

# **The psychological well-being and health risk behaviours of Australian adolescents: regional and gender differences.**

**S. Anderson<sup>†</sup>, P.H. Delfabbro<sup>†\*</sup>, M. Dollard<sup>‡</sup>, J. Metzger<sup>‡</sup>, S. Trainor<sup>‡</sup>, A. Winefield<sup>‡</sup>**

<sup>†</sup> Department of Psychology  
University of Adelaide  
Adelaide  
South Australia,  
5005  
Email: paul.delfabbro@adelaide.edu.au

\* To whom correspondence should be addressed

<sup>‡</sup> School of Psychology  
University of South Australia  
Adelaide  
South Australia,  
5000

## **Abstract**

The aim of this study was to compare the self-reported psychological and physical well-being of young people living in metropolitan and rural areas of South Australia. A sample of 958 students (Mean age = 15 years) was sampled from Government co-educational schools and administered a questionnaire that requested detailed information concerning psychological well-being, health-related behaviours and substance use. The results showed that rural youth scored significantly higher ( $P < .001$ ) on suicide ideation than their peers in the metropolitan area, but were generally similar in terms of other measures of psychological adjustment. Other significant differences related to substance use, with rural youth found to be significantly more likely to drink alcohol (60% vs. 50%,  $P < .01$ ), and to drink more heavily (4 vs. 3 standard drinks), and to smoke 60% more marijuana on each occasion ( $P < .05$ ). Gender comparisons showed that girls scored more poorly on measures of psychological wellbeing (self-esteem, GHQ-12 and negative mood)  $P < .05$ . The implications of these findings for future research and current public health strategies and interventions are discussed.

## **Introduction**

In recent years, an increasing amount of evidence has emerged to suggest that rural life may not afford many of the health benefits that have been commonly assumed. Rather than affording a slower, less stressful and healthier life-style, there is now considerable research to show that those living in rural or remote areas are likely to experience a greater prevalence of mental and physical health problems than those living in cities (Clayer, McFarlane, Bookless, Air, Wright & Czechowicz, 1995). Such problems include general psychiatric problems (Wagenfeld, 1982), depression (Cheng, Soong, Chong & Lin, 1995), and alcohol abuse (Yellowlees & Kaushik, 1992). In Australia, rural mental health is now recognised as a National Health Priority Area, in Healthy Horizons 1999-2003 (Australian Health Ministers' Conference, 1999), and an area thought to be in need of greater research (Andrews, Hall, Teeson & Henderson, 1999). A variety of explanations have been advanced to explain these rural-metropolitan differences (Judd & Humphreys, 2001; Shafik & Dollard, 2000). One is that people living in remote communities are plagued by the so-called 'tyranny of distance' (Blainey, 1983) in the form of being unable to gain easy access to medical and psychological services. Another view is that rural culture, particularly because of its strong association with male values, gives rise to a tendency to be self-reliant and unwilling to seek assistance when problems arise (Elliot-Schmidt & Strong, 1997; Fuller, Edwards, Procter & Moss, 2000). People prefer to keep their problems to themselves and work them out via informal means, and may regard psychological treatments as unnecessary, embarrassing, or intrusive.

A third factor is that many rural areas in Australia have experienced a major economic downturn over the last twenty-five years (Harvey & Hodgson, 1995), characterised by falling commodity prices (e.g., wool by 35% in the early 1990s) and rising costs. As a result, a disproportionately large proportion of people in regional areas have been significantly affected by rising unemployment, and high levels of poverty, often making it very difficult for them to forge an existence in the area (Australian Institute of Health and Welfare, 1994; Australian Bureau of Statistics, 2003). Between 1991 to 1996, the total proportion of people in Australia employed in agriculture decreased from 6% to 4%. In contrast to the rest of the nation that experienced population growth of around 6%, many regional centres lost between 5 to 20% of their population during this period. Since many of those lost from these areas were younger, people aged over 55 years now make up over 30% of the population of many regional communities as compared with a national average of 20%. Regional areas also have a much greater proportion of people earning less than \$200 per week (around 28% of the population vs. 23% in the metropolitan areas) (Chapman & Greenville, 2002).

Most of what has been written so far about the psychological effects of these sorts of pressures has arisen from studies involving communities in general. However, only limited research has been directed towards identifying the needs of subgroups thought to be especially at-risk. One group of rural residents that has been identified as being the focus of particular concern is the adolescent population (Harvey & Hodgson, 1995). In addition to having to deal with the stressors that often accompany rural life, adolescents also have to cope with the usual, and often difficult, developmental changes encountered during this phase of life, including peer pressure, poor self-image, and bullying. With

limited cultural, social and educational opportunities in some rural areas (Kenyon, Sercombe, Black & Lhuede, 2001), and the often oppressively tight-knit structure of smaller communities (Schultz, 1996), rural young people are likely to face many pressures not experienced by their urban counterparts.

Whether these pressures arise from the isolation, the limited access to resources, or general poverty, remains unclear. Nevertheless, it is thought that young rural people, as with their parents, experience a higher incidence of psychological distress. They are generally more anxious or depressed (Forrest, 1988; Hedouse, Durfee & Bryan, 1979; Puskar, Tusaie-Mumford, Sereika & Lamb, 1999), have lower self-esteem (Zimbelman, 1987), and report a greater feeling of isolation and loneliness (Woodward & Frank, 1988), although encouragingly there are several more recent studies that indicate that these differences may not be as marked as was observed previously (McLaren, Hopes, Jude & Poors, 2000; McLaren Jude, Hopes & Sherritt, 2001). Once again, as is the case with their parents, a fundamental concern about rural adolescents is that they are generally reluctant to seek assistance for psychological problems because of a tendency to equate such problems with mental illness. This is despite the fact that subclinical levels of psychological distress have been found to contribute to adolescent injuries and suicide (Miller & Draper, 2001) and increase the risk for substance abuse in rural adolescents (Birmaher, Ryan, Williamson, Brent, Kaufmann, Dahl, Perel & Nelson 1996).

Within rural adolescent populations, particular attention has also been directed towards comparing the experiences of young men and women. Women are thought to be particularly physically at risk in these regions because of the high numbers of sexual assaults and domestic violence perpetrated against them (Yellowlees and Kaushik, 1992), possibly resulting from traditionally chauvinistic attitudes exhibited by some of the rural male population toward women, as well as the high levels of alcohol consumption (Dudley, Kelk, Florio, Waters & Howard, 2001). Objective data indicate that hospitalisation rates for young rural females aged 15 to 24 also exceed those for young males of the same age (Australian Institute of Health and Welfare, 1998). In addition, young women are also thought to be more psychologically at risk, with Puskar *et al.*, (1999) finding that this group has three to four times the likelihood of developing depressive symptoms compared with rural male adolescents. Young men, on the other hand, tend to be at-risk for other reasons. Chipeur and Pretty (2000) found that young rural men are more likely to experience loneliness and isolation than women, and other studies have consistently shown that rural males are particularly at risk of suicide (Dudley, Waters, Kelk & Howard, 1992). The rate of suicide for males aged 15 to 24 years living in rural, regional, and remote areas of Australia has been found to be twice that of males in this age range living in capital cities (Dudley, Kelk, Florio, Howard & Waters, 1998), although this has also been attributed to the greater lethality of method used (Burnley, 1995). In fact, in line with the gender differences described above relating to variations in depressive symptomology (Allison, Roeger, Martin, & Keeves, 2001), other studies using more refined measures of suicide ideation have found that young rural women are more likely to contemplate suicide than their male counterparts (Canetto, 1997; Graham, Reser, Seuderi, Zubrick, Smith & Turley 2000).

A further issue of concern in rural adult populations that is also mirrored in adolescents is the high level of alcohol and drug use. Although such behaviours have been found to be the major causes of mortality and morbidity in adolescents in general (Australian Institute of Health and Welfare, 1998; Sells & Blum, 1996), it is thought that this may be particularly so in rural and remote areas (Dixon & Welch, 2000; Forrest, 1988; Williams, 1999). Anecdotal evidence suggests that these differences arise because those living rural areas may have more tolerant attitudes towards smoking and excessive drinking (Chimonides & Frank, 1998; Marmot & Wilkinson, 1999). Much of this may be due to the distinctively masculine culture that prevails in regional areas that encourages drinking, but it is also likely because of the fact that hotels provide one of the few places for social interaction in regional areas. Young men, in particular, grow up with the understanding that visiting hotels and drinking is one of the hallmarks of adulthood, and one of the primary ways to establish social networks and an understanding of what is happening in the community. Unfortunately, there is very little research available documenting the prevalence of substance use amongst rural youth, except for a study of 12 to 16 year old rural youths by the Drug and Alcohol Services Council which found that a higher percentage of males used cannabis as compared with females (Drug and Alcohol Services Council, 1999).

### **The present study**

The preceding review suggests that there are a number of reasons why adolescents in rural areas may be at risk for psychological distress and potentially harmful behavioural corollaries such as alcohol and drug misuse. However, it is also clear that there is a need for further research evidence if this topic is to attract greater policy attention. The aim of the present study, therefore, was to conduct a comparative analysis of the psychological well-being and health-related behaviours of rural and urban young adolescents. Using over 900 students drawn from State Government schools, this study provided an opportunity to compare metropolitan and regional schools, while also controlling for the effects of gender. A concern with much previous research is that many comparisons may have confounded these two effects, so that it is sometimes unclear whether higher prevalence rates observed in regional areas are due to gender or location. For example, the fact that young women in regional areas have been found to be more depressed than young men is entirely consistent with what research has shown for women wherever they live. On the other hand, when assessing claims that substance use is higher in regional areas, it is important to determine whether this is not simply the result of a greater involvement in substance use by males in regional areas. The data reported in the current study were collected in the first year of a larger longitudinal study carried out by the University of South Australia, entitled “Unemployment, underemployment, alienation, social exclusion, and mental health in South Australian young people. Despite these complexities, several predictions were advanced based upon previous research. These were:

- i. Rural participants would report lower self-esteem, life satisfaction, and family functioning, and greater suicidal ideation, psychological distress, negative mood, social alienation, and financial insecurity than adolescents from urban areas.
- ii. Rural females would report lower self-esteem and life satisfaction and greater psychological distress, negative mood, and suicidal ideation than rural males.
- iii. Rural males would report greater social alienation than rural females.
- iv. Rural participants would report more alcohol, cigarette, marijuana and other drug use as compared to urban adolescents.
- v. Rural males would report more alcohol, cigarette, marijuana, and other drug use than rural females.

## Method

A longitudinal investigation of school-leavers. Information was collected from questionnaires administered to a representative sample of year 10 (third year of secondary school) students from rural and urban public schools in South Australia. The Australian Bureau of Statistics provided information about the proportion of schools in each area. Using these percentages, schools were chosen at random from lists compiled on the basis of school type and area. If any of the schools refused to participate in the study, others were chosen to replace them using random selection. The study was obtained in South Australia (estimated adult population = 1.5 million). One million of the population live in the capital city of Adelaide and the remainder live in rural and remote communities. In order to recruit participants, a letter explaining the study and a copy of the questionnaire were sent to the heads of the selected schools. There were no exclusion criteria for participation in the study except that all participants were required to obtain parental consent. Once consent was granted, students completed a 40-minute questionnaire at school under the supervision of a teacher and, in most cases, a member of the research team. All participants were assured that participation was voluntary and that their responses would be treated with the strictest of confidence.

## Sample

For the present study, location of residence was defined using the Rural, Remote and Metropolitan Areas (RRMA) classification system. This classification uses categories based on population numbers and an index of remoteness using distance factors (Department of Primary Industries and Energy & Department of Human Services and Health, 1994). Metropolitan was defined as any location within the local government areas (LGAs) of the Adelaide, whereas rural and remote referred to all schools located outside the metropolitan area. With the exception of one school located 30 km from Adelaide, all of the rural schools were located over 300 kilometres from Adelaide.

Table 1: Demographic characteristics in relation to location

	Rural <u>n</u> (%)	Urban <u>n</u> (%)	$\chi^2(df = 1)$
<b>Sex</b>			
Male	127 (37)	269 (43)	
Female	210 (62)	352 (57)	2.87
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Non-English speaking	17 (5)	93 (15)	22.45***
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Indigenous	9 (3)	12 (2)	< 1
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<b>Socio-economic status</b>			
Professional/Managerial	107 (38)	192 (37)	
Skilled	140 (49)	251 (48)	
Unskilled	19 (7)	20 (4)	
Unemployed	11 (4)	31 (6)	
Student/pensioner	7 (2)	26 (5)	< 1

\*\*\* P < .001

## ***Measures***

### *i Demographics*

Participants were asked to report their gender, age, and ethnicity/cultural identity (as defined by a language other than English spoken at home or as being of Aboriginal or Torres-Strait Islander descent). In order to determine socio-economic status, participants were also required to indicate the occupation of their parents.

### *ii Negative Mood Scale (Tiggemann & Winefield, 1984)*

This scale was used to determine the frequency with which participants experienced certain negative mood states. It was piloted by Tiggemann and Winefield in their 1984 study. Participants were asked to indicate on a 4-point scale how often they experienced a list of seven emotions (1 = Almost never to 4 = Almost always). Scores ranged from seven to 28, with higher scores being indicative of greater experience of negative mood. This measure had good internal reliability, with a Cronbach's alpha of 0.80.

### *iii Self-Esteem Scale (Rosenberg, 1965)*

On the Self-Esteem Scale respondents were required to indicate the extent to which they agreed with each of ten items on a 4-point scale (1 = Strongly agree; 4 = Strongly disagree). There were five negatively worded items on the scale that were reversed scored. Scores ranged from 10 to 40 with higher scores being indicative of higher self-esteem. This scale has been consistently cited within the literature as being a good measure of global self-esteem with sound reliability and validity (for reviews see Blascovich & Tomaka, 1991; Wylie, 1989).

### *iv General Health Questionnaire (Goldberg & Williams, 1991)*

The General Health Questionnaire was designed as a screening instrument to provide information on current mental well-being in community samples, rather than giving specific psychiatric diagnoses. The General Health Questionnaire 12 is a shortened version of the original 60-item questionnaire that provides participants with a list of twelve symptoms. Participants were asked to rate the degree to which they had experienced each symptom in the past few weeks by selecting one of four response categories (i.e., 1 = More so than usual; 2 = Same as usual; 3 = Less than usual; 4 = Much less than usual). The scores were recorded using the standard binary coding method (0, 0, 1, 1) in which 'symptomatic responses' were scored as a one. This method of scoring resulted in scores that ranged from 0 to 12 with higher scores signifying more psychological distress. The GHQ manual notes that the scale can be used with adolescents.

### *v Suicidal ideation*

This scale was devised for the current study. Participants were asked if they had ever had thoughts of killing themselves, ever had these thoughts persistently, ever made plans to kill themselves, and ever attempted suicide. Participants were also asked if they had experienced any of these in the last six months. These questions were adapted from those used by Winefield, Tiggemann, Winefield & Goldney (1993) so as to allow future

comparisons of scores obtained for school leavers in the 1980s. All eight questions required a yes or no answer. The internal consistency of this measure was high with an alpha value of 0.94. Principal components analysis applied to this scale revealed that it had a unitary factor structure that explained 73% of total variation (Eigenvalue = 5.82).

#### *vi Life Satisfaction*

The Life Satisfaction scale was used to measure overall satisfaction with life and was adapted from the scale developed by Warr, Cook and Wall (1979). The scale consisted of seven items and required respondents to indicate the extent to which they agreed with each item, using a five-point scale (1 = Extremely dissatisfied; 5 = Extremely satisfied). Scores could range from seven to 35, with higher scores being indicative of greater life satisfaction. Reliability calculations showed that this measure had good internal consistency, with a Cronbach's alpha of 0.72.

#### *vii Family Assessment Device (Epstein, Baldwin & Bishop, 1983)*

Eleven items from the Family Assessment Device were used as a measure of family functioning. The items selected provided global measures of family functioning (problem solving, communication, roles, affective responsiveness, affective involvement, and behavioural control). Participants were asked to rate the extent to which each aspect of family functioning described their immediate family on a scale of 1 to 4 (1 = Strongly agree; 4 = Strongly disagree). This measure proved to have good internal consistency, with a Cronbach's alpha of 0.89.

#### *viii Financial Scale*

The Financial Scale was used to measure perception of financial security. This measure was first used in Tiggemann and Winefield (1989). Participants were required to rate their agreement with twelve statements according to a 4-point scale (1 = Strongly agree, 4 = Strongly disagree). Reliability analysis of this measure indicated that it had an alpha of 0.86.

#### *ix Alcohol and drug use*

Participants were asked to report how often they typically drink alcohol and how many alcoholic drinks they would normally consume in one session. For the current study the former scores were dichotomised (1 = Don't drink and 2 = Drink alcohol). Participants were also asked to indicate whether they smoked cigarettes (yes or no) and to estimate the number of cigarettes they smoked per day. They were also asked whether they smoked marijuana and to indicate how many joints, cones or bongs they would smoke per day. Participants were also asked to list any other drugs (i.e., heroin, speed, ecstasy, cocaine) they used, if any.

## Results

### *Sample characteristics*

A total of 958 year 10 students from 20 schools (fourteen urban co-educational public schools and six rural co-educational public schools) were included in the current study. The demographic details for males and females for each of the residential groups can be seen in Table 1. The age of the participants ranged from 13 to 17 (mean 15.1,  $\pm$  0.5).

**Table 2: Mean scores on each psychological variable in relation to location and gender**

	Rural		Metropolitan		Gender Main effect F (1, 956)	Location Main effect F (1,956)	Interaction F (1, 956)
	Females n = 210 M (SD)	Males n = 127 M (SD)	Females n = 352 M (SD)	Males N = 269 M (SD)			
<b>Negative mood</b>	12.16 (3.82)	11.79 (3.36)	12.40 (3.63)	11.79 (3.36)	4.58*	< 1	< 1
<b>GHQ-12</b>	3.03 (2.66)	2.08 (2.03)	3.17 (2.72)	2.04 (1.93)	32.67***	< 1	< 1
<b>Self-esteem</b>	29.78 (5.36)	31.81 (4.84)	29.80 (5.78)	32.62 (5.22)	37.61***	1.49	1.25
<b>Suicidal ideation</b>	8.35 (1.00)	8.21 (0.65)	10.40 (3.30)	10.24 (3.45)	< 1	111.57***	< 1
<b>Life Satisfaction</b>	25.70 (4.63)	25.53 (3.75)	25.66 (3.93)	25.71 (4.01)	< 1	< 1	< 1
<b>Family functioning</b>	31.67 (7.06)	31.96 (6.22)	32.00 (7.03)	32.61 (5.43)	< 1	1.07	< 1
<b>Financial insecurity</b>	24.52 (6.48)	24.57 (6.48)	25.52 (5.99)	25.03 (6.89)	< 1	2.12	< 1

\*P < .05 \*\*\* P < .001

### *Demographic variables*

Chi-square analyses revealed no significant associations between Location and Gender, Socio-economic status, Aboriginality or socio-economic status. However, a significant association was found for ethnicity, with adolescents in the metropolitan areas found to have a higher proportion of students from homes where a language other than English was spoken.

### *Comparisons of rural and urban adolescents' psychological well-being*

Descriptive statistics, including means and standard deviations by gender and location for each of the psychological measures, are shown in Table 2. As indicated, relatively few significant effects were obtained. Girls were significantly more likely to experience negative mood states, to have lower self-esteem, and to experience greater psychological distress (as measured by the GHQ). Simple main effect analyses confirmed that these effects were observed in both regions when metropolitan and rural samples were analysed separately. The only significant difference relating to location was for suicide scores. There was clear evidence that young people living in rural areas were significantly more likely to endorse items on this scale than their metropolitan counterparts. By contrast, there were no significant differences in relation to family functioning or perceived financial status.

### *Comparison of substance use in metropolitan and rural locations*

The percentage of adolescents drinking alcohol, smoking cigarettes or marijuana or using hard drugs is summarised in Table 3 and analysed using separate chi-square tests for

gender and for location. As indicated, girls were significantly more likely to smoke than boys, with this difference being more strongly observed in the metropolitan area. Alcohol was significantly more likely to be consumed in the rural areas than in the metropolitan area. Further analyses were undertaken using a 2 Gender x Location ANOVA to examine whether the amount of each substance consumed on each occasions differed either by gender or location. Young people living in rural areas reported greater alcohol use as measured by the number of standard drinks consumed in a session,  $F(1, 618) = 4.79, P < .05$  (mean 3.81,  $\pm 3.62$  for rural adolescents versus mean 3.15,  $\pm 3.70$  for urban adolescents). An even larger (60%) difference was observed for marijuana usage in terms of the number of joints or “bongs” smoked on each occasion,  $F(1, 80) = 4.97, P < .05$  (mean 4.67,  $\pm 4.19$  for rural adolescents vs. mean 2.89,  $\pm 2.83$  for urban adolescents). All other effects (main effects or interactions) were non-significant and very small.

**Table 3: Number and proportion of young people using substances by gender and location**

	Rural		Metropolitan		Gender $\chi^2(1)$	Location $\chi^2(1)$
	Females n (%)	Males n (%)	Females n (%)	Males n (%)		
<b>Alcohol</b>	124 (61)	77 (61)	183 (53)	131 (50)	< 1	7.49**
<b>Cigarettes</b>	32 (16)	15 (12)	51 (15)	25 (9)	4.63*	< 1
<b>Marijuana use</b>	17 (8)	19 (15)	36 (10)	29 (11)	1.71	< 1
<b>Other drugs</b>	5 (2)	5 (4)	11 (3)	7 (3)	< 1	< 1

\*  $P < .05$  \*\*  $P < .01$

## Discussion

The purpose of this study was to compare the psychological well-being and health-risk behaviours of adolescents living in the regional and metropolitan areas of South Australia. Taken as a whole, the findings suggest that adolescents living in both areas are very similar in terms of their general psychological adjustment. No significant differences in mood state, self-esteem, life satisfaction or social alienation were observed, and this contrasts with many previous studies involving comparisons of adults from both areas conducted in several Westernised countries (Forrest, 1988; Hedouse *et al.*, 1979; Puskar *et al.*, 1999). Nevertheless, consistent with predictions, rural young people were significantly more likely to have thought about suicide, or made suicide attempts compared with their urban counterparts. This finding is entirely consistent with previous research by Dudley *et al.*, (1992), but also shows that rural-urban differences in suicide ideation are observed for both boys and girls and should therefore not be considered primarily a problem observed in young rural males. Although epidemiological and coroner records give the impression that a greater proportion of young rural males are at risk of suicide (e.g., Dudley *et al.*, 1992, 2001), this appears to be very much a function of the more dangerous and violent methods that are chosen (usually firearms or hanging vs. overdoses of pills). The findings here again emphasise the value of broadening measures of suicide to include the psychological processes of contemplation and planning that may precede suicide attempts.

That suicide ideation differed between areas without any concomitant differences in psychological adjustment is puzzling, and suggests that higher suicide rates in rural areas do not always reflect greater psychological disturbance. However, this inconsistency may be due to other sociological differences between young people living in regional and urban areas. One of these sources of differences might be young people's attitude towards suicide. In rural areas, suicide might be considered a more attractive way to deal with intolerable circumstances. As Dudley *et al.*, (1992) point out, one noticeable difference between rural and urban areas of Australia is the accessibility and visibility of mental health services, and in particular, psychological or psychiatric services. In almost all areas outside metropolitan Adelaide, significant mental health services either do not exist at all, or involve only temporary or locum staff (Clayer *et al.*, 1995). Under such circumstances, it may not be surprising to find that young people would be unlikely to be aware of mental health services while they are at school, or for such services to gain any consistent visibility or acceptance in local communities. On the contrary, seeking assistance for a mental health problem is instead likely to remain a highly stigmatised behaviour in many smaller communities and one likely to result in a loss of reputation and respect. Consequently, rural people, and in particular, rural young people may be much more likely than their urban counterparts to believe that there is no-one available to assist them with their problems, and so suicide is more likely to be seen as the only way to escape their unhappiness. Again, this tendency may be reinforced by the greater availability of firearms in rural communities that give rise to the knowledge that a convenient means of suicide is readily at hand (Dudley *et al.*, 1992).

A second noteworthy finding in this study were several regional differences in young people's involvement in at-risk behaviours. In particular, consistent with previous research (Atav & Spencer, 2002; Williams, 1999) rural adolescents (both boys and girls) were more likely to consume alcohol and tended to consume a greater number of alcoholic drinks or marijuana per occasion than their urban peers. According to Dudley *et al.*, (1992) and Dudley *et al.*, (1998), a particular concern about these differences is that alcohol is very commonly associated with suicides. For example, in a study of 137 suicides in NSW, Dudley *et al.*, (1998) found that, of the 57 who used alcohol, 43 were reported to have been using alcohol prior to their suicide, and a substantial proportion of firearms (57%) and hanging suicides (43%) had an above zero blood-alcohol reading. According to Williams (1999), the higher rates of alcohol consumption in rural areas appears to be strongly influenced by sociological factors, in particular, the very strong association between the venues typically frequented by young people in rural areas and alcohol consumption. In many smaller rural communities, people's choice of entertainment is much more limited than in metropolitan regions. Typically, there is only one or a few major hotels or clubs and these provide the only focal point for social interactions. Thus, for young people, the transition from adolescent life will be very strongly associated with specific venues all of which involve drinking. As a result, it is not surprising to find that alcohol forms a very dominant part of the social activities of young people in rural areas. Whether similar arguments can be applied to marijuana remain unclear. On one hand, it is possible that many young people consume marijuana in conjunction with alcohol, or in situations where alcohol is also likely to be present, but

is it also possible that the higher prevalence of marijuana use in rural areas is because of the greater availability of the drug in those areas.

In terms of gender differences, this study replicated the common finding (Allison *et al.*, 2001) that mid to late adolescent girls tend to score more poorly on measures of psychological wellbeing than boys, and showed that this difference existed in both regions. A number of explanations have been advanced to explain why girls tend to be less happy than boys during adolescence (Kandel & Davis, 1982; Nolen-Hoeksema, Girgus & Seligman, 1991). One view is that girls are more likely than boys to express their negative feelings. Another is that girls tend to have greater concerns about their self-image and social status amongst their peers, and subject themselves to greater pressure to achieve academically as well as in other life domains. Our results suggest that these patterns appear to be as much a concern in rural areas as they are in the city, and do not provide any evidence that girls living in more isolated communities are significantly more unhappy than their urban peers.

As indicated above, it was also predicted that boys would have a greater involvement in high risk behaviours than girls. Contrary to predictions, this finding was not borne out by the results, which showed that substance use was governed much more strongly by location than it was by gender. It is possible that a lot of adolescent substance use may be occurring in mixed sex groups with girls tending to consume alcohol when boys are present. Alternatively, these results may reflect an increase in the social acceptability of substance use amongst teenage girls. Recent findings from the Drug and Alcohol Services Council of South Australia (1999) confirm that there has been substantial increase in the proportion of girls using substances since 1996, with the most dramatic increases being observed for female smoking. It would be useful, therefore, in any future investigations of this topic to include additional questions relating to the social context in which substance use is occurring, in particular, the extent to which increases in females substance use is influenced by same-sex and opposite-sex peer interactions.

## **Conclusions**

Although the current study involved a reasonably large sample and was successful in obtaining participants from a substantial number of schools in both regional and metropolitan areas, there are a number of methodological limitations that need to be considered when interpreting the results. First, the findings are based only upon students in Government schools and so it is not possible to generalise to those adolescents not currently attending school, or in private schools. It might be that students who do not attend school are more poorly adjusted than those who attend so that our results underestimate the degree of problems experienced of young people in South Australia. On the other hand, the exclusion of private schools from the current analysis might also mean that our results may over-state the true status of adolescents because we have not included a substantial proportion of students from more socio-economically advantaged backgrounds. Second, our findings are based solely upon a cross-sectional self-report methodology using almost exclusively closed-ended questions. It is not clear, therefore, the extent to which these findings are influenced by response biases such as socially desirable responding that might have led to under-statements of substance use and other

adolescent problems. Nor were we in a position to ascertain the extent to which participants were interpreting questions in the way we intended, or to ask additional questions that might have clarified young people's understanding of the questions.

Despite these limitations, this study provides further evidence for important differences between young people in urban and rural areas, and has done so in a way that controls for the potentially confounding influence of gender and type of school. In our view, this research could be usefully extended to involve a more mixed methodology that includes more detailed follow-up interviews relating to specific issues of importance. As indicated above, one of these areas would be the social context underlying substance use in regional areas, and the extent to which normative beliefs concerning the role of this behaviour in rural communities influence young people's decision to start drinking. Similarly, based upon the finding that regional youth score higher on measures of suicide ideation, it would be of considerable value to examine the factors that contribute to this difference. Rather than merely focussing on variations in psychological wellbeing, we argue that such research should be extended to examine social, geographical and cultural factors that limit young people's awareness, acceptance and access to mental health services, and how these might be addressed to make help-seeking for psychological problems a more social accepted behaviour, rather than one likely to attract scorn and stigmatisation.

#### **Key Findings**

- **No differences were found in psychological adjustment (depression, general health and mood scores) between young people in regional vs. metropolitan areas**
- **Young people in regional areas scored higher on suicide ideation than those in the metropolitan areas**
- **Girls scored more poorly on measures of psychological adjustment than boys**
- **No gender differences in substance use in either the rural or metropolitan areas were found**
- **Substance use (particularly the use of alcohol and marijuana) was higher in regional areas**

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