Exploring Regression to the Mean in an Australian Cohort of Young Melbournian Heavy Drinkers

JUN-TING YEUNG1,2, CASSANDRA JC WRIGHT1–3, MICHAEL LIVINGSTON4, SARAH CALLINAN4, PAUL DIETZE1,3
1Burnet Institute, Melbourne, Victoria, Australia, 2University of Melbourne, Melbourne, Australia, 3Monash University, Melbourne, Australia, 4Centre for Alcohol Policy Research, La Trobe University, Melbourne, Australia

Introduction

Typical measures of alcohol consumption, such as Average Weekly Consumption, display Regression to the Mean (RTM) in longitudinal studies.

RTM is a statistical phenomenon whereby observations of a group tend towards the mean of that group over repeated measures.

There is new interest in Peak Consumption, which estimates total amount of consumption from single drinking occasions. Papers have found peak measures to be a good predictor of alcohol-related harm, but limited studies have examined whether it is prone to RTM.

Aim

This exploratory study aimed to examine whether peak measures are susceptible to RTM.

Results

RTM-like patterns in Average Weekly Consumption were observed for sex and consumption tercile:

- Low Tercile drinkers increased their consumption
- Medium Tercile drinkers remained relatively consistent
- High Tercile drinkers decreased their consumption

Little evidence of RTM in Peak Consumption, but an effect of age was detected:

- The younger age group (18 to 21 years) displayed a general increase in alcohol consumption
- The older age group (22 to 25 years) remained relatively consistent

Discussion

Our exploratory findings suggest that Peak Consumption may be less susceptible to RTM than Average Weekly Consumption amongst heavy drinkers, suggesting its utility in measuring alcohol consumption trajectories.

Age effects observed in Peak Consumption may be explained by younger drinkers moving towards the age of maximum ASD consumption, whereas older drinkers are moving away from it. This may need further exploration.

Methods

Data were drawn from three waves (2012, 2013, 2015) of the Young Adults and Alcohol Study (YAAS), a prospective cohort study of young Melbournian drinkers. Consumption was calculated in Australian Standard Drinks (ASD):

- Average Weekly Consumption was derived from past-year graduated frequency questions
- Peak Consumption was estimated from self-reports of the total amount consumed over a single heavy drinking occasion

Participant Characteristics:

- Total n = 186 over three waves
- Aged 18 to 25 in 2012
- Heavy drinkers, selected based on peak consumption over one single drinking occasion
- Tercile categorisation based on 2012 ASD amounts into "Low", "Medium", "High" (33% each)

Survey Method

Average Weekly Consumption

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 9.7</td>
<td>90</td>
<td>96</td>
</tr>
<tr>
<td>11 ASD</td>
<td>≥11 ASD</td>
<td>≥8 ASD</td>
</tr>
</tbody>
</table>

Peak Consumption

<table>
<thead>
<tr>
<th></th>
<th>Low ASD</th>
<th>Medium ASD</th>
<th>High ASD</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 6.6</td>
<td>6.6 – 14.8</td>
<td>&gt; 14.8</td>
<td></td>
</tr>
</tbody>
</table>

References

2. NIAAA. Recommended Sets of Alcohol Consumption Questions, National Institute on Alcohol Abuse and Alcoholism, Bethesda, MD, United States of America: National Institute on Alcohol Abuse and Alcoholism; 2003.