Predictors of Substance Abuse Treatment Engagement among Rural Appalachian Prescription Drug Users

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The objective of this study was to determine the predictors of treatment engagement over time among rural prescription drug abusers.
Methodology

- Social Networks among Appalachian People (SNAP) study – recruitment ongoing
- Purpose: determine prevalence and incidence of HCV, HIV and HSV-2 and other risk behaviors in relation to social network characteristics among rural prescription drug users
- Follow-up at 6-, 12- and 18-months
Eligibility Criteria

- Age 18 years +
- Reside in Appalachian Kentucky county
- Have used one of the following substances to get high in the prior 30 days: prescription opioids, cocaine, heroin or methamphetamine
  - ALL of those screened had used prescription opioids in the prior 30 days to get high
Each fiscal year the Appalachian Regional Commission classifies each county into one of four economic levels based on the comparison of three county economic indicators (three-year average unemployment, per-capita market income, and poverty) to their respective national averages. See the reverse side for a description of each economic level.
Study Procedures

- Storefront location in Hazard, Kentucky
- Participants recruited via Respondent Driven Sampling (RDS)
- Interviewer-administered questionnaire
Behavioral and Psychosocial Measures

- **Addiction Severity Index** (McLellan et al., 1995) – added questions on OxyContin®, other oxycodone, hydrocodone, benzodiazepines

- **Treatment Lifetime, Past 6-Mo for:**
  - Detox (Methadone or Non-Methadone), Residential, Outpatient Drug Free, Methadone, 12-Step, Other

- **MINI, V5.0** – DSM-IV MDD, GAD, PTSD, ASPD (Sheehan et al., 1998)
Variables

- Dependent variable: self-reported treatment entry at follow-up
- Independent variables:
  - Sociodemographic characteristics
    - Age, gender, race, education, insurance, employment (number of days worked in previous 30)
  - Drug use (time-varying)
  - Number of previous treatment episodes
Statistical Analysis

- Unadjusted random effects regression models (*xtlogit*)
  - If $p<0.05$, tested for inclusion in multivariable model

- Multivariable random effects regression model
  - Change-in-estimate backward-elimination until most parsimonious model achieved

- STATA, version 12
503 rural drug users

256 (50.8%) previously treated

Median 1 treatment episode (IQR: 0, 2)

- 6.0% Detox (Methadone)
- 7.9% Detox (Non-Methadone)
- 10.9% Methadone
- 33.6% Residential
- 15.9% Outpatient drug-free
- 30.2% 12-Step
# Participant Characteristics (N=503)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>286</td>
<td>56.9</td>
</tr>
<tr>
<td>Age, median (IQR)</td>
<td>31 (26, 38)</td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>474</td>
<td>94.2</td>
</tr>
<tr>
<td>Monthly Income, median (IQR)</td>
<td>$677 ($300, $1200)</td>
<td></td>
</tr>
<tr>
<td>Years Education, median (IQR)</td>
<td>12 (10, 12)</td>
<td></td>
</tr>
<tr>
<td>Days Employed, median (IQR)</td>
<td>0 (0, 14)</td>
<td></td>
</tr>
<tr>
<td>Uninsured</td>
<td>333</td>
<td>66.2</td>
</tr>
<tr>
<td>Medicaid/Medicare</td>
<td>152</td>
<td>30.2</td>
</tr>
<tr>
<td>MDD</td>
<td>131</td>
<td>26.0</td>
</tr>
<tr>
<td>GAD</td>
<td>146</td>
<td>29.0</td>
</tr>
</tbody>
</table>
## Past 30 Day Drug Use

<table>
<thead>
<tr>
<th>Drug</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>276</td>
<td>54.9</td>
</tr>
<tr>
<td>Heroin</td>
<td>22</td>
<td>4.4</td>
</tr>
<tr>
<td>Illicit Methadone</td>
<td>306</td>
<td>60.8</td>
</tr>
<tr>
<td>OxyContin®</td>
<td>351</td>
<td>69.8</td>
</tr>
<tr>
<td>Hydrocodone</td>
<td>408</td>
<td>81.3</td>
</tr>
<tr>
<td>Other Oxycodone</td>
<td>364</td>
<td>72.4</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>429</td>
<td>85.3</td>
</tr>
<tr>
<td>Cocaine</td>
<td>113</td>
<td>22.5</td>
</tr>
<tr>
<td>Methamphetamine</td>
<td>17</td>
<td>3.4</td>
</tr>
<tr>
<td>Marijuana</td>
<td>308</td>
<td>61.2</td>
</tr>
</tbody>
</table>
Prospective Treatment Engagement

- 108 unique individuals accounted for 156 treatment episodes
- 6 Months – 55 (11.7%) entered treatment between baseline and 6-month f/u
- 12 Months – 53 (12.3%) entered treatment between 6- and 12-month f/u
- 18 Months – 48 (13.9%) entered treatment between 12- and 18-month f/u (follow-up ongoing)
Treatment Modality: 6-Month Follow-Up

- Other
- 12-Step
- Detox (Non-Methadone)
- Residential
- Outpt Drug-Free
- Methadone Maintenance
- Methadone Detox
Treatment Modality: 12-Month Follow-Up

- Other
- 12-Step
- Detox (Non-Methadone)
- Residential
- Outpt Drug-Free
- Methadone Maintenance
- Methadone Detox

0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4
Treatment Modality: 18-Month Follow-Up

- Other
- 12-Step
- Detox (Non-Methadone)
- Residential
- Outpt Drug-Free
- Methadone Maintenance
- Methadone Detox

0 0.1 0.2 0.3 0.4 0.5 0.6
## Predictors of Treatment Engagement

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Adjusted Odds Ratio</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous Treatment Episode</td>
<td>1.16</td>
<td>1.07, 1.24</td>
</tr>
<tr>
<td>Age</td>
<td>0.95</td>
<td>0.92, 0.98</td>
</tr>
<tr>
<td>GAD</td>
<td>2.17</td>
<td>1.31, 3.60</td>
</tr>
<tr>
<td>Past 30 Day OxyContin® Use</td>
<td>0.49</td>
<td>0.31, 0.78</td>
</tr>
<tr>
<td>Past 30 Day Benzodiazepine Use</td>
<td>0.40</td>
<td>0.26, 0.62</td>
</tr>
<tr>
<td>Past 30 Day Alcohol Use</td>
<td>0.48</td>
<td>0.30, 0.77</td>
</tr>
<tr>
<td>Years of Education</td>
<td>1.02</td>
<td>1.00, 1.03</td>
</tr>
</tbody>
</table>
Summary

- Sociodemographic predictors of treatment engagement similar to other studies in predominantly urban areas
- Comorbid psychiatric disorders predictive of treatment entry
- Use of prescription drugs (OxyContin® and benzodiazepines) to get high was a risk factor for NOT engaging in substance abuse treatment
Conclusions

- Treatment scarce in rural areas
- Participants poor, underemployed
- Most uninsured; less than 5% had private insurance
- Clearly a need for specialized treatment (opioid/benzos, comorbid psychiatric disorders)
Implications

- Unique population predominantly comprised of prescription drug abusers
- Increased access to treatment
  - Specialized treatment – methadone, buprenorphine
  - Treatment for comorbid conditions
- Affordable treatment
  - Plethora of for-profit buprenorphine docs
Acknowledgements

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- SNAP study staff
- SNAP study participants