Exploring Smoking Cessation Efforts in the Homeless Population

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About Me

- B.S. in Behavioral
- Experience in emergency medicine
  - EMT - Fallon
  - Emergency Service Assistant - BWH
- Licensed TTS since 2022
  - Homelessness, Housing, and Health (3H) lab at MGH with Dr. Travis Baggett
What’s the problem?

Big Picture: Smoking Among People Experiencing Homelessness

- Cost of smoking
- Smoking prevalence
- Smoking-attributable illnesses & mortality
- Targeting from tobacco industry
Cost of Smoking

- Median past-week spending: $40 USD
- Estimated 1/3 of monthly income spent on tobacco
- Higher nicotine dependence correlated with greater spending on tobacco
  - Greater difficulty meeting basic survival needs in this group

Smoking Prevalence

Cigarette Smoking Prevalence, 2020

- US general
- US ever homeless
- US currently homeless

Steinberg, NTR 2020
Smoking-Related Illness

- Obstructive lung disease prevalence over 2x higher (Snyder, 2004)
- Invasive pneumococcal disease incidence 30x higher (Plevneshi, 2009)
- High reliance on healthcare for respiratory illness treatment (Salit, 1998; Sachs-Ericsson, 1999)
- Rates of lung and oropharyngeal cancer incidence more than 2x higher (Baggett, 2015)
  - Over 80% of these smoking-attributable

Smoking-Attributable Mortality

Smoking-attributable Mortality by Age & Gender

- Female
  - 35 - 49 years
  - Male
  - 50 - 64 years

Homeless Adults

Massachusetts Adults
Tobacco Industry Targeting

- Tobacco industry marketing exploits high rates of comorbid mental illness & substance use disorders
  - Critical subpopulation for tobacco sales identified as early as the 70s
- Larger marketing efforts towards “downscale customers” by the 90s
  - Recruited new homeless smokers by distributing free “sample” packs at shelters & soup kitchens
  - Project SCUM: major campaign from RJ Reynolds targeting homeless adults in SF in 1995

Elser, Prev Med Rep 2019

Adobe Stock Image

Past-Year Desire to Quit Smoking

<table>
<thead>
<tr>
<th>Weighted %</th>
<th>Currently Homeless</th>
<th>Formerly Homeless</th>
<th>Never Homeless</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>90%</td>
<td>100%</td>
<td>100%</td>
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Baggett, Addiction 2013

\[ P = 0.26 \]
What are the challenges in smoking reduction?

Challenges in Smoking Reduction

- Smoking as “homeless culture”
- Substance use & mental health issues
- Competing priorities
- Persisting facilitative attitudes from healthcare providers
Smoking in Homeless Culture

- 70 - 80% of people experiencing homelessness use tobacco (Baggett, 2013)

- Social environment’s impact on smoking (Pratt, 2019)
  - More pressure to smoke in & around shelters
  - “Drinking ain’t hard to stay away from, it’s the smoking because smoking, you see that everywhere.”
  - “If I am around a bunch of people, and they are smoking. That will make me want to smoke.”

AP Image, Pat Sullivan

Comorbidities: Substance Use & Mental Health Disorders

<table>
<thead>
<tr>
<th>Substance Use (past 30 d)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heroin</td>
<td>12</td>
</tr>
<tr>
<td>Opiates/painkillers</td>
<td>24</td>
</tr>
<tr>
<td>Cocaine/crack</td>
<td>24</td>
</tr>
<tr>
<td>Cannabis</td>
<td>43</td>
</tr>
<tr>
<td>Drank alcohol to intoxication</td>
<td>44</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Mental health symptoms (past 30 d)</th>
<th>%</th>
</tr>
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<tbody>
<tr>
<td>Serious depression</td>
<td>64</td>
</tr>
<tr>
<td>Serious anxiety/tension</td>
<td>73</td>
</tr>
<tr>
<td>Serious thoughts of suicide</td>
<td>20</td>
</tr>
<tr>
<td>Positive screen for PTSD</td>
<td>68</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trauma experiences (lifetime)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical assault</td>
<td>81</td>
</tr>
<tr>
<td>Sexual assault</td>
<td>26</td>
</tr>
<tr>
<td>Head injury</td>
<td>65</td>
</tr>
</tbody>
</table>

Baggett, NTR 2016
• Difficulty meeting basic needs
  • Clothing: 50%
  • Shelter: 49%
  • Somewhere to go to the bathroom: 43%
  • Food: 41%
  • Somewhere to wash up: 35%

• Homeless smokers with difficulty meeting basic needs perceive more barriers to quitting
  • Less successful at quitting

Baggett, SGIM Abstract 2016

Conflicting Healthcare Provider Attitudes

Baggett, J Health Care Poor Underserved 2012
What’s being done to address it?

Smoking Cessation Interventions in the Homeless Population

- Modest benefit of more intensive behavioral smoking cessation interventions compared to less intensive ones
- Need future studies addressing additional ways to engage and support people experiencing homelessness
- Greater need for support and follow-up in this population

Vijayaraghavan, Cochrane Database Syst. Rev. 2020
**QUIT Smoking Pilot Study**  
*(Quitting with Usual Care, Incentives, & Technology)*

**Control arm (n=25)**
- Nicotine patches
- Tobacco coaching
- Prepaid mobile phone

**Financial incentives arm (n=25)**
- Control components
- Escalating financial rewards

**Texting arm (n=25)**
- Control components
- SmokefreeTXT

- 8-week pilot RCT for homeless smokers ready to quit in the next month
- Abstinence verified by CO exhalation level < 8 ppm

**Smoking Abstinence: Control vs Financial Incentive Arm**

![Graph showing smoking abstinence over follow-up days.](image)

End of treatment: 48% vs 8%
P = 0.004

Baggett, NTR 2018
Smoking Abstinence: Control vs Texting Arm

![Graph showing smoking abstinence rates over follow-up days for Control and Texting arms.](Baggett, NTR 2018)

**INSPIRE Quitting** (Investigating a Novel Smoking Program to Incentivize REDuction & Quitting)

**Control arm**
- Varenicline therapy (12 wks)
- Tobacco coaching (5 sessions over 12 wks)
- Cotinine monitoring (12 wks)

**Financial incentives arm**
- Control components
- Escalating payments for cotinine-verified abstinence (< 30 ng/mL)
- 6-month RCT for homeless smokers; current daily smoking ≥ 5 cigarettes
- Participants ready to quit in next 3 months
- Original design included CO breath testing & NRT evidenced by pilot study
- COVID-19 pandemic caused switch to POC saliva cotinine tests, varenicline
INSPIRE Quitting: Successes

- About 2/3 attendance across tobacco coaching visits
- Much higher uptake compared to pilot study
- Many pts consider cutting back, vaping as success
- Valuable info on real-world use of contingency management, varenicline, & tobacco coaching

Participant Quotes

Pilot Study (re: SmokefreeTXT)

- “I’d rather come in and talk. ... I like to do things in person.”
- “I’d rather just be, up in person. ... So that way you can see my expressions, x, y, z.”
- “I’d love it in person so we can see eye to eye.”

INSPIRE Quitting (re: tobacco coaching)

- “But she gave me some of the best tools that I use. For example, the craving only lasts about a minute. I never analyzed that or noticed it, but when she said and I applied it, I was like, ‘Wow, it really does go away.’ ... So yeah, she gave me some good tools.”
- “I think the coaching and that you actually talk to the chick...she’s pretty good talking, so it helps out. She gives you techniques and stuff, so it’s pretty good.”
INSPIRE Quitting: Challenges

- Lower recruitment rates than expected
- Very low smoking abstinence rates
- Varenicline adverse events (AEs) common
  - Most common AEs: Abnormal dreams, nausea, headaches
  - None so far have been serious

Takeaways

- High smoking rate, barriers to abstinence
- Promising short-term abstinence from financial incentives
- Long-term abstinence requires further interventions
  - Harm reduction vs complete abstinence
  - Interpersonal support through tobacco counseling essential