ANABOLIC STEROID USE
IN GAY AND BISEXUAL MEN LIVING IN AUSTRALIA AND NEW ZEALAND

Weeks of use

0 5 10 15 20

4 12

Anabolic steroids
Introduction – new injection drug users

- Anabolic steroids: 38%
- Heroin & pharma opioids: 32%
- Methamphetamine: 20%
- Other illicit drugs: 10%

Australian Needle and Syringe Program Survey National Data Report 2014

Introduction – sexual minority men

- Sexual minority more susceptible to:
  - Body dissatisfaction (e.g. Frederik & Essayil, 2016)
  - Eating disorders (e.g. Calzo et al. 2017)
  - Body dysmorphic disorder (e.g. Schneider et al. 2017)
  - Anabolic steroid use (e.g. Blashill et al. 2017)

- Limited research on sexual minority men in Australia and New Zealand with large sample sizes (i.e., $N > 500$)

- Geosocial-networking smartphone application (GNSA) advertisements are a method for recruiting large numbers of sexual minority men with excellent geographical representation
Method – recruitment

- Advertisements that solicited volunteers for a study of “body image and body preferences” [no mention of steroids]
- Advertisements appeared on four non-consecutive days in late April and early May of 2017
- Disseminated nationwide across Australia and New Zealand
- Median survey completion time = 11 minutes; counterbalanced

Method – measures

- Anabolic steroids
  - Actual use
  - Thoughts about use
- Body dissatisfaction (MBAS-R)
  - Body fat
  - Muscularity
  - Height
  - Penis size (adapted)
- Eating disorder symptoms (EDE-QS)
- Psychological quality of life (BBQ)
Method – sample \( (N = 2733) \)

**Sexual orientation**
- Exclusively gay: 68%
- Mostly gay: 21%
- Bisexual: 8%
- Other: 3%

**Location**
- Australia: 78%
- New Zealand: 22%
Method – sample \( (N = 2733) \)

**Cultural background**
- Majority: 66%
- Minority: 34%

**Body Mass Index**
- Normal weight: 57%
- Overweight: 31%
- Obese: 9%
- Underweight: 3%
Method – sample ($N = 2733$)

- **Age**
  - Range: 18–78 years
  - Mean = 34 years
  - Median = 31 years
  - $SD = 12$ years

Results – prevalence of steroid use

- **Users** ($n = 142$)
- **Non-users** ($n = 2591$)
Results – prevalence of steroid thoughts

- Thinkers (n = 694) - 25.4%
- Non-thinkers (n = 2039) - 74.6%

Results – predictors of steroid thoughts

<table>
<thead>
<tr>
<th>Predictor</th>
<th>β</th>
<th>SE β</th>
<th>Wald X²</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>0.004</td>
<td>0.001</td>
<td>13.817</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Body Mass Index</td>
<td>0.003</td>
<td>0.003</td>
<td>1.181</td>
<td>.277</td>
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<tr>
<td>Height (cm)</td>
<td>0.005</td>
<td>0.002</td>
<td>6.738</td>
<td>.009</td>
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<tr>
<td>Sexual orientation</td>
<td>-0.020</td>
<td>0.019</td>
<td>1.184</td>
<td>.277</td>
</tr>
<tr>
<td>Cultural background (majority/minority)</td>
<td>-0.052</td>
<td>0.028</td>
<td>3.363</td>
<td>.067</td>
</tr>
<tr>
<td>Muscularity dissatisfaction</td>
<td>0.213</td>
<td>0.015</td>
<td>177.867</td>
<td>&lt;.001</td>
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<tr>
<td>Body fat dissatisfaction</td>
<td>-0.105</td>
<td>0.018</td>
<td>32.986</td>
<td>&lt;.001</td>
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<tr>
<td>Height dissatisfaction</td>
<td>0.069</td>
<td>0.017</td>
<td>14.875</td>
<td>&lt;.001</td>
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<tr>
<td>Penis size dissatisfaction</td>
<td>-0.012</td>
<td>0.014</td>
<td>0.674</td>
<td>.412</td>
</tr>
<tr>
<td>Eating disorder symptoms</td>
<td>0.224</td>
<td>0.032</td>
<td>45.610</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Psychological quality of life</td>
<td>-0.002</td>
<td>0.001</td>
<td>8.373</td>
<td>.004</td>
</tr>
</tbody>
</table>
Results – predictors of steroid use

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$\beta$</th>
<th>SE $\beta$</th>
<th>OR</th>
<th>Wald $X^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>0.027</td>
<td>0.008</td>
<td>1.029</td>
<td>12.193</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Body Mass Index</td>
<td>0.035</td>
<td>0.019</td>
<td>1.036</td>
<td>3.442</td>
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<tr>
<td>Height (cm)</td>
<td>-0.011</td>
<td>0.014</td>
<td>0.989</td>
<td>0.616</td>
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<tr>
<td>Sexual orientation</td>
<td>-0.087</td>
<td>0.131</td>
<td>0.922</td>
<td>0.439</td>
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</tr>
<tr>
<td>Cultural background (majority/ref/minority)</td>
<td>0.545</td>
<td>0.191</td>
<td>1.726</td>
<td>8.167</td>
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<tr>
<td>Muscularity dissatisfaction</td>
<td>0.196</td>
<td>0.122</td>
<td>1.202</td>
<td>2.583</td>
<td>.108</td>
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<tr>
<td>Body fat dissatisfaction</td>
<td>-0.440</td>
<td>0.126</td>
<td>0.645</td>
<td>12.260</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Height dissatisfaction</td>
<td>0.145</td>
<td>0.116</td>
<td>1.163</td>
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<td>.212</td>
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<tr>
<td>Penis size dissatisfaction</td>
<td>-0.124</td>
<td>0.096</td>
<td>0.888</td>
<td>1.683</td>
<td>.195</td>
</tr>
<tr>
<td>Eating disorder symptoms</td>
<td>0.625</td>
<td>0.207</td>
<td>1.898</td>
<td>9.130</td>
<td>.002</td>
</tr>
<tr>
<td>Psychological quality of life</td>
<td>-0.006</td>
<td>0.004</td>
<td>0.994</td>
<td>1.661</td>
<td>.197</td>
</tr>
</tbody>
</table>

Discussion

- Psychopathology related to body image and eating disorders are associated with anabolic steroid use amongst sexual minority men living in Australia and New Zealand.

- Sexual minority men from minority cultural backgrounds (i.e., non-Australian/New Zealander) were more likely to use anabolic steroids (7.0% vs. 4.2%).

- Geosocial-networking smartphone application (GNSA) advertisements are a method for recruiting large numbers of sexual minority men with excellent geographical representation (< 1 AUD / participant).
Discussion – limitations

- Prevalence estimates not entirely unbiased; still mentioned ‘body image’ and ‘body preferences’
- Potential for legitimate anabolic steroid use (i.e., medically prescribed) to be misanalysed as illegitimate/illicit
- Cross-sectional study design

![Graph showing weeks of use and anabolic steroids usage]
Discussion – future research (funded!)

- **EMAROID** (pronounced ‘hemorrhoid’)
- Ecological momentary assessment study with steroid users (N = 250)
- Primary aim is to examine the time-course and predictors of mental health disturbance during steroid discontinuation
Discussion – future research (funded’ish)

- **M-BODY**
  - GNSAs delivered nationwide across Australia and New Zealand to men who use Tinder and Grindr
  - Longitudinal; new surveys issued every 3 months
    - Incentivized; survey completors get to donate $5 to charity
    - Pilot tested with 425 individuals with eating disorders; response rate = ~75% (using email reminders only)

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**tinder**  
**Grindr**

*target N = 25,000  
*target N = 6,000*

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