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Alcohol Consumption, Obesity, and Psychological Distress in Farming Communities—An Australian Study

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Abstract

Purpose: Alcohol consumption patterns nationally and internationally have been identified as elevated in rural and remote populations. In the general Australian population, 20.5% of adult males and 16.9% of adult females drink at short-term, high-risk levels. Farmers are more likely to drink excessively than those living in major cities. This study seeks to explore the relationships between farmers' physical and mental health and their alcohol consumption patterns. Our hypothesis is that farmers consume alcohol at high-risk levels more often than the Australian average and that this consumption is associated with obesity and psychological distress.

Methods: Cross-sectional descriptive data were collected within Australian farming communities from 1,792 consenting adults in 97 locations across Australia. Data on anthropometric measurements, general physical attributes and biochemical assessments were used to explore the interrelationships of self-reported alcohol consumption patterns with obesity, psychological distress, and other physical health parameters.

Findings: There was a higher prevalence of short-term, high-risk alcohol consumption (56.9% in men and 27.5% in women) reported in the study compared with national data. There was also a significant positive association between the prevalence of high-risk alcohol consumption and the prevalence of obesity and abdominal adiposity in psychologically distressed participants.

Conclusions: The prevalence of short-term, high-risk alcohol consumption practices in this cohort of farming men and women is significantly higher than the Australian average. These consumption practices are coupled with a range of other measurable health issues within the farming population, such as obesity, hypertension, psychological distress, and age.

Key words alcohol abuse, health disparities, health promotion, mental health, psychology.

The European and British historical connections linking alcohol with farming life are well ingrained[1] and, at times, the bounds that tie the 2 have been considered indivisible.[2] Alcohol also holds a prominent focus in Australian farming history since the arrival of the first fleet, when settling rations included enough food for 2 years and enough alcohol for 4.[3] The status of alcohol has gradually shifted from its use as currency (rum in the Australian convict era) to a means of social integration, with patterns of alcohol consumption increasing

in line with growth in economic prosperity and the promotion of positive associations with popular sporting and cultural events.[4] In rural communities the strength of the cultural integration of alcohol is highlighted by a higher number of alcohol outlets per capita,[5] strong reliance on alcohol sponsorship or sales to support rural events or sporting clubs, a cultural heritage of pubs as the meeting place and watering hole for men, and home-based domestic alcohol consumption providing the focus for many adults' social life.[6]

Over time, the identified hazards of alcohol misuse have developed from public drunkenness and nuisance to physical and psychological damage, interpersonal violence, crime, lost work days, road accidents, financial loss, and the flow-on effects in an overburdened health system.[7] Causal links have also been established between alcohol misuse and health conditions including diabetes,[8] coronary heart disease and cancer.[9] Short-term risky drinkers (at least once a week) have also been found to be 1.7 times as likely as low risk drinkers to experience very high levels of psychological distress.[10] Strong links have also been made between alcohol and smoking, and their mutual association with chronic stressful experiences.[11]

Alcohol consumption patterns nationally and internationally have been identified as elevated in rural and remote populations,[12-16] with strong evidence of a correlation between alcohol consumption and increasing distance from major cities.[17] With increasing remoteness comes an increase in short-term risky drinking, with 19% of metropolitan dwellers, 23% of rural dwellers, and 31% of populations in remote/very remote regions engaging in short-term risky consumption.[14] People use alcohol for a wide range of reasons and in varying social and cultural contexts.[18] Although there has been extensive research into rates and patterns of alcohol misuse, there is little detail relative to the rural farming population.

The potential influences linking elevated levels of risky alcohol consumption and mental health are unique in the rural farming population. The agrarian myth—the traditional popular notion of a happy, hearty and healthy life on the land—continues to pervade many people's image of agricultural communities and of the farmers themselves. Farmers have historically been portrayed as fit and strong men (usually), with a supportive family, living in a morally enriched and healthy rural utopia.[19] However, research shows that farm men and women experience poorer health and well-being than the general population.[20-22] Further, Australian farming populations are decreasing as the industry continues to experience unprecedented change through climatic challenges, the restructure of agricultural sectors, the transition from owner/operators to corporate production, and a lack of young people entering the industry with only 10% of farmers aged under 35 years.[23] As described by Sartore et al (2007), prolonged drought is a serious stressor for rural communities, involving financial hardship and anxiety about future prospects.[24] Chronic stress combined with relative isolation increase the risk of developing a mental disorder such as depression or anxiety.[24] Farmers experience a unique lifestyle, with vocational, educational and residential isolation; reduced access to bulk-billed medical services; intergenerational issues; financial pressures; a changing climate; and declining community populations leading to a reduced variety of social opportunities.[21,25] Often because of this lifestyle, Australian farmers also experience poorer mental health outcomes when compared with their nonfarming rural and urban counterparts.[22,26-30] In an extreme example of mental ill health, people living outside major cities are two-thirds more likely to die from suicide than those in major cities,[17] the rate of suicide death for male farmers and farm managers is more than twice that of the general Australian male population,[31] and farmers have significantly higher rates of suicide than the general rural population.[26] Living in a remote area and older age is associated with lower use of specialist services such as psychologists and other health professionals.[32]

This paper examines alcohol consumption in 1,792 farm men and women across Australia and the links between consumption patterns and physical and mental health. Our hypothesis is that Australian farmers consume alcohol at high-risk levels more often than the national average, and that this consumption is associated with obesity and elevated psychological distress. This study further explores the cultural context of alcohol consumption in farming communities and considers recommendations to address both the context of consumption patterns and patterns of use.

Methods

Study Population

This cross-sectional study was carried out between 2003 and 2009 with 1,792 consenting adult farming men (n = 957) and women (n = 835) aged between 18 and 74 years. The participants were from 97 locations (96 rural and 1 metropolitan) across all states and territories of Australia except the Australian Capital Territory and were participating in the Sustainable Farm Families (SFF) program.[22]

The SFF program was designed to address health, well-being and safety issues in farm men and women through health assessments, health information and action planning and to contextualize health into the operational day-to-day management of the farm.[22] This convenience sample self-identified as having been farming for more than 5 years and were recruited through various

agricultural industry and community groups, including farmers' federations, progress associations, "Bestwool/Bestlamb" and dairy farmers groups. All interested persons were provided with a plain language statement, and written consent was obtained prior to participation. Accessibility/Remoteness Index of Australia (ARIA) value was recorded based on the program locations, not residential locations.[33] Participants suffering from chronic terminal illnesses and pregnant or lactating mothers were excluded. Ethics approval was obtained from South West Multidisciplinary Ethics Committee (March 2003).

Data Collection

Prior to attending the SFF program, farmers completed entry-level data through self-administered health questionnaires. Alcohol consumption patterns and health interference were measured using the Victorian Service Coordination Tool Templates health conditions and behaviors form, which included 3 commonly used questions on alcohol consumption taken from the validated Alcohol Use Disorders Identification Test (AUDIT) tool.[34,35] Men consuming more than 6 standard drinks and women consuming more than 4 standard drinks on any 1 occasion at least once a month were assumed to be consuming alcohol at short-term risky levels, as outlined in the 2001 National Health and Medical Research Council guidelines.[36] Mental health was assessed using the Kessler 10 (K–10) questionnaire[37] and psychological distress was assumed to be present if the total K–10 score was >15, or if the participant reported diagnosed psychological illness or was prescribed medication for a psychological illness.

A comprehensive baseline health assessment was undertaken at the commencement of the SFF program including anthropometric measurements, general physical attributes and biochemical assessments. Weight was measured in kilograms to the nearest 0.1 kg using domestic scales. Height was measured in centimeters to the nearest 0.5 cm on a portable stadiometer. Body Mass Index (BMI) was calculated using the formula BMI = weight (kg)/height (m^2). A BMI of 30 or more was considered obese, and the categories overweight (BMI > 25-30), normal (BMI 18 $\leq$ 25) and underweight (BMI < 18) were assigned based on National Cholesterol Education Program (ATP III) criteria.[38] It is this baseline cross-sectional data collected from SFF programs held between 2003 and 2009 that informs this paper.

Data Preparation and Statistical Analysis

Data analyses were performed using SPSS (version 18) statistical software (IBM SPSS Statistics, Chicago, IL).

Table 1 Descriptive Analysis of Baseline Data of the Farming Cohort

		n	Range	Mean (SD)
Age (years)	Male	957	19-74	49.66 (10.93)
	Female	835	18-73	47.92(10.82)
ARIA value[a]	Male	957	0-12.0	2.81(1.61)
	Female	835	0-12.0	3.06(2.01)
Weight (kg)	Male	957	49.00-171.00	87.52(14.41)
	Female	835	37.00-140.00	73.13(14.61)
BMI (kg/m^2)	Male	957	16.66-59.87	27.65(4.20)
	Female	835	14.82-51.11	26.98(5.16)
Body Fat (%)	Male	876[b]	10.2-46.6	21.1 (5.6)
	Female	778[b]	12.4-49.9	33.5 (7.1)
Waist Circumference (cm)	Male	941[b,c]	69.0-200.0	99.03 (11.5)
	Female	824[b,c]	63.0-134.0	88.4 (12.52)
Fasting blood glucose (mmol/L)	Male	955[d]	3.10-18.90	5.29(0.88)
	Female	933[d]	3.10-11.50	5.24(0.82)
Fasting blood cholesterol (mmol/L)	Male	814[d]	3.89-8.40	5.02(0.78)
	Female	670[d]	3.89-8.50	5.00(0.83)
Systolic BP (mmHg)	Male	957	80-195	130.54(15.03)
	Female	835	90-210	124.93(16.77)
Diastolic BP (mmHg)	Male	957	50-120	81.25(9.91)
	Female	835	50-120	77.32(10.08)
Kessler 10 score (K–10)	Male	698	10-38	15.24(4.23)
	Female	614	10-37	16.05(4.9)

Number of participants (n) varied among parameters from 1,792 to 1,484 due to exclusions.

[a]Accessibility/Remoteness Index of Australia (ARIA) value.

[b]Excluded due to noncompletion of tests.

[c]Excluded due to previously diagnosed hernias.

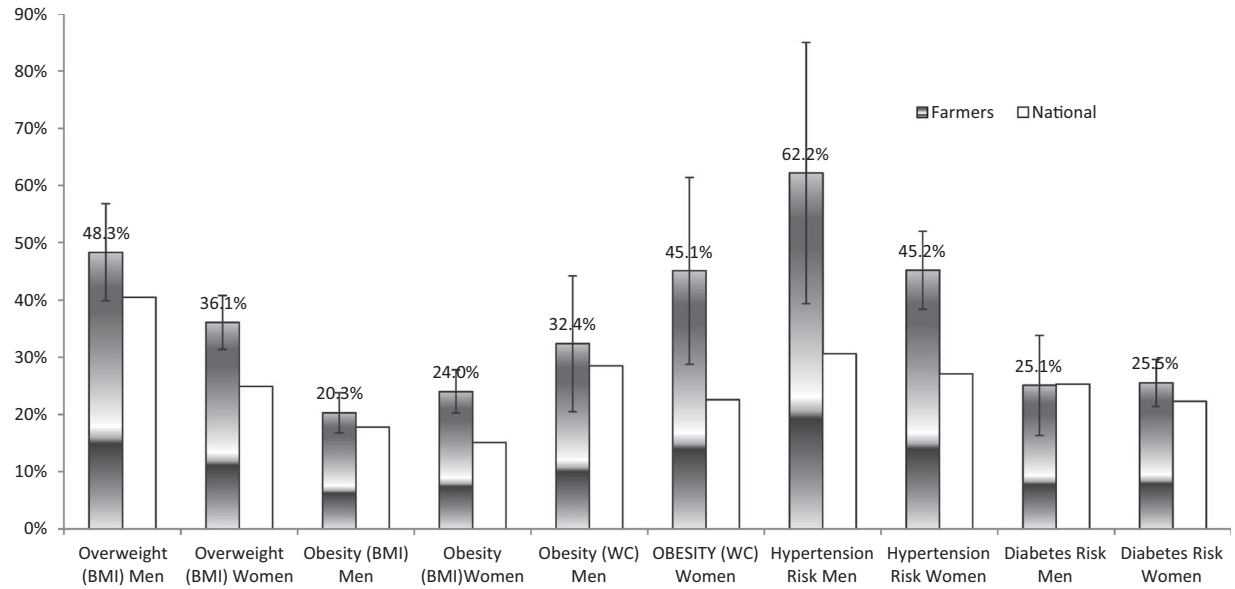
[d]Excluded as they fell outside the sensitivity range of the measuring devices.

Relationships and differences for different ages were evaluated using Pearson's correlation and independent sample *t* tests. The effect of psychological distress on other clinical conditions was assessed using Pearson's Chi-square (χ^2) test (2-tailed) and point bi-serial correlation coefficient analysis. Prevalence data were standardized to Australian population, age and gender categories and stratified into "elevated" and "nonelevated" groups using cut-off values. Data were expressed as mean ± standard deviation (SD) or prevalence (%).

Results

Descriptive data analysis of physical characteristics, clinical measurements and parameters of the study group of farm men and women are shown in Table 1. Of the participants, 44.6% were engaged in sheep farming, 43.9% in cropping, 23.2% in dairy, 30.5% in beef cattle, 4.5% in horticulture, 4.1% in cotton, and 2.7% in sugar and other farming types. In addition, 43.9% of the participants

Figure 1 Prevalence (95% Confidence Interval) of Risk Factors in the Farming Cohort (Age Standardized Data) With Gender Distribution Compared With Australian National Population Data.[40-42]



reported multiple farming modalities, with the most common being cropping and sheep farming of 28.6%.

The mean age (± SD) of participants was 48.9 (10.9) years with an average BMI (± SD) of 27.3 (4.7). Male participants had an average waist circumference (± SD) of 99.0 (11.4) cm and 21.1% (5.6) body fat. Averages for female participants were 88.4 (12.5) cm and 33.5% (7.1), respectively. Participants had a mean systolic BP (± SD) of 127.9 (16.1) mmHg, mean diastolic BP (± SD) of 79.4 (10.2) mmHg, mean fasting blood cholesterol level (± SD) of 5.0 (0.8) mmol/L, and fasting blood glucose level (± SD) of 5.3 (0.8) mmol/L. The mean mental health status score (± SD) was 15.6 (4.6) using the K–10 scale. ARIA values ranged from 0 to 12, with the mean (± SD) recorded as 2.93 (1.81).

The physical and mental health status of this study group was compared with the Australian population.[38-40] An age standardized data comparison (Figure 1) identifies the prevalence of elevated BMI, abdominal obesity, hypertension risk, and diabetes risk as higher in farming men and women than the Australian national average. Table 2 describes the smoking and alcohol consumption pattern of the study group compared with the Australian national population as described in the 2007 National Drug Strategy Household Survey.[39] The prevalence of smoking is lower for both farm men and women than for the national population.

The prevalence of alcohol consumers (drinkers) is only marginally higher in the farming cohort than for the national population (88.5% vs 85.0%). However, short-term risky drinking at least once a month was more than double (for men 56.9% vs 20.5% and for women 27.5% vs 16.9%) in the farming group when compared with the national population[39] (Table 2). Both farm men and women showed a tendency toward alcohol consumption at least once a week and drank at short-term risky levels (at least once a month) more frequently than both gender groups of the national population (Table 2).

Table 2 Comparative Analysis of Smoking and Alcohol Consumption in the Farming Community (n = 1,786, age ≥ 20 years old)[36]

	Farmers		Australian National Population[b]	
	Male %	Female %	Male %	Female %
Smoker	9.3	6.6	23.1	19.6
Ex-smokers	27.1	22.0	30.3	24.3
Consumer of alcohol	88.4	80.6	85.9	79.9
Consume alcohol at least once a week	73.8	55.3	61.6	44.0
Short-term risky alcohol consumption[a]	56.9	27.5	20.5	16.9

[a]Short-term risky alcohol consumption was assumed if men consumed more than 6 standard drinks and women consumed more than 4 standard drinks on any occasion at least once a month.
[b]Adapted from the available data for age ≥20 population.[39]

The relationship between alcohol consumption patterns and other health indicators was investigated using independent sample *t* tests (Tables 3 and 4). Farmers consuming alcohol at short-term, high-risk levels were

Table 3 Mean (±SD) Scores on Anthropometric, Biochemical and Mental Health Measures of the Categories of Alcohol Consumption (Risky and Low Risk) in the Farming Community

Measure	Risky[a] (n = 775)	Low risk[b] (n = 1,017)	P
Age (Y)	45.9(10.6)	51.1(10.6)	<.001[c]
Weight (kg)	84.7(15.7)	77.8(15.9)	<.001[c]
BMI (kg/m^2)	27.7(4.4)	27.1(4.9)	.006[c]
Fasting blood glucose (mmol/L)	5.3(0.8)	5.3(0.9)	.389
Fasting blood cholesterol (mmol/L)	4.9(0.8)	5.0(0.9)	.349
Systolic BP (mmHg)	127.6(15.6)	128.1(16.4)	.489
Diastolic BP (mmHg)	79.6(10.2)	79.3(10.2)	.514
Waist circumference (cm)	96.3(12.8)	92.3(13.5)	<.001[c]
Mental health score (K–10)	15.4(4.3)	15.8(4.8)	.194

[a]Risky alcohol consumption was assumed if men consumed more than 6 standard drinks and women consumed more than 4 standard drinks on any 1 occasion at least once a month.
[b]Low risk was assumed if men did not consume more than 6 standard drinks and women did not consume more than 4 standard drinks on any 1 occasion at least once a month.
[c]Significance determined using independent sample *t* test (2-tail)—significance was assumed if $P < .05$.

Table 4 Prevalence of Alcohol Consumption Patterns, Smoking, Psychological Distress and Health Interference Within the Gender Categories in the Farming Community

Measure	Men (n = 957) (%)	Women (n = 835)(%)	P
Alcohol consumer	846(88.4)	673(80.6)	<.001[d]
Short-term risky alcohol consumption[a]	504(52.7)	193(23.1)	<.001[d]
Smoking	89(9.3)	55(6.6)	.04[d]
Psychological distress[b]	307(42.5)	320(49.5)	.007[d]
Health interference[c]	339(35.4)	310(37.1)	.243

[a]Short-term risk was assumed if men consumed more than 6 standard drinks and women consumed more than 4 standard drinks on any 1 occasion at least once a month.
[b]Only 1,374 (men = 727 and women = 647) were available for psychological distress data.
[c]Health interfered with normal activities during the past 4 weeks.
[d]Significance was assumed if $P < .05$ using Pearson's Chi-square test (2-tail).

significantly younger (45.9 years compared with 51.1 years, $P < .001$) and their BMI, body fat percentage and waist circumference were significantly higher than that of low-risk alcohol consumers ($P < .001$).[10,39] Table 4 shows that although farm women consumed alcohol at lower rates than farm men, they had significantly higher levels of psychological distress ($P < .05$). Additionally, their health was more likely to interfere with their normal activities of daily living, although this was not statistically significant ($P = .455$).

Table 5 Prevalence of Alcohol Consumption Patterns, Smoking, Psychological Distress and Health Interference in the Categories of Younger (age <50 years) and Older (age ≥50 years) Farmers

Measure	Younger (Age < 50 years) (n = 919) (%)	Older (≥ 50 years) (n = 873) (%)	P
Alcohol consumers	812(88.4)	707(82.6)	<.001[d]
Consume alcohol at short-term risky levels[a]	477(51.9)	298(34.1)	<.001[d]
Smoking	98(10.7)	46(5.3)	<.001[d]
Psychological distress[b]	341(49.4)	286(41.8)	.005[d]
Health interference[c]	323(35.4)	326(37.4)	.179

[a]Short-term risky alcohol consumption was assumed if men consumed more than 6 standard drinks and women consumed more than 4 standard drinks on any 1 occasion at least once a month.
[b]Only 1,374 (older = 684 and younger = 690) were available for psychological distress data.
[c]Health interfered with normal activities during the past 4 weeks.
[d]Significance was assumed if $P \leq .05$ using Pearson's Chi-square test (2-tail).

Risk Factors in Younger Farmers

The farming group was divided into those aged 18-49 years and those aged 50+ years to differentiate the risk factors for obesity, diabetes, hypertension, and dyslipidaemia in ages 50 years and above and to identify their prevalence in younger age groups.[43] The younger farmers were found to be more likely to consume alcohol at short-term, high-risk levels when compared with farmers aged 50 or more ($P < .0001$). Table 5 also identifies younger farmers as having higher rates of smoking and a higher prevalence of psychological distress. Further analysis showed that the 20- to 29-year group of farmers consumed alcohol at short-term risk levels at least monthly (68.4%) at a higher prevalence than the same age group in the national population (39.6%).[39]

Table 6 shows the mental health status (psychologically distressed/not distressed) and cardiovascular risk factors in high-risk and low-risk alcohol consumers in the farming cohort. Those farmers who consume alcohol at high-risk levels and are psychologically distressed were more likely to be overweight and have higher abdominal adiposity (Table 6, $P < .05$). This group also displayed an elevated risk of diabetes, hypertension and high cholesterol, but these differences were not statistically significant. This analysis further strengthens our argument of an inter-relationship between physical and mental health problems and high-risk alcohol consumption.

Table 6 Mental Health Status (Psychologically Distressed/Not Distressed) and Cardiovascular Risk Factors in High-Risk[a] and Low-Risk Alcohol Consumers in the Farming Cohort (n = 1,374)

		Low-Risk Consumers			High-Risk Consumers[a]		
		Not distressed n (%)	Distressed[b] n (%)	*P*	Not distressed n (%)	Distressed[b] n (%)	*P*
BMI	Obese/overweight	231(66.2)	203(59.5)	.07	272(68.3)	220(76.9)	.01[e]
	Not obese	118(33.8)	138(40.5)		126(31.7)	66(23.1)	
Abdominal obesity[c] (High waist circumference)	Obese	118(34.1)	121(35.8)	.64	158(40.5)	148(53.4)	.001[e]
	Not obese	228(65.9)	217(64.2)		232(59.5)	129(46.6)	
Hypertension risk [c]	Hypertensive	149(42.7)	152(44.6)	.62	290(72.9)	207(72.4)	.88
	Not hypertensive	200(57.3)	189(55.4)		108(27.1)	79(27.6)	
Diabetic risk [c]	Diabetes risk	67(19.2)	65(19.1)	.96	137(34.4)	103(36.0)	.67
	No diabetes risk	282(80.8)	276(80.9)		261(65.6)	183(64.0)	
Cholesterol risk[d]	Cholesterol risk	59(16.9)	48(14.1)	.30	145(36.4)	109(38.1)	.65
	No cholesterol risk	290(83.1)	293(85.9)		253(63.6)	177(61.9)	

[a]High risk was assumed if men consumed more than 6 standard drinks and women consumed more than 4 standard drinks on any 1 occasion at least once a month.

[b]Psychological distress was assumed for k–10 score > 15, previously diagnosed mental illness or prescribed medication.

[c]Abdominal obesity (high waist circumference), hypertension risk, diabetes risk and metabolic syndrome were assumed according to National Cholesterol Education Program ATP III criteria.

[d]Cholesterol risk was assumed if fasting blood total cholesterol ≥ 5.5 mmol/L or for participants on hyperlipidaemic medications.

[e]Significance was assumed if $P \leq .05$ using Pearson's Chi-square test (2-tail).

Remoteness with Alcohol Consumption and Mental Health

A logistic binary regression with risky alcohol consumption and psychological distress as dependent variables and mean ARIA score as the independent variable was undertaken. This analysis showed a significant positive relationship with each unit of increasing ARIA associated with an increase in the odds of risky alcohol consumption by a factor of 1.104 ($P < .000$). Similarly, each unit of increasing ARIA is associated with an increase in the odds of being psychological distressed by a factor of 1.087 ($P = .004$).

Discussion

When compared with general populations, farm men and women are only slightly more likely to be consumers of alcohol. However, the percentage of farmers (men and women) consuming alcohol in this study is considerably higher than reported in previous farming populations.[44] The study showed that Australian farm men and women consume alcohol at short-term risky levels in substantially greater numbers than the general population, and it is the level and pattern of consumption that differentiates farmers. Co-occurring elevated levels of body mass index, abdominal obesity and psychological distress with short-term risky alcohol consumption were identified in this farming cohort. These co-morbidities commonly cluster[45] to increase the risk of developing chronic alcohol misuse, alcoholism, mental health disorders and domestic violence.[10]

Risky short-term alcohol consumption patterns vary within the farming population. The younger group of farmers (18-49 years) are more likely to misuse alcohol than farmers aged 50 years or more. This supports recent findings by the Australian Institute of Health and Welfare of alcohol misuse, particularly by rural men, youths and those working in the farming industry.[10] It is the level and pattern of alcohol consumption that differentiates farmers from the general population.

Further, the farming cohort in this study exhibited elevated levels of BMI, abdominal obesity and risky short-term alcohol consumption when compared with Australian national averages. The results of this study also support previous findings that the prevalence of short-term risky alcohol consumption increases in areas away from major cities.[46]

Disconcertingly, our previous studies indicated that 45.9% of the farming cohort was classified as psychologically distressed.[21] Particularly high levels of distress (Table 4) were noted in farming women (49.5%) when compared with their male counterparts (42.5%), providing support for previous research involving New South Wales farmers.[44] The reduction in available time associated with responsibilities in addition to their

farming workload (eg, domestic duties, child rearing, off-farm work), may help not only to explain women's comparatively lower alcohol consumption levels, but also their higher psychological distress levels. The current research suggests that those with co-occurring psychological distress and risky alcohol consumption have a greater tendency toward elevated levels of abdominal adiposity and the possible development of long-term health issues such as diabetes and cardiovascular disease. In light of the association that this study has shown between psychological distress, short-term risky alcohol consumption and obesity, there is cause for concern.

It is important to interpret this study in the context of its limitations. First, although the study sample was large, it was a convenient rather than a random selection of Australian farmers and may not be representative of all Australian farm men and women. Second, the alcohol and psychological distress data was self-reported and is commonly underestimated, and it may be underreported in this research. Third, comparable anthropometric data in Figure 1 for the national population was self-reported, whereas data in this study was measured. Fourth, multiple testing of the data set may have some effect on the significance levels. Finally, this sample may be representative of only a certain group of willing individuals whose health behaviors may differ from those who did not agree to be part of the SFF program. We suggest further research be undertaken regarding alcohol consumption and other correlational factors unique to the farming community.

Conclusions

The results of this study reflect an average number of alcohol consumers, with little difference between rural, metropolitan or farming populations. However, short-term risky alcohol consumption practices in Australian farm men and women are significantly higher than the general population. These consumption practices are coupled with a range of other measurable health issues such as obesity, hypertension, psychological distress, and age. Further, this study supports our hypothesis that farmers consume alcohol at high risk levels more often than the Australian average, and that this consumption is associated with obesity. However, the association with psychological distress was found only within the younger farmers. This study has also identified that the younger cohort (under 50 years) have health risks that may be exacerbated by their current pattern of alcohol consumption. This is a sobering consideration when many farming communities are already under-resourced in primary, medical, social, and specialist alcohol or psychological services. Given that the farming population is an aging one and that poor health is generally associated with increasing age, the future health outcomes of our farming population are of concern. Consistent findings of increased risk of alcohol-attributable death, hospitalization and physical assault in rural areas of Australia heeds a call for action.[10] This exploratory study highlights the need for comprehensive research on alcohol consumption patterns with a representative sample of Australian farmers. Further emphasis on the culture around patterns of consumption and the impact on both mental and physical health risk factors are needed to best inform appropriate service and policy directions. Further, this research must involve cross-sector collaborations from health, agricultural, sporting, and education organizations to address cultural issues in a population group with high health risks, access challenges and an aging workforce with limited replacements.

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