study of Ageing – aged ≥55	2006	6470		<p>In Korea:</p> <ul style="list-style-type: none"> – 34.5% of men and 85.5% of women aged 55-64 were abstainers – 45.1% of men and 90.9% of women aged 65-74 were abstainers – 63.0% of men and 90.9% of women aged 75-83 were abstainers – 30% of men reported excessive drinking across the 3 age groups – Excessive drinking among women was 2.1, 6.6 and 0% respectively
Ganry et al. (2001)	France	Women from voter & health insurance member rolls – aged ≥75	1992-1994	7,575	Current drinker, usual beverage specific quantity/frequency	<ul style="list-style-type: none"> – 59.7% reported abstention from alcohol – 5.7% of women drinkers were excessive consumers
Greene et al. (2003)	Ireland	General practice sample – aged ≥65	Not reported	518	Average units per week	<ul style="list-style-type: none"> – Abstention was reported by 21.2% of men & 44.4% of women – The majority of drinkers reported low-or mid-level consumption, but 20.8% of men & 3.8% of women were excessive drinkers
Hajat et al. (2004)	England	General practice sample – aged ≥75	1995-1999	14,962	Current drinker, former drinker, beverage specific past-week drinking quantity	<ul style="list-style-type: none"> – Lifetime abstention increased from 6.2% of men & 18.5% of women aged 75-79, to 14.1% of men & 31.1% of women aged ≥90 years – 6.1% of the sample was former drinkers – 3.4% of drinkers reported excessive consumption, with men twice as likely to be excessive drinkers than women
Halme et al. (2010)	Finland	Health 2000 Study – aged ≥65	2000	1,569	Past-12 month beverage-specific quantity and frequency	<ul style="list-style-type: none"> – 31.1% of men & 59.4% of women aged ≥65 were abstainers – Almost all women ≥65 were low-or mid-level drinkers (95.5%) – 16.4% of men aged ≥65 were excessive drinkers

* Low-level drinkers – up to half weekly or daily alcohol intake limits (approximately 16g/day for men & 12g/day for women)

** Mid-level drinkers – half to maximum recommended weekly or daily intake limits (between approximately 12-16g/day for men-women & 24-32g/day for men-women respectively)

*** Excessive drinkers – exceeding recommended weekly or daily alcohol intake limits (>168g/week for men and 112g/week for women, >32g/day for men and >24g/day for women)

† Binge drinkers – exceeding double the recommended daily alcohol limits (>64g/day for men & >48g/day for women)

Drinking among older adults

Table 1: Alcohol consumption among older adults in developed countries, with demographic variations

Author & Date	Country	Study Population	Survey Year	Sample Size	Measure of Consumption	Key Findings
Hoeck & Van Hal (2013)	Belgium	Random sample of non-institutionalized elderly population – aged ≥65	2001-2004	4,825	Weekly average alcohol consumption	– 50.4% reported abstinence – 19.8% reported excessive drinking
Ilomaki et al. (2009)	Finland	Kuopio Ischemic Heart Disease Risk Factor Study – aged 42-60 at baseline	1986-2001	1,516	Past 12-month drinking quantity and frequency	– Abstinence increased from 9.3% of men aged 53-5 to 17.8% of men aged 71-3 – Excessive drinking and binge drinking decreased with increasing age
Ilomaki et al. (2013)	Australia	Concord Health and Ageing in Men Project – aged ≥70	2005-2007	1,705	Average drinking days in past week/month/year, average drinks/drinking day, no. binge drinking days	– 23% of men reported abstinence – 19.2% of men reported excessive drinking – 13.9% of men reported binge drinking
Immonen et al. (2011)	Finland	Community dwelling random sample – aged ≥65	2007	2,100	12-month frequency, quantity on typical day, frequency of binge drinking	– 16.2% of men and 5.6% of women were excessive drinkers – 3.9% of men and 0.3% of women were binge drinkers
Lang et al. (2007)	USA	US Health & Retirement Study – aged ≥65	1995-2002	13,333	Current drinker, past 3-month weekly drinking frequency and usual drinking quantity	– Levels of abstinence were 63.2% among men & 81.0% among women – 14.3% of drinking men & 3.8% of drinking women were excessive drinkers
Merrick et al. (2008)	USA	Medicare Current Beneficiary Survey, Access to Care File – aged ≥65	2003	12,413	Typical month frequency, usual quantity, frequency of 4+drinks/day in month	– Abstinence increased with age from 55.0% of men & 73.0% of women aged ≥65, to 75.0% of people ≥81 years – 35.6% of drinking men & 14.8% of drinking women excessive drinkers
Moos et al. (2009)	USA	Outpatient contact in past 3 years – aged 75-85	2006-2008	719	Beverage specific weekly frequency, usual quantity & heaviest day last month	– 19.7% of men & 21.3% of women were former drinkers – 27.1% of women and 55.4% of men were excessive drinkers (either excessive daily and/or weekly drinking)

* Low-level drinkers – up to half weekly or daily alcohol intake limits (approximately 16g/day for men & 12g/day for women)

** Mid-level drinkers – half to maximum recommended weekly or daily intake limits (between approximately 12-16g/day for men-women & 24-32g/day for men-women respectively)

*** Excessive drinkers – exceeding recommended weekly or daily alcohol intake limits (>168g/week for men and 112g/week for women, >32g/day for men and >24g/day for women)

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Drinking among older adults

Table 1: Alcohol consumption among older adults in developed countries, with demographic variations

Author & Date	Country	Study Population	Survey Year	Sample Size	Measure of Consumption	Key Findings
New Zealand Ministry of Health (2008)	New Zealand	New Zealand Health Survey – aged >65	2006-2007	2,460	Past 12-month drinker, quantity, frequency, alcohol-related problems	– 31.7% of men & 9.9% of women aged 65-74 were excessive drinkers – 6.4% of men & 1.3% of women aged 65-74 were binge drinkers rates of excessive and binge drinking declined with increasing age
Robinson & Harris (2011)	Britain	General Lifestyle Survey – aged ≥65 years	2009	3,650	Drinking frequency, past-week drinking quantity, heaviest drinking day	– 15% of men & 27% of women years were non-drinkers – 73% of men & 86% of women drank at a low-to mid-level – 27% of men & 14% of women were excessive drinkers – 8% of men and 2% of women were binge drinkers
The NHS Information Centre (2010)	Britain	The Opinions Survey – aged ≥65	2009	530	Past 12-month frequency, average weekly quantity, heaviest drinking day	– 15% of men & 30% of women were non-drinkers – 68% of women were low-or mid-level drinkers – 34% of men & 32% of women were excessive drinkers – 9% of men & 5% of women years were binge drinkers
The NHS Information Centre (2011)	England	Health Survey for England - aged ≥65	2009	3,100	Past week drinker, mean weekly quantity, heaviest drinking day	– 80% of adults were low- or mid-level drinkers – 22% men & 19% women were excessive drinkers – 5% of men & 2% of women aged ≥65 years were binge drinkers
Weyerer et al. (2009)	Germany	General practice sample – aged ≥75	2003-2004	3,224	Current drinking frequency, usual drinking quantity	– 26.6% of men & 62.4% of women abstained – 16.5% of men and 9.6% of women were excessive drinkers – 1.6% of men & 1.3% of women reported binge drinking
Wilson et al. (2013)	USA	National Health and Nutrition Epidemiological Survey – aged ≥65 years	2005-2008	2,593	Past 12-month frequency, quantity on drinking days	– 44.2% of men and 60.5% of women were non-drinkers – 14.5% of drinkers reported excessive drinking – 11.7% of drinkers reported binge drinking

* Low-level drinkers – up to half weekly or daily alcohol intake limits (approximately 16g/day for men & 12g/day for women)

** Mid-level drinkers – half to maximum recommended weekly or daily intake limits (between approximately 12-16g/day for men-women & 24-32g/day for men-women respectively)

*** Excessive drinkers – exceeding recommended weekly or daily alcohol intake limits (>168g/week for men and 112g/week for women, >32g/day for men and >24g/day for women)

† Binge drinkers – exceeding double the recommended daily alcohol limits (>64g/day for men & >48g/day for women)

Figures

Figure1a: abstention in older adults aged less than 75 years

Figure1b: former drinking in older adults aged less than 75 years

Figure1c: excessive weekly drinking in older adults aged less than 75 years

Figure1d: excessive daily drinking in older adults aged less than 75 years

Drinking among older adults

Figure 1a: abstinence in older adults aged less than 75 years

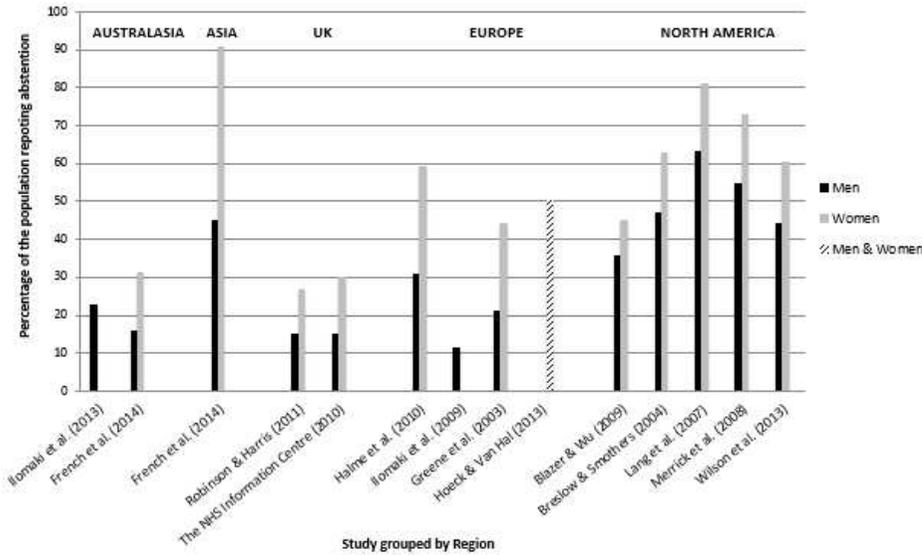


Figure 1b: former drinking in older adults aged less than 75 years

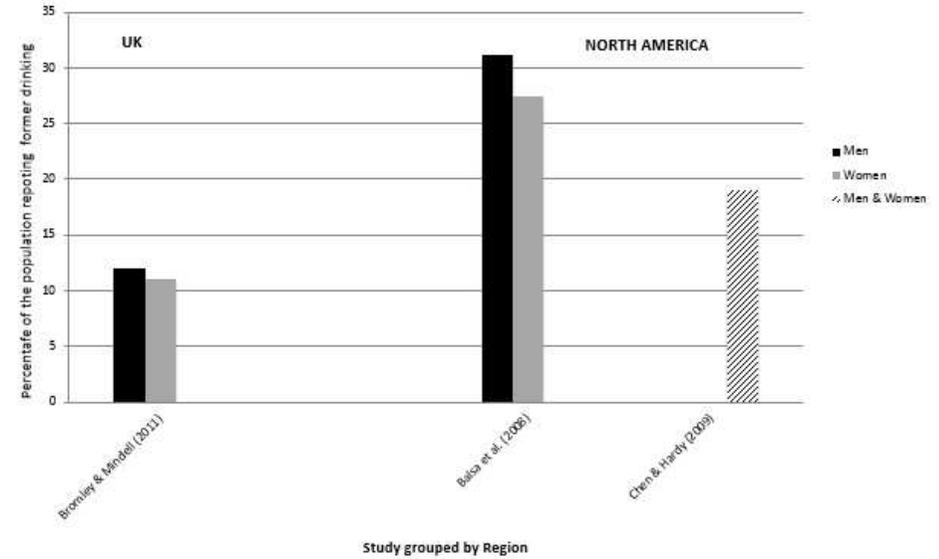


Figure 1c: excessive weekly drinking in older adults aged less than 75 years

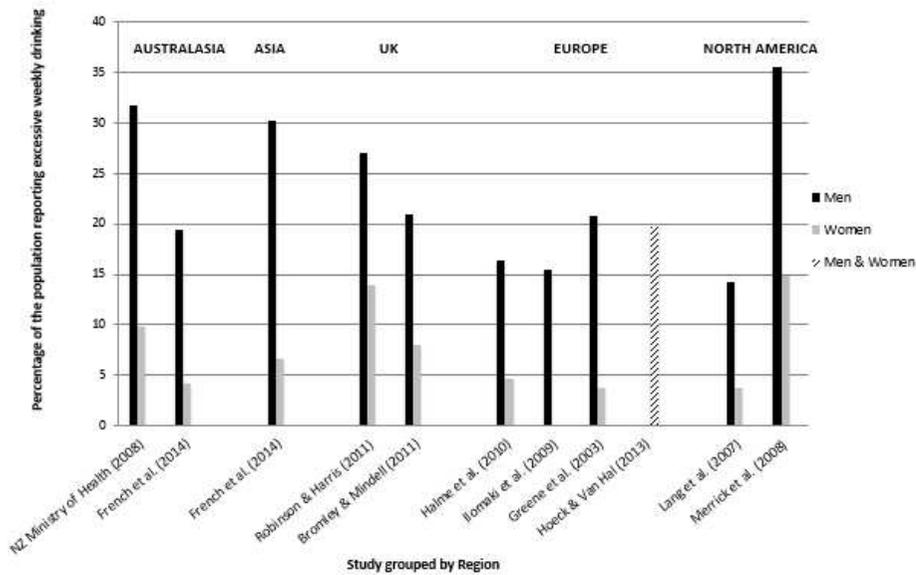


Figure 1d: excessive daily drinking in older adults aged less than 75 years

