Coercion into addiction treatment and subsequent substance use among people who use illicit drugs in Vancouver, Canada

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Conflict of Interest:

Dr. M-J Milloy's institution has received an unstructured arms' length gift to support him from NG Biomed, Ltd., a private firm applying for a government license to produce cannabis.

The Canopy Growth professorship in cannabis science was established through unstructured arms' length gifts to the University of British Columbia from Canopy Growth, a licensed producer of cannabis, and the Ministry of Mental Health and Addictions of the Government of British Columbia.
Background

• Over 5,000 overdose deaths from 2015 – June 2019
  – January – June, 2019 → 538 fatalities
  – Approximately 80% involve fentanyl or analogues

• Compulsory/coerced treatment prevalent approach
  – 1/3 of USA treatment admissions through coercion
  – Vancouver Dug Treatment Court
  – Proposed legislation in British Columbia, Canada
Objectives

1. To identify factors associated with time to coerced addiction treatment; and,

2. To assess the before and after substance use patterns among people who were coerced into treatment versus two control groups
Methods

• 3 prospective cohort studies:
  
  – At Risk Youth Study (ARYS)
  – Vancouver Injection Drug User Study (VIDUS)
  – AIDS Care Cohort to Evaluate Exposure to Survival Services (ACCESS)

• Street outreach and self-referral in the Greater Vancouver region between Sept 2005 and June 2015

• At baseline and semi-annually, participants complete an interviewer-administered questionnaire
Methods

• **Primary outcome:**

  *Being coerced into addiction treatment*

• “*Why did you enter treatment?***”

  - Coerced/forced by doctor or courts/police/etc.
  - Own choice/convinced by friends/health reasons
  - Did not enter treatment
Methods

• **Extended Cox model** with time-dependent variables, where all substance use variables lagged to the previous observation

• Model controlled for the following covariates:
  ✓ Age, gender, ethnicity
  ✓ Binge drug use
  ✓ Any non-/injection illicit drug use
  ✓ Any or daily cannabis use
  ✓ Non-fatal overdose
  ✓ Incarceration
  ✓ Police contact
  ✓ Homelessness
  ✓ Employment
  ✓ Sex work
  ✓ Drug dealing

All variables except age/gender/ethnicity refer to the last 6 months
Methods

• Established “case” and “control” trios for:
  1) coerced;
  2) voluntary;
  3) treatment naïve.

• Bootstrapping method: participant selection repeated 50 times
• McNemar’s test used to compare within-group differences
• Non-linear growth curve analyses for between-group differences
Methods

- 2 sensitivity analyses:
  
  1. Restricted to coercion by “police, courts, etc.”
     - Does source of coercion matter?

  AND

  2. Included detoxification as a “treatment”
Results: Sample characteristics

- *Between September 2005 and June 2015:*
  - 3,196 participants eligible for the analysis
  - Total of 23,694 observations
  - Median number of follow-ups: 5 (IQR 2-12)
Results

• **399 (12.5%)** reported at least one coercion event

• **662 events/observations** of coerced treatment
  – **354 (53.5%)** events of coercion **by a physician**
  – **300 (45.3%)** events of coercion **by the courts/police/etc.**
  – **8 (1.2%)** events of coercion **by both**
### Extended Cox regression*
**time to coerced addiction treatment**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Adjusted Hazard Ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any cocaine use</td>
<td>1.33 (1.06 – 1.66)</td>
</tr>
<tr>
<td>yes vs. no</td>
<td></td>
</tr>
<tr>
<td>Any PO use</td>
<td>1.12 (0.87 – 1.44)</td>
</tr>
<tr>
<td>yes vs. no</td>
<td></td>
</tr>
<tr>
<td>Police contact</td>
<td>1.13 (0.88 – 1.44)</td>
</tr>
<tr>
<td>yes vs. no</td>
<td></td>
</tr>
<tr>
<td>Non-fatal overdose</td>
<td>1.66 (1.20 – 2.28)</td>
</tr>
<tr>
<td>yes vs. no</td>
<td></td>
</tr>
<tr>
<td>Incarceration</td>
<td>1.77 (1.37 – 2.28)</td>
</tr>
<tr>
<td>yes vs. no</td>
<td></td>
</tr>
<tr>
<td>Daily cannabis use</td>
<td>0.74 (0.58 – 0.95)</td>
</tr>
<tr>
<td>yes vs. no</td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td>0.73 (0.57 – 0.93)</td>
</tr>
<tr>
<td>yes vs. no</td>
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</tbody>
</table>

* All substance use variables lagged
Results: Before and after analysis

- No significant **within-group** or **between-group** reductions
  - But, reductions in voluntary group were closer to significance

<table>
<thead>
<tr>
<th></th>
<th>Before n (%)</th>
<th>After n (%)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coerced</td>
<td>35 (42.9)</td>
<td>33 (40.4)</td>
<td>0.803</td>
</tr>
<tr>
<td>Voluntary</td>
<td>87 (53.1)</td>
<td>73 (44.8)</td>
<td>0.121</td>
</tr>
</tbody>
</table>

- **Sub-analyses** found no significant differences when:
  - Restricting to coercion by police/courts/etc.
  - Including detoxification as a treatment
Discussion

• Analysis suggests coerced treatment may be less effective than presumed

• Given known treatment gaps, the prevalence of coerced addiction treatment is concerning

• Physicians and policy-makers should be aware of the risks of coerced treatment

• Harm reduction and a public health response should be prioritized
Limitations

• Unable to discern the type of treatment participants were coerced into

• Observational study:
  – Unmeasured confounding may exist
  – Participants were not recruited at random
  – Relied on self-reported data
  – Not generalizable to other populations
Conclusions

• Study findings raise caution around the use of coercion in addiction treatment

• Investments in on-demand, comprehensive, evidence-based addiction treatment interventions are needed
Acknowledgements

- All study participants who generously gave their time
- BCCSU staff, Graduate students, and the study team
- Community groups, funders, and others
References

### TABLE 3. Substance use patterns reported in the period before and after addiction treatment among individuals who were coerced into treatment (n=86 cases) and controls that voluntarily accessed treatment (mean n over 50 runs = 162 controls).

<table>
<thead>
<tr>
<th>Substance use patterns</th>
<th>Coerced Addiction Treatment</th>
<th>g value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Period</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Before n (%)</td>
<td>After n (%)</td>
</tr>
<tr>
<td>Any heroin use¹</td>
<td></td>
<td></td>
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<tr>
<td>Coerced</td>
<td>35 (42.9)</td>
<td>33 (40.4)</td>
</tr>
<tr>
<td>Controls</td>
<td>87 (53.1)</td>
<td>73 (44.8)</td>
</tr>
<tr>
<td>Any cocaine use¹</td>
<td></td>
<td></td>
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<tr>
<td>Coerced</td>
<td>37 (45.3)</td>
<td>38 (46.6)</td>
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<tr>
<td>Controls</td>
<td>62 (38.1)</td>
<td>52 (31.7)</td>
</tr>
<tr>
<td>Any crack use¹</td>
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<td></td>
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<tr>
<td>Coerced</td>
<td>51 (62.0)</td>
<td>45 (54.7)</td>
</tr>
<tr>
<td>Controls</td>
<td>107 (65.3)</td>
<td>93 (56.7)</td>
</tr>
<tr>
<td>Any CM use¹, ²</td>
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<tr>
<td>Coerced</td>
<td>15 (18.4)</td>
<td>18 (22.1)</td>
</tr>
<tr>
<td>Controls</td>
<td>44 (26.7)</td>
<td>42 (25.8)</td>
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<tr>
<td>Any PO use¹, ²</td>
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<tr>
<td>Coerced</td>
<td>20 (24.5)</td>
<td>17 (20.8)</td>
</tr>
<tr>
<td>Controls</td>
<td>45 (27.3)</td>
<td>29 (17.5)</td>
</tr>
<tr>
<td>Any cannabis use¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coerced</td>
<td>50 (60.8)</td>
<td>48 (58.8)</td>
</tr>
<tr>
<td>Controls</td>
<td>90 (55.3)</td>
<td>85 (52.4)</td>
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<tr>
<td>Daily cannabis use¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coerced</td>
<td>22 (27.0)</td>
<td>23 (28.2)</td>
</tr>
<tr>
<td>Controls</td>
<td>43 (26.3)</td>
<td>38 (23.2)</td>
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<tr>
<td>Overdose¹</td>
<td></td>
<td></td>
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<tr>
<td>Coerced</td>
<td>7 (8.6)</td>
<td>1 (1.2)</td>
</tr>
<tr>
<td>Controls</td>
<td>14 (8.6)</td>
<td>9 (5.6)</td>
</tr>
</tbody>
</table>
Discussion

• Potential policy implications include:
  
  – Investing in low-threshold, low-barrier treatment models

  – Ensuring treatment services are culturally-safe, trauma-informed, and place-based

  – Integrating treatment services within primary care

  – Expanding access to opioid substitution treatment