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Prevalence of substance abuse and socio-economic differences in substance abuse in an Australian community-dwelling elderly sample

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Abstract

A sample of 324 55–90-year-old Australian adults participated in a survey on elderly substance abuse using the Clinical Assessment Scales for the Elderly. Overall, males had a higher prevalence rate of substance abuse than females. Significant differences in substance abuse mean scores were found for gender, age, income, community involvement, and retirement. The findings also reveal that being a female, involved in community groups, being a retiree, and being a non-baby boomer are protective factors of substance abuse. Being an upper medium income earner appears to be a risk factor of substance abuse.

Keywords

aging, gender, prevalence, socio-economic factors, substance abuse

Introduction

According to the World Health Organization, substance abuse refers to the harmful or hazardous use of psychoactive substances. Psychoactive substance use can lead to dependence syndrome (World Health Organization (WHO), 2016). Substance abuse in the current study is therefore concerned with the harmful or hazardous use of psychoactive substance, including alcohol, illegal drugs, and some prescription drugs (Outlaw et al., 2012) such as benzodiazepines and opioid analgesics.

Substance abuse is often misconceived in research and practice as an issue affecting only the younger population. However, substance abuse is not limited to a specific age group (Koechl et al., 2012). According to American studies, the number of people aged 50 years and above in need of substance-related addiction treatment will reach 4.5 million by 2020 (Gage and Melillo, 2011). Nogueira et al. (2013) posited that the aging of the "baby boomer" cohort, those born between the years of 1946 and 1964, contributed to such higher rates of substance abuse than earlier cohorts. Social gerontologists notice that baby boomers have tested many of the deeply rooted social values and beliefs (Outlaw et al., 2012), and that this cohort of older adults is more comfortable with alcohol and drug use, as they may have a history of substance use from when they were young (Cummings et al., 2008).

Substance abuse among older people, which is often under-diagnosed, is a significant public health issue. Research has documented that alcohol- and drug-related problems have negative impacts not only on the health and well-being of individuals but also the social aspects of the community (Colliver et al., 2006; Manning et al., 2013; Mitchell, 2011). At the individual level, substance abuse may exaggerate the normal slowing of reaction times and other physical functions, among older adults. This may increase the risk of falls and accidents (Colliver et al., 2006). At the community and social level, alcohol and drug abuse presents a major challenge for the criminal justice system,

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the health system, and worker productivity (Manning et al., 2013). Alcohol and drug abuses are also identified as risk factors for domestic violence and road accidents (Manning et al., 2013; Mitchell, 2011).

Alcohol is the most commonly abused substance by older adults (Cummings et al., 2008; Li and Jackson, 2016). A review by Briggs et al. (2011) found that an estimated 15 percent of noninstitutionalized people aged 65 years and over were at risk of alcoholism and up to 50 percent of the elderly residents of nursing and retirement facilities drank at least moderately or have problems related to alcohol use. American studies report the prevalence of alcohol abuse in community-dwelling older adults ranges from 3 percent to 30 percent. The prevalence of alcohol abuse among older people presenting in healthcare settings has been consistently higher, ranging from 5 percent to 58 percent in hospitals, nursing homes, and other institutional settings (Cummings et al., 2008; Kane and Green, 2009; Patterson and Jeste, 1999).

Similar trends of high rates of alcohol abuse among older people in both community samples and healthcare settings are found in other countries. A UK prevalence study of the community mental health service for older adults reported that 30 percent of service users drank above the national guidelines for safe consumption of alcohol, and that 10 percent of service users drank alcohol at dependence levels (Rakshi and Marron, 2011). In Australia, the 2010 National Drug Strategy Household Survey (Australian Institute of Health and Welfare, 2010) found that 15.3 percent of people aged 65–74 years and 9.4 percent of individuals aged over 75 years had high-risk drinking for alcohol-related harm or injury over the lifetime.

In addition to alcohol, some older adults have also been found to be drug abusers (Li and Jackson, 2016). These drugs include prescription drugs and illicit drugs. Older people are reported to have the highest prescription-drug abuse rate of any other age group (Briggs et al., 2011). Among the prescription drugs, benzodiazepines and opioid analgesics are frequently prescribed to individuals aged 65 years and older. In Australia's aged care services, around 4.4 percent of residents report misusing opioids or benzodiazepines (Li and Jackson, 2016).

The use of illicit drugs may be increasing in the elderly population as baby boomers age (Cummings et al., 2008). Illicit drugs include marijuana, hashish, cocaine (including crack), inhalants, hallucinogens, heroin, and prescription-type drugs used nonmedically. Latest projections suggest significant increases in illicit drug use by people aged 50 years and older. According to Colliver et al. (2006), marijuana use among adults aged 50 years and older in the United States is estimated to reach 3.3 million by 2020. In addition, use of any illicit drug is estimated to reach 3.5 million, and nonmedical use of prescription drugs (opioids, sedatives, tranquilizers, and stimulants) is projected to reach 2.7 million. While older Australians have generally had the lowest rates of illicit drug use compared to younger age groups, recently this age group has begun to show an increase from 8.7 percent to 11.1 percent for 50–59 year olds and from 5.1 percent to 6.4 percent for people aged 60 years and over (Australian Institute of Health and Welfare, 2013). Additionally, about 3 percent of older Australians have used pain killers or analgesics for nonmedical purposes (Li and Jackson, 2016).

Researchers strive to establish evidence of socio-economic variables that correlate to substance abuse in the elderly population. In the studies that investigate gender differences in substance abuse, a consistent finding is that elderly women are less frequently diagnosed with alcohol and illicit drug addiction disorders than elderly men (Briggs et al., 2011; Cummings et al., 2008; Koechl et al., 2012; Nogueira et al., 2013; Outlaw et al., 2012). However, older women are often more vulnerable to prescription drug abuse than are men (Briggs et al., 2011; Li and Jackson, 2016).

The relationship between alcohol abuse and loneliness among older adults is inconclusive. For example, Briggs et al. (2011) and Outlaw et al. (2012) suggested that older people living alone and experiencing isolation, loneliness, and lack of social support might be more at risk for excessive substance use as a way to manage life stressors. However, Canham et al.'s (2016) study reported that in a sample of community-based adults aged 50 years and over, loneliness was not associated with at-risk or binge drinking.

The impact of retirement on substance abuse is inconclusive. Kuerbis and Sacco (2012) used alcohol abuse as its example in reviewing the impact of retirement on the drinking patterns of older adults. Several positions appear to prevail on this issue. From a social network and social role perspective, drinking may decrease for retirees as they are cut off from their social network of co-workers that encourage alcohol consumption (Wood, 2007). Alternatively, drinking may increase due to greater leisure time and/or lessened demand from workplace functioning (Kuerbis and Sacco, 2012). From a stress and coping perspective, retired older persons may use alcohol to cope with the stress of retirement. They may also use alcohol to relieve tension and pain or cope with boredom (Adlaf and Smart, 1995).

Income and education are two important indicators of socio-economic status. Nevertheless, there is a lack of empirical evidence on the associations between substance abuse and the income and education of older adults.

The Australian National Drug Strategy Household Survey (NDSHS) has been conducted every 2–3 years since 1985. It provides the substance abuse prevalence of risky alcohol consumption and illicit drug usage by age groups (Australian Institute of Health and Welfare, 2010, 2013). For example, in 2013, 20.1 percent, 16.6 percent, and 8.3 percent Australians, aged 55–64, 65–74, and 75+ years, respectively, had risky drinking (more than two standard drinks of alcohol on any day). Male had higher rates of risky drinking across three age groups. In the previous

12 months, 5.0 percent, 0.9 percent, and 0.2 percent of Australians, aged 55–64, 65–74, and 75+ years, used cannabis, respectively. Male had higher rates of cannabis use across three age groups. However, it does not assess the relationship between substance abuse and socio-economic factors in older Australians. Australia lacks comprehensive information about the relationships between substance abuse and socio-economic factors.

To address the aforementioned research gaps, this article uses a community-dwelling sample of older Australians to estimate the prevalence of substance abuse in the sample. It then focuses on the relationships between substance abuse and gender, age, income, education retirement, living arrangement, and community involvement. This investigation of a non-clinical sample will provide a better understanding, of the socio-economic risk factors of substance abuse among older Australians, to community service providers and practitioners.

Method

Participants and procedure

Respondents were recruited from three state capital and two regional cities in Australia. Five hundred letters were sent to randomly selected households in telephone books to ask whether there were persons aged 55–90 years who were interested in participating in the survey. Thirty-two responses were received. More than 30 senior citizen clubs and community groups were approached by research assistants of the research project. Meetings were organized by the organizations who were willing to help in recruiting participants, where the research assistants met with the prospective participants. Research assistants explained the purpose of the research project, outlined the rights of a research participant, distributed the participant information sheet, and answered any questions the prospective participants had about the project. As a result of the meetings, 235 respondents were recruited. A snowballing technique was also used. Researchers emailed the details of the study to their networks and/or personal contacts who were asked to forward the emails to their clients and/or friends. Fifty-seven respondents were recruited. As a result, a total of 324 respondents took part in the survey. The ages ranged from 55 to 90 years ($M = 66.78$, standard deviation (SD) = 8.58). The sample was skewed toward female respondents with 59.3 percent female ($n = 192$) and 40.7 percent male ($n = 132$). Table 1 shows a breakdown of the demographic characteristics of the sample.

Ethical approval was obtained from the Human Research Ethics Committee at James Cook University. Respondents were informed that the study would be exploring mental health issues among older Australians. Following the provision of informed consent, the participants completed a pen-and-paper questionnaire and returned it to the researcher or used the supplied postage paid envelope.

Table 1. Demographic variables ($n = 324$).

Variable	*n*	%
Age (years)		
55–64	153	47.2
65–74	102	31.3
75–90	69	21.3
Income		
Low (≤ AUD 41,599)	172	53.1
Lower medium (AUD 41,600–AUD 77,999)	98	30.3
Upper medium (AUD 78,000–AUD 129,999)	26	8.0
High (≥ AUD130,000)	28	8.6
Education level		
Under tertiary education	130	40.1
Professional diploma	77	23.8
Undergraduate	37	11.4
Postgraduate	80	24.7
Living arrangements		
Living with spouse or family	244	75.3
Living alone at home	80	24.7
Retirement		
Yes	134	41.4
No	190	58.6
Community group membership		
Yes	208	64.2
No	116	35.8

Materials

Socio-economic variables were measured by gender, age, individual annual income, education level, retirement status, living arrangements, and membership of social/sports/arts community groups. The scale of Substance Abuse (SUB) in the Clinical Assessment Scales for the Elderly (CASE) Form S (self-report) was employed to measure substance abuse. SUB was chosen because it is specifically designed to assess substance abuse for older persons aged between 55 and 90 years and can be used in the non-clinical population (for details of SUB, please see Reynolds and Bigler, 2001). There were 19 items in SUB. Responses were recorded using a 5-point Likert scale ranging from Never, Once a Year or Less, Monthly, Weekly to Daily, or Always. The higher the score, the more severe is the substance abuse. Sample questions included "drink to feel better," "if I do not have a drink, I start to shake," "rely on alcohol or drugs too much," and "my family and I quarrel about my alcohol or drug use." SUB has been demonstrated to have good reliability, with Cronbach's alpha coefficients for the scale being .92 (Reynolds and Bigler, 2001). For the current study, Cronbach's alpha was .83.

The CASE manual recommends that a T score of 75 or higher suggests an extreme level of substance abuse; T scores between 65–74 indicate a clinically significant level of substance abuse; 55–64 for a mild to moderately

elevated level of substance abuse; 45–54 for an average or typical level of substance abuse; and 44 or lower for a low to very low level of substance abuse. The present study used these cut-off T scores to estimate prevalence levels in this Australian sample. An elevated level of substance abuse refers to a tendency to use alcohol and/or drug use to regulate mood, and episodic binge drinking may occur in the absence of regular use. A clinically significant level of substance abuse refers to a clear pattern of alcohol and/or drug abuse. An extreme level of substance abuse refers to severe alcohol and/or drug use problems of a dependent nature.

Analysis

Little's M*issing Completely At Random* (MCAR) test indicated that missing data were missing completely at random ($p = .82$). Multiple imputation technique was used to replace missing data, which generated five sets of imputed data. Descriptive statistics were used to characterize the sample. For the estimate of prevalence and analyses of age, income, and educational differences in substance abuse scores, the participants were categorized into three age groups, four income groups, and four educational groups, as shown in Table 1. To be consistent with the CASE manual (Reynolds and Bigler, 2001), T scores were chosen to transform raw scores to standardized scores for the purpose of estimating the prevalence of substance abuse. T-tests and ANOVAs were employed to investigate differences of group means.

Results

Prevalence of substance abuse

Table 2 presents the prevalence of substance abuse broken down by a number of demographic variables.

Socio-economic differences in substance abuse

In order to ascertain socio-economic differences in substance abuse mean scores, independent samples t-tests were used to test the differences of the mean scores of substance abuse between gender (male/female), community involvement (yes/no), retirement (yes/no), and living arrangements (with people/living alone). In each of these analyses, the degrees of freedom were higher than expected because the results were pooled from five imputed datasets using multiple imputation. Analyses of variances (ANOVAs) were used to test the group differences of the mean scores of substance abuse in age, income, and education.

Gender difference in substance abuse mean scores. Independent samples t-tests were used to test the gender difference in substance abuse mean scores. There was a significant difference in the scores for men ($M = 26.90$, $SD = 7.95$) and women ($M = 23.45$, $SD = 5.84$; $t(79350) = 4.23$, $p < .001$, two-tailed). This yielded a medium effect size (Cohen's $d = .49$) for the magnitude of the difference in the means (mean difference = 3.44, 95% CI (1.85, 5.04)).

Age difference in substance abuse mean scores. Participants were categorized into three groups according to their age (Group 1: 55–64 years; Group 2: 65–74 years; Group 3: 75 years and above). Levene's test indicated that the assumption of homogeneity of variance had not been violated, $F(2, 321) = 1.10$, $p = .34$. There was a statistically significant difference in substance abuse scores for the three age groups: $F(2, 321) = 2.30$, $p = .05$. The actual difference in mean scores between the groups was small. The effect size calculated, using eta squared, was .02. Post-hoc comparisons employing Tukey's Honest Significant Difference (HSD) test indicated that the mean score for Group 1 ($M = 25.68$, $SD = 7.25$) was significantly different from Group 3 ($M = 23.24$, $SD = 5.94$, $p = .04$, 95% CI (0.08, 4.81)) with an almost medium effect size (Cohen's $d = .37$). Group 1 did not significantly differ from Group 2 ($M = 24.71$, $SD = 7.08$) and Group 2 did not significantly differ from Group 3.

Income difference in substance abuse mean scores. Participants were divided into four groups according to their income (Group 1: low income of $41,599 and less; Group 2: lower medium income of $41,600–$77,999; Group 3: upper medium income of $78,000–$129,999; Group 4: high income of $130,000 and above). Levene's test indicated that the assumption of homogeneity of variance had not been violated, $F(3, 320) = 2.59$, $p = .06$. The results showed that income levels significantly affected the level of substance abuse reported in participants, $F(3, 67) = 4.87$, $p = .003$. The actual difference in mean scores between the groups was small. Post-hoc comparisons using Tukey's HSD test indicated that the mean score for Group 1 ($M = 23.77$, $SD = 5.97$) was significantly different from Group 3 ($M = 28.63$, $SD = 10.49$, $p = .01$, 95% CI ($-.12$, $-.01$)) with a medium effect size (Cohen's $d = .60$). Group 1 did not significantly differ from either Group 2 ($M = 25.28$, $SD = 7.27$) or Group 4 ($M = 26.56$, $SD = 6.43$). The mean scores for Groups 2–4 were not significantly different from one another.

Educational difference in substance abuse scores. Participants were divided into three groups according to their education (Group 1: secondary education or below; Group 2: professional diploma; Group 3: undergraduate; Group 4: postgraduate). Levene's test indicated that the assumption of homogeneity of variance had not been violated, $F(3, 320) = 1.13$, $p = .34$. The results showed that there was no statistically significant difference in mean scores of substance abuse for the four educational groups: $F(3, 320) = 2.18$, $p = .09$.

Table 2. Prevalence rates of substance abuse by demographic variables.

Variable	Level of substance abuse		
	Elevated (%)	Clinically significant (%)	Extreme (%)
Gender			
Male	17.0	9.9	5.6
Female	8.2	2.2	1.7
Age (years)			
55–64	14.6	6.7	3.5
65–74	9.2	3.9	4.5
75–90	9.3	4.4	1.2
Income			
Low (≤$41,599)	]9.8	4.0	2.0
Lower medium ($41,600–$77,999)	13.5	4.9	4.1
Upper medium ($78,000–$129,999)	19.2	7.7	11.5
High (≥$130,000)	11.4	12.9	1.4
Education level			
Under tertiary education	8.3	4.5	3.4
Professional diploma	14.3	5.2	–
Undergraduate	16.8	5.4	5.4
Postgraduate	12.8	6.8	5.5
Living arrangements			
Living with spouse or family	12.4	5.8	4.2
Living alone at home	10.0	3.8	0.8
Retirement			
Yes	9.4	4.4	2.4
No	15.2	6.6	4.6
Community group membership			
Yes	9.7	3.6	1.9
No	15.5	8.5	5.9

Retirement difference in substance abuse mean scores. Independent samples t-tests were used to test the retirement difference in substance abuse mean scores. There was a significant difference in the scores for non-retirees ($M=25.87$, $SD=7.56$) and retirees ($M=24.14$ $SD=6.46$; $t(20596)=-2.14$, $p=.03$, two-tailed). Despite reaching statistical significance, the magnitude of the difference in the means (mean difference=1.73, 95% CI (.14, 3.32)) was very small (Cohen's $d=.25$).

Living arrangement difference in substance abuse mean scores. There was no significant difference in the scores for participants living with people ($M=25.24$, $SD=7.36$) and living alone ($M=23.70$, $SD=5.55$; $t(33765)=-.09$, $p=.09$, two-tailed).

Community involvement difference in substance abuse mean scores. Independent samples t-tests were used to test the community involvement difference in substance abuse mean scores. There was a significant difference in the scores for participants who were involved in community groups ($M=24.06$, $SD=6.03$) and who were not involved in community groups ($M=26.29$, $SD=8.25$; $t(8371)=-2.53$, $p=.01$, two-tailed). Despite reaching statistical significance, the magnitude of the difference in the means (mean difference=3.44, 95% CI (−3.96, −.50)) was small (Cohen's $d=.31$).

Discussion

The present study explored the prevalence of substance abuse in a community-dwelling sample of older Australians. In general, 11.8 percent participants had a tendency to use alcohol and/or drug use to regulate mood, and episodic binge drinking may occur in the absence of regular use, and 5.3 percent participants had a clear pattern of alcohol and/or drug abuse; 3.3 percent participants had severe alcohol and/or drug use problems of a dependent nature.

The current research revealed that being a female, a non-baby boomer, a retiree, and involved in community groups are protective factors of substance abuse among the participants. Being an upper medium, income earner appears to be a risk factor for substance abuse.

Male participants had a higher prevalence of substance abuse than their female counterparts. The mean score of substance abuse among males was significantly higher than that of females. This finding is consistent with findings in existing literature that elderly men are more frequently diagnosed with substance abuse than elderly women (Briggs

et al., 2011; Cummings et al., 2008; Koechl et al., 2012; Nogueira et al., 2013; Outlaw et al., 2012). Our findings are also consistent with the finding in NDSHS that the Australian older men had higher rates of risky substance use (such as drinking and cannabis use) than Australian older women (Australian Institute of Health and Welfare, 2013).

Pertaining to age, baby boomers had higher substance abuse rates than the previous age cohorts, with their mean scores of substance abuse being significantly higher than the age cohort of 75 years and over. This finding is consistent with the theory that the retirement of baby boomers may result in unprecedented high numbers of older substance abusers (Colliver et al., 2006; Compton et al., 2004; Cummings et al., 2008; Nogueira et al., 2013; Outlaw et al., 2012).

With regard to income, participants with an upper medium income had the highest substance abuse rates compared with the other income groups. Their mean substance abuse scores were significantly higher than those of the low income group. This finding provides empirical evidence that middle class older people may be more vulnerable to substance abuse compared to their counterparts in other income groups.

In relation to retirement status, older retirees had a lower prevalence rate of substance abuse than those who were working at the time of the study. The mean score for retirees was significantly lower than that for non-retirees. This finding is consistent with the social network and social role theory that social roles are reduced for retired older people, and therefore, alcohol consumption and related problems may reduce. This is particularly the case for older people in workplaces where alcohol use is associated with work-oriented social roles (Kuerbis and Sacco, 2012).

With respect to living arrangements, the participants living with others reported higher rates in substance abuse than those who lived alone, even though the mean substance score difference between the two groups was not significant. This finding is not consistent with previous findings where loneliness is an at-risk factor of substance abuse among older adults. One of the explanations of this inconsistency is that people living alone may not necessarily be lonely. Another explanation is that older people, who live with family or friends and who have physical problems such as pain, may be encouraged by family members or friends to use pain medication (Patterson and Jeste, 1999).

Regarding community involvement, participants who were part of a social/sporting/arts community group had a lower prevalence rate in substance abuse than their counterparts. The mean score of substance abuse among those who were involved with community groups was significantly lower than their counterparts. Older people who are not involved in community activities may be more likely to experience isolation and a lack of social support, and feel lonely. Excessive substance use may be employed as a means to manage isolation and loneliness by some older adults (Briggs et al., 2011; Outlaw et al., 2012).

There are a number of limitations which warrant future research. The non-probability sampling method limits the generalizability of the current findings. A randomized, larger-size sample would overcome this limitation. Moreover, as Li and Jackson (2016) suggested that cultural background may play a role in the gender–substance abuse relationship, future work may want to consider whether males irrespective of cultural background are more at-risk substance abusers than females. Furthermore, future work may consider the role cultures play in substance abuse of older Australians. In particular, are older Indigenous Australians more likely than their mainstream counterparts to be consuming alcohol at a high-risk level? In addition, although the manual of CASE states that high scores of substance abuse always suggest problems associated with alcohol use, the CASE does not distinguish between alcohol and drug abuse, which limits the meaningfulness of the findings. It is worth assessing abuses of alcohol, prescription drug, and illicit drug separately.

Despite the limitations, the article offers insights into the occurrence of substance abuse among a volunteer sample of community dwelling over 55 year olds. Health psychologists working with older people and/or those designing programs, which aim at preventing substance abuse among older people, may want to address demographic markers of their clients in the prevention programs. For example, prevention programs could be developed to address the following risk socio-economic factors identified by the present study: being a male, baby boomer, non-retiree and an upper medium income earner, and having no involvement in community groups. Moreover, as the initial wave of the baby boom generation turned 65 years old in 2011 (Kuerbis et al., 2014), it is important to provide culturally appropriate services to this age group due to the uniqueness of this generation of older adults.

Conclusion

Although the current proportions of older adults in Australia with substance abuse remain low compared to younger age groups, a growing proportion and number of older Australians are at risk for risky drinking, substance misuse, and even illicit substance misuse and abuse. The present research indicates that one in five of the participants experience substance use that may put them at risk of substance-related harm in their later life. Being male, baby boomer, more affluent, non-retiree, and less involved in community activities are associated with substance use among the older people in the current study.

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