ALCOHOL CONSUMPTION AND ASSOCIATED RISK FACTORS IN AUCKLAND PACIFIC ISLAND ADOLESCENTS

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Background

♦ Youth alcohol drinking is a public health issue because of
  ♦ their increased harm from alcohol
  ♦ establishment of lifelong alcohol consumption patterns

♦ ALAC priority groups: Maori, Pacific & young people

♦ However, very little NZ alcohol research of Pacific youth
Pacific Experience of Alcohol

- Alcohol introduced to Pacific communities by 19th century European seafarers
- Influence of English Christian evangelical churches resulted in the widespread prohibition of alcohol among most Pacific Island communities (1800s)
- Prohibition encouraged home brewing & secrete alcohol consumption mainly by men
- These early gender-related patterns shape current alcohol drinking behaviours by Pacific people in New Zealand
Previous NZ Research - Adults

- Alcohol consumption by Pacific people increased with:
  - Migration (Tokelau Island Migrant Study, 1970s)
  - Urbanisation (Tonga, 1970s)

- Pacific people less likely to drink alcohol than Palangi
  - 1978 national survey (ALAC, 1980)
  - 1988-90 workforce survey
  - 1990-91 Plunket national child health survey
  - 1992-93 (Statistics NZ & Min. of Health, 1993)

- Alcohol exposure more common among Cook Island than Samoan women (Auckland, 1980s)
Previous NZ Research – Pacific Youth

1. 1987 FADE survey of >24,000 NZ high school students found alcohol consumed by 6% of Pacific students, compared with 48% of Maori and 54% of Palangi

2. 2003 ALAC Youth Drinking Monitor
   - 124 Pacific participants out of 441 aged 14-17 years
   - Pacific youth more likely to:
     - be non-drinkers (Pacific 64%, Maori 23%, Other 33%)
     - start drinking alcohol later
     - drink heavily (>10 glasses on last occasion)
   - Limitation: small sample size, only 52 Pacific drinkers
Other NZ Youth Surveys
Dunedin & Christchurch Youth cohorts

- About 1000 participants each
- Started in 1970s & followed since birth
- Identified risk factors of increased alcohol consumption:
  - Male gender
  - Early age of 1\textsuperscript{st} alcohol use
  - Parental alcohol behaviour and attitudes to alcohol
  - Peer influences
  - Increased income, SES status & education
- Limitation: very few Pacific participants
Objectives

1) Identify and describe alcohol drinking patterns in Pacific adolescent high school students and compare them to adolescents of Maori, Asian and European ethnicity

2) Identify, describe and compare alcohol drinking patterns by Samoan, Tongan, Cook Islands, and Niuean ethnicities

3) Identify and describe the relationship alcohol has with factors associated with alcohol drinking patterns in Pacific students

4) Quantify the alcohol burden associated with lifestyle risk factors and harmful outcomes, specifically:
   a) contribution lifestyle factors make to alcohol intake
   b) contribution alcohol makes to adverse health outcomes
Methods – study sample

- Cross-sectional study sampling from Auckland high schools with >15% of Pacific Islands on school roll
- 10 schools with SES decile from 1 to 4
- All Year 11-13 students invited to participate
- 2549 students interviewed from May 1997 to September 1998 (66% response, school roll)
- Students interviewed in groups of 10, in the morning, after fasting overnight
Methods – Alcohol Questions

Have you ever drunk alcohol, excluding sips?  Yes / No

If YES:

How old were you when you had your first drink of alcohol (years)?

During the past 4 weeks, how often on average did you drink alcohol?

During the past 4 weeks, how many times did you have 5 or more alcohol drinks in one session (ie. within a couple of hours)?
Risk Factors for Alcohol Drinking

Demographic
- Age
- Sex
- Ethnicity
- NZ birth
- School SES

Lifestyle
- Age started drinking alcohol
- Tobacco smoking
- Leisure physical activity
- TV watching
- Sun exposure

Attitudes
- Opinion of risk behaviour
- Observing adult risk behaviour

Feelings (including)
- Energy
- Nervous
Health Outcomes from Alcohol Drinking

**Physiological**
- Obesity
- Fitness
- Blood pressure
- Blood lipids
- Blood glucose

**Health status (including)**
- Opinion of current health
- Expectations of future health
- Emotional problems affecting school or other activities
## Total Number of Participants

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific</td>
<td>525</td>
<td>500</td>
<td>1025</td>
</tr>
<tr>
<td>Maori</td>
<td>167</td>
<td>165</td>
<td>332</td>
</tr>
<tr>
<td>Asian</td>
<td>324</td>
<td>209</td>
<td>533</td>
</tr>
<tr>
<td>European</td>
<td>372</td>
<td>225</td>
<td>597</td>
</tr>
</tbody>
</table>
## Number of Pacific Participants

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samoan</td>
<td>224</td>
<td>232</td>
<td>456</td>
</tr>
<tr>
<td>Tongan</td>
<td>119</td>
<td>104</td>
<td>223</td>
</tr>
<tr>
<td>Cook Islands</td>
<td>66</td>
<td>81</td>
<td>147</td>
</tr>
<tr>
<td>Niuean</td>
<td>59</td>
<td>50</td>
<td>109</td>
</tr>
<tr>
<td>Other Pacific</td>
<td>57</td>
<td>33</td>
<td>90</td>
</tr>
</tbody>
</table>
Objective 1

Alcohol Consumption of Pacific Youth compared with Other Ethnicities
Proportion of students who have *ever tried* alcohol, by ethnic group and sex

![Graph showing the percentage of students who have ever tried alcohol by ethnic group and sex.](image-url)

- **Pacific Island**
  - Male: 64%
  - Female: 60%
- **Maori**
  - Male: 82%
  - Female: 94%
- **Asian**
  - Male: 40%
  - Female: 44%
- **European**
  - Male: 86%
  - Female: 84%
Proportion of students who consumed alcohol in the last 4 weeks, by ethnicity & sex

<table>
<thead>
<tr>
<th>Ethnic Group</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific Island</td>
<td>39%</td>
<td>33%</td>
</tr>
<tr>
<td>Maori</td>
<td>59%</td>
<td>72%</td>
</tr>
<tr>
<td>Asian</td>
<td>20%</td>
<td>23%</td>
</tr>
<tr>
<td>European</td>
<td>65%</td>
<td>60%</td>
</tr>
</tbody>
</table>
Proportion of alcohol drinkers who had their *first* drink of alcohol before age 12 years

- Pacific Island: Male 18%, Female 14%
- Maori: Male 29%, Female 21%
- Asian: Male 21%, Female 12%
- European: Male 28%, Female 11%
Proportion of current alcohol drinkers who *binge drink*, by ethnic group and sex.
Objective 2

Comparisons of Alcohol Drinking between Pacific Youth
Proportion of Pacific Island students who have ever tried alcohol, by ethnic group and sex
Proportion of Pacific Island students who have drunk alcohol in the *last 4 weeks*
Proportion of Pacific Island students who had their *first drink* of alcohol before age 12 years
Proportion of Pacific Island current alcohol drinkers who *binge drink*

![Bar chart showing the percentage of Pacific Island ethnic groups who binge drink among males and females.](chart.png)
Objective 3
Risk Factors for Alcohol Drinking by Pacific Youth
Relative Risk of weekly alcohol drinking associated with Gender
Relative risk of *weekly alcohol drinking* associated with *ethnicity*
Relative risk of \textit{weekly alcohol drinking} associated with \textbf{NZ birth}
Relative risk of weekly alcohol drinking associated with school SES decile

RR (95% CI) adjusted for age & sex
Relative Risk of *Weekly Alcohol Drinking* associated with *cigarette smoking*

![Graph showing relative risk (RR) and 95% CI adjusted for age and sex, comparing non-smokers and smokers.](image-url)

- Non-smoker: 1.0
- Smoker: 6.0

RR (95% CI) adjusted for age & sex
Relative risk of *weekly alcohol drinking* associated with *sun exposure*

**RR (95% CI) adjusted for age & sex**

- < 15 hr/wk: 1.0
- 15-28 hr/wk: 2.0
- 29+ hr/wk: 3.0
**Weekly alcohol drinking & opinion about harm**
* p<0.05 v. yes

<table>
<thead>
<tr>
<th>Do young people risk harming themselves if they:</th>
<th>N</th>
<th>Weekly drinkers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoke cigarettes?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>♦ Yes</td>
<td>917</td>
<td>9.5</td>
</tr>
<tr>
<td>♦ Don't know</td>
<td>62</td>
<td>19.4*</td>
</tr>
<tr>
<td>♦ No</td>
<td>46</td>
<td>26.1*</td>
</tr>
<tr>
<td>Drink alcohol?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>♦ Yes</td>
<td>852</td>
<td>8.8</td>
</tr>
<tr>
<td>♦ Don't know</td>
<td>94</td>
<td>16.0*</td>
</tr>
<tr>
<td>♦ No</td>
<td>79</td>
<td>26.6*</td>
</tr>
<tr>
<td>Get in car with drinking driver?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>♦ Yes</td>
<td>923</td>
<td>11.2</td>
</tr>
<tr>
<td>♦ Don't know</td>
<td>45</td>
<td>6.7</td>
</tr>
<tr>
<td>♦ No</td>
<td>57</td>
<td>8.8</td>
</tr>
</tbody>
</table>
**Weekly alcohol drinking & adult behaviour**

* p<0.05 v. no

<table>
<thead>
<tr>
<th>Do you observe adults:</th>
<th>N</th>
<th>Weekly drinkers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drink too much alcohol?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>❖ Yes</td>
<td>756</td>
<td>11.1</td>
</tr>
<tr>
<td>❖ No</td>
<td>269</td>
<td>10.0</td>
</tr>
<tr>
<td>Take illegal drugs?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>❖ Yes</td>
<td>535</td>
<td>13.1*</td>
</tr>
<tr>
<td>❖ No</td>
<td>490</td>
<td>8.4</td>
</tr>
<tr>
<td>Drink alcohol &amp; drive?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>❖ Yes</td>
<td>663</td>
<td>12.1*</td>
</tr>
<tr>
<td>❖ No</td>
<td>362</td>
<td>8.6</td>
</tr>
</tbody>
</table>
### Weekly alcohol drinking & student feelings

* p<0.05 v. little or none

<table>
<thead>
<tr>
<th>How much of the time have you:</th>
<th>N</th>
<th>Weekly drinkers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Felt down?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• All or most</td>
<td>87</td>
<td>14.9*</td>
</tr>
<tr>
<td>• Some</td>
<td>299</td>
<td>11.4</td>
</tr>
<tr>
<td>• Little or none</td>
<td>639</td>
<td>10.0</td>
</tr>
<tr>
<td>Felt calm &amp; peaceful?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• All or most</td>
<td>544</td>
<td>8.6*</td>
</tr>
<tr>
<td>• Some</td>
<td>367</td>
<td>12.0</td>
</tr>
<tr>
<td>• Little or none</td>
<td>114</td>
<td>17.5</td>
</tr>
<tr>
<td>Been happy?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• All or most</td>
<td>733</td>
<td>9.4*</td>
</tr>
<tr>
<td>• Some</td>
<td>245</td>
<td>13.5</td>
</tr>
<tr>
<td>• Little or none</td>
<td>47</td>
<td>19.2</td>
</tr>
</tbody>
</table>
Relative Risk of *regular binge drinking* (4 times in last 4 weeks) associated with **gender**

![Graph showing relative risk of regular binge drinking associated with gender](image)
Relative Risk of *regular binge drinking* (4 times in last 4 weeks) associated with *age of 1st drink*

![Graph showing relative risk (RR) with 95% CI adjusted for age & sex]
Relative Risk of *regular binge drinking* (4 times in last 4 weeks) associated with *cigarette smoking*
Relative Risk of *regular binge drinking* (4 times in last 4 weeks)
associated with frequency of usual alcohol drinking

<table>
<thead>
<tr>
<th>Frequency of usual alcohol intake</th>
<th>N</th>
<th>4+ alcohol binges (%)</th>
<th>RR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; weekly</td>
<td>252</td>
<td>2.8</td>
<td>1.00</td>
</tr>
<tr>
<td>weekly</td>
<td>71</td>
<td>38.0</td>
<td>12.1 (5.0, 28.9)</td>
</tr>
<tr>
<td>&gt; weekly</td>
<td>39</td>
<td>64.1</td>
<td>23.0 (10.0, 52.8)</td>
</tr>
</tbody>
</table>
Objective 4

Alcohol Burden

a) contribution lifestyle makes to alcohol intake

b) contribution alcohol makes to health outcomes
<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Exposure</th>
<th>Attributable Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lifestyle:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>◆ Cigarette smoking</td>
<td>Smoker</td>
<td>44%</td>
</tr>
<tr>
<td>◆ Sun exposure</td>
<td>&gt; 14 hrs / week</td>
<td>35%</td>
</tr>
<tr>
<td><strong>Opinion: risk harm if:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>◆ smoke cigarettes</td>
<td>No / don’t know</td>
<td>13%</td>
</tr>
<tr>
<td>◆ drink alcohol</td>
<td>No / don’t know</td>
<td>19%</td>
</tr>
<tr>
<td>◆ become depressed</td>
<td>No / don’t know</td>
<td>16%</td>
</tr>
<tr>
<td><strong>Observe adults:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>◆ take illegal drugs</td>
<td>Yes</td>
<td>21%</td>
</tr>
<tr>
<td>◆ drink alcohol &amp; drive</td>
<td>Yes</td>
<td>21%</td>
</tr>
<tr>
<td><strong>Feelings - less important</strong></td>
<td></td>
<td>4 - 10%</td>
</tr>
</tbody>
</table>
# Burden – contribution to regular binge drinking

<table>
<thead>
<tr>
<th>Lifestyle Risk Factor</th>
<th>Exposure</th>
<th>Attributable Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usual alcohol intake</td>
<td>Weekly or more often</td>
<td>83%</td>
</tr>
<tr>
<td>Age started drinking alcohol</td>
<td>&lt; 16 years</td>
<td>38%</td>
</tr>
<tr>
<td>Cigarette smoking</td>
<td>Smoker</td>
<td>27%</td>
</tr>
</tbody>
</table>
## Burden – contribution of alcohol to adverse health outcomes

<table>
<thead>
<tr>
<th>Alcohol exposure (in last 4 weeks)</th>
<th>Outcome</th>
<th>Attributable Risk</th>
</tr>
</thead>
</table>
| **Weekly alcohol intake**         | ✦ Health is fair or poor  
✦ Health worse than 1 yr ago | 11%  
14% |
| **Alcohol binges 4 or more**      | I am not as healthy as anybody I know | 4% |
Burden –
association of *regular alcohol intake* with *fitness* (physical work capacity)

<table>
<thead>
<tr>
<th>Alcohol exposure (in last 4 weeks)</th>
<th>Fitness - work capacity</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>1.86 (0.03)</td>
<td>-</td>
</tr>
<tr>
<td>0</td>
<td>1.95 (0.03)</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>&lt; weekly</td>
<td>2.04 (0.03)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Weekly or more often</td>
<td>2.10 (0.05)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
Conclusions – objectives 1 & 2

Objective 1:
- Drinking patterns of Pacific Youth compared favourably with those of Maori and Palagi youth, but less favourably when compared with Asians

Objective 2:
- Cook Islands youth had the least favourable drinking pattern among Pacific youth, followed by Niuean. Samoans of both sexes and Tongan females had the most favourable
Conclusions – Objective 3 (i)

Risk factors for increased *usual alcohol intake*:

- **Demographic variables**
  - male gender, Cook Island ethnicity, New Zealand birth, increased socioeconomic status

- **Lifestyle** - cigarette smoking, increased sun exposure

- **Incorrect opinions** about the harm from smoking cigarettes & drinking alcohol

- **Observing adults** engage in risk taking behaviour with illegal drugs & drinking alcohol while driving

- **Feeling** down and unhappy, not calm and peaceful
Conclusions – Objective 3 (ii)

Risk factors for *binge drinking*:

- Demographic - male gender
- Lifestyle –
  - Frequency of usual alcohol intake,
  - early age of starting alcohol drinking
  - cigarette smoking
Conclusions – objective 4 (i)

Modifiable factors that explained *usual alcohol intake*, in order of importance, were:

- cigarette smoking and sun exposure
- observing adults engage in risk taking behaviour with illegal drugs and drink driving
- incorrect opinions about harm from smoking cigarettes and drinking alcohol
Conclusions – objective 4 (ii)

Modifiable factors that explained *binge drinking*, in order of importance, were the lifestyle behaviours:

- usual alcohol intake
- early age of starting alcohol drinking
- cigarette smoking.

Alcohol had only a limited effect on the *health outcomes* measured in this study.
Recommendations for Policy

- Regulations and laws surrounding young people’s access to alcohol are enforced and monitored carefully Objective 2: Comparison of alcohol drinking patterns in Pacific youth (i.e. Samoan, Tongan, Cook Islands, and Niuean ethnicities)

- Surveillance and monitoring of youth drinking in public places is recommended, laws and regulations concerning this practice should be enforced
Recommendations for Health Education and Promotion

- Monitoring of youth drinking in public places, and laws and regulations enforced
- Interventions be targeted specifically at the Pacific male population
- Ethnic-specific interventions & health promotion targeted at Pacific populations most at risk i.e. Cook Islands and Niuean population
- Educating youth who are drinking, to drink safely and responsibly
Recommendations for Health Education and Promotion cont

- Health education programmes and effective interventions should be holistic and should consider the ‘whole’ person, and include risk-taking behaviour and emotional well-being.

- Health promotion and education campaigns should target caregivers and parents (permissiveness).

- The link between discretionary income and higher alcohol consumption is communicated back to parents and caregivers via health promotion programmes focusing on the safe use of alcohol.
Recommendations for Further Research

- Exploring reasons why adolescent drinking varies between Pacific cultures
- Further research on protective risk factors of Pacific populations
- Understand the role of sun-exposure, including association with aerobic capacity
- Relationship between sports culture and alcohol consumption in the Pacific youth population
- Link between sun-exposure, Pacific family/home environment policies and practice surrounding alcohol consumption and outdoor drinking
- Understanding acculturation factors causing increased drinking