Adolescent caffeine use: Associations with other substance use and depression in an Australian, rural population

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Background
- Caffeine is the only legal psychoactive drug available to Australian adolescents.
- Despite known associations with risk taking behaviour, other substance use, and mood alterations, there has been limited research regarding caffeine use in Australian or rural adolescent populations.
- There has been an increase in caffeinated products specifically marketed to adolescents, in particular soft drinks and energy drinks.
- High caffeine use has been related to both sleep disruption and daytime sleepiness for adolescents. Adequate sleep is considered essential for mental health, with sleep deprivation leading to deterioration in cognition, memory and mood.
- Caffeine use may be linked to negative affective experiences in adolescents, and in particular symptoms of depression.
- The negative effects of caffeine use may be compounded by the adverse effects of other substances, such as alcohol and tobacco, multiplying the threat to adolescent health and well-being.
- Research suggests that Australian adolescents living in rural areas engage in higher levels of substance use than their metropolitan counterparts.

Aims
This study aims to describe frequency of caffeine use in an Australian rural adolescent sample, and its relationship to depression and other substance use.

Method
This study is a component of the Adolescent Mental Health, Behaviour and Life Experiences Survey. As part of the survey, participants completed the Kutcher Adolescent Depression Scale (KADS-6), an Australian modification of the Alcohol Use Disorders Identification Test (AUDIT), and a series of questions addressing the frequency of use of substances including caffeine.

Method cont.
Seventy-two public schools in South Australia located outside of metropolitan Adelaide were invited to participate, and of those twenty-three schools participated. Over three thousand Year 9 to 12 students from participating schools were invited to complete the questionnaire. Participation rates were low and only 531 students participated (16%).

Results
Participants
- N = 531
- 55.7% female, 98.5% born in Australia, and 4.3% identified as Aboriginal or Torres Strait Islander.
- Ages ranged from 13 to 18 with a mean age of 15.08, SD = 1.21.

Analyses
- Caffeine use was frequent for the sample, and was shown to increase with age across adolescence.

Table 1
Caffeinated beverage consumption for a sample of 531 rural adolescents.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>32</td>
</tr>
<tr>
<td>Once</td>
<td>13</td>
</tr>
<tr>
<td>Monthly or Less</td>
<td>68</td>
</tr>
<tr>
<td>2 to 4 times a month</td>
<td>94</td>
</tr>
<tr>
<td>2 to 3 times a week</td>
<td>138</td>
</tr>
<tr>
<td>4 or more times a week</td>
<td>168</td>
</tr>
</tbody>
</table>

- Associations were found with use of alcohol, tobacco and illicit substances.
- A significant relationship was found between frequency of caffeine use and symptoms of depression.
- Hierarchical regression analyses revealed low energy to be the strongest predictor of caffeine use, when controlling for age.

Conclusions
- Australian rural adolescents use caffeine frequently.
- Caffeine use may be associated with adverse mental health outcomes including depression, and alcohol and substance use.
- Further research could seek to clarify the relationship between caffeine use, age and factors such as the marketing of energy drinks toward teenagers, increased autonomy, and increased academic pressure in the later years of schooling.
- Frequency of caffeine use was found to be positively related to regular consumption of alcohol. This study supports further research to explore the nature of the relationship between caffeine use and alcohol consumption, such as the pairing of alcohol with caffeinated beverages.
- The relationship between caffeine use and symptoms such as low energy may be independent of depression, and better explained by other factors, such as the link between high caffeine use and daytime sleepiness. Future research could investigate sleep as a moderating factor between caffeine use and low energy related to depression.
- The cross-sectional nature of this research does not allow for analysis of causal pathways, and further research is needed to determine how energy levels are connected to caffeine use for this population.