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Caffeine Consumption Habits, Motivations, and Experiences of New Zealand Tertiary Students

A thesis presented in partial fulfilment of the requirements for the degree of

Master of Science
In
Nutrition and Dietetics

at Massey University, Albany
New Zealand

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Abstract

Background: Caffeine-related health incidents in New Zealand have escalated over the last two decades. Research suggests that in order to reduce the risk of substance-related harm, it is important to understand the consumers’ motivations for its use, especially in tertiary students who are presumed to be at a higher risk due to seeking out caffeine’s well-known cognitive benefits. The public health consequences of caffeine consumption can only be determined once data is available on the amount of caffeine currently being consumed by New Zealanders, and New Zealand-based studies that have examined caffeine consumption are limited.

Aim: The aim of this study was to examine the caffeine consumption habits of tertiary students in New Zealand; their motivations for use, and experiences across a broad range of caffeine products.

Method: A previously designed caffeine consumption habits questionnaire (CaffCo) was administered to 317 tertiary students via the online survey software, Qualtrics.

Results: Of the total dataset, 99.1% (n = 314), consumed at least one source of caffeine in their diet. The caffeine sources with the highest prevalence of use were chocolate (81.7% of participants), coffee (76.3%) and tea (71.6%). Motivations for consumption appear to differ between various caffeine sources. In caffeine consumers, the median estimated daily caffeine consumption was 146.73 mg·day⁻¹ (n = 314), or 2.25 mg·kgbw⁻¹·day⁻¹ (n = 281), with coffee contributing 61.4% to the total daily caffeine consumption. An estimated 14.3% (n = 45) of caffeine consumers exceeded a suggested ‘safe limit’ of 400 mg·day⁻¹, where cigarette smoking was the only participant demographic/characteristic which increased the likelihood of exceeding this level. Caffeine was co-ingested with alcohol by 38.5% (n = 122) of the participants, and those with paid employment or those who smoked cigarettes were more likely to do so. The
majority of caffeine consumers (84.7%, n= 265) reported experiencing at least one adverse symptom post caffeine consumption, 64.2% reported being dependent on at least one caffeine source, and 47.3% (n= 152) of total participants reported experiencing at least one withdrawal symptom in the past.

**Conclusions:** These findings provide critical information for implementing caffeine-related risk-reduction strategies for New Zealand tertiary students.

**Key words:** consumer, harm, energy drinks, coffee, health-risk
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<tr>
<td>ADORA2A</td>
<td>Adenosine 2a receptor gene</td>
</tr>
<tr>
<td>AmED</td>
<td>Alcohol mixed with Energy Drinks</td>
</tr>
<tr>
<td>AMP</td>
<td>Adenosine monophosphate</td>
</tr>
<tr>
<td>ATP</td>
<td>Adenosine triphosphate</td>
</tr>
<tr>
<td>BMI</td>
<td>Body Mass Index</td>
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<tr>
<td>CaffCo</td>
<td>Caffeine consumption habits questionnaire</td>
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<tr>
<td>CHD</td>
<td>Coronary Heart Disease</td>
</tr>
<tr>
<td>CNS</td>
<td>Central Nervous System</td>
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<tr>
<td>CVD</td>
<td>Cardiovascular disease</td>
</tr>
<tr>
<td>CYP1A2</td>
<td>Cytochrome p450 1A2 enzyme gene</td>
</tr>
<tr>
<td>DSANZ</td>
<td>Distilled Spirits Association of New Zealand</td>
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<tr>
<td>DSM-5</td>
<td>Diagnostic and Statistical Manual of Mental Disorders (Fifth edition)</td>
</tr>
<tr>
<td>ECF</td>
<td>Extra Cellular Fluid</td>
</tr>
<tr>
<td>EEG</td>
<td>Electroencephalogram</td>
</tr>
<tr>
<td>EFSA</td>
<td>European Food Safety Authority</td>
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<tr>
<td>FDA</td>
<td>Food and Drug Administration</td>
</tr>
<tr>
<td>FSA</td>
<td>United Kingdom Food Safety Authority</td>
</tr>
<tr>
<td>FSANZ</td>
<td>Food Standards Australia New Zealand</td>
</tr>
<tr>
<td>GRAS</td>
<td>Generally Recognised as Safe</td>
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<tr>
<td>ICD-10</td>
<td>International Classification of Diseases (Tenth edition)</td>
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<tr>
<td>MI</td>
<td>Myocardial Infarction</td>
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<tr>
<td>NIP</td>
<td>Nutrition Information Panel</td>
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<td>NNS</td>
<td>National Nutrition Survey</td>
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<td>NPC</td>
<td>National Poisons Centre</td>
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<tr>
<td>Acronym</td>
<td>Definition</td>
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<tr>
<td>NSAIDs</td>
<td>Nonsteroidal anti-inflammatory drugs</td>
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<td>NZJBA</td>
<td>New Zealand Juice and Beverage Association</td>
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<tr>
<td>NZMPI</td>
<td>New Zealand Ministry for Primary Industries</td>
</tr>
<tr>
<td>RTD</td>
<td>Ready to drink alcoholic beverage</td>
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<tr>
<td>SES</td>
<td>Socioeconomic status</td>
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<tr>
<td>SNP</td>
<td>Single Nucleotide Polymorphism</td>
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<tr>
<td>SSB</td>
<td>Sugar-sweetened Beverage</td>
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<tr>
<td>UK</td>
<td>United Kingdom</td>
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<tr>
<td>UL</td>
<td>Upper Limit of intake</td>
</tr>
<tr>
<td>USA</td>
<td>United States of America</td>
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<tr>
<td>WADA</td>
<td>World Anti-Doping Agency</td>
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<td>World Health Organisation</td>
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