Exploring the influence of rural status on sociodemographic, behavioral, and psychosocial characteristics of smoking during pregnancy

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DATA ANALYSIS PLAN

Table 1. Demographics, smoking characteristics, and behavioral economic measures among participants as a function of urban or rural status

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Rural Status (N = 213)</th>
<th>Urban Status (N = 63)</th>
<th>Test Statistic</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td>31.44</td>
<td>29.67</td>
<td>2.25</td>
<td>0.0250</td>
</tr>
<tr>
<td>Married (% yes)</td>
<td>44.44</td>
<td>23.94</td>
<td>10.00</td>
<td>0.0016</td>
</tr>
<tr>
<td>Employed (% yes)</td>
<td>34.92</td>
<td>48.83</td>
<td>3.79</td>
<td>0.0516</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
<td>8.14</td>
<td>0.0433</td>
</tr>
<tr>
<td>Non-Hispanic White (%)</td>
<td>85.71</td>
<td>72.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic Black (%)</td>
<td>3.17</td>
<td>17.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic (%)</td>
<td>4.76</td>
<td>4.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (%)</td>
<td>6.35</td>
<td>5.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td>0.93</td>
<td>0.6271</td>
</tr>
<tr>
<td>% &lt; 12 years</td>
<td>9.52</td>
<td>12.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% = 12 years</td>
<td>63.49</td>
<td>58.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% &gt; 12 years</td>
<td>26.98</td>
<td>30.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smoking Characteristics</td>
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<td></td>
</tr>
<tr>
<td>Cigarettes per day pre pregnancy</td>
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<td></td>
<td>4.62</td>
<td>0.0315</td>
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<tr>
<td>% &lt; 10 per day</td>
<td>7.76</td>
<td>15.02</td>
<td></td>
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</tr>
<tr>
<td>% ≥ 10 per day</td>
<td>95.24</td>
<td>84.98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cigarettes per day antepartum</td>
<td></td>
<td></td>
<td>2.96</td>
<td>0.0854</td>
</tr>
<tr>
<td>% &lt; 10 per day</td>
<td>33.33</td>
<td>45.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% ≥ 10 per day</td>
<td>66.67</td>
<td>54.46</td>
<td></td>
<td></td>
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<tr>
<td>Time to first cigarette after waking pregnancy</td>
<td></td>
<td></td>
<td>0.00</td>
<td>0.9451</td>
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<tr>
<td>≤ 5 minutes</td>
<td>46.03</td>
<td>45.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 5 minutes</td>
<td>53.97</td>
<td>54.46</td>
<td></td>
<td></td>
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<tr>
<td>Time to first cigarette after waking antepartum</td>
<td></td>
<td></td>
<td>2.594</td>
<td>0.1073</td>
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<tr>
<td>≤ 5 minutes</td>
<td>25.40</td>
<td>16.43</td>
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<td></td>
</tr>
<tr>
<td>&gt; 5 minutes</td>
<td>74.60</td>
<td>83.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Made at least one antepartum quit attempt % Yes</td>
<td>33.33</td>
<td>39.91</td>
<td>0.89</td>
<td>0.3460</td>
</tr>
<tr>
<td>% No</td>
<td>66.67</td>
<td>60.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usual brand of cigarettes contains menthol % Yes</td>
<td>55.56</td>
<td>44.44</td>
<td>8.40</td>
<td>0.0038</td>
</tr>
<tr>
<td>% No</td>
<td>44.44</td>
<td>64.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavioral Economic Measures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delayed Discounting</td>
<td></td>
<td></td>
<td>-1.81</td>
<td>0.0721</td>
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<tr>
<td>Cigarette Purchase Task</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intensity</td>
<td>1.17</td>
<td>1.13</td>
<td>1.25</td>
<td>0.2111</td>
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<tr>
<td>Omax</td>
<td>0.80</td>
<td>0.48</td>
<td>-0.33</td>
<td>0.7413</td>
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<tr>
<td>Pmax</td>
<td>-0.20</td>
<td>-0.11</td>
<td>-1.09</td>
<td>0.2747</td>
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<tr>
<td>Breakpoint</td>
<td>0.00</td>
<td>0.14</td>
<td>-1.77</td>
<td>0.0779</td>
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<tr>
<td>Alpha</td>
<td>-1.56</td>
<td>-1.65</td>
<td>1.11</td>
<td>0.2671</td>
</tr>
</tbody>
</table>

RESULTS

INTRODUCTION

Smoking during pregnancy is a consistently prevalent problem in the United States, with severe risk potential for health consequences to mother and fetus and a 370-million-dollar average health care toll. Although smoking prevalence has been on a downward trend over the last few decades, rural-dwellers have slower rates of decline. Exploring individual differences in pregnant smokers may provide new avenues for treatment targeting and intervention techniques, but these differences will be most effective if they are translatable to both urban and rural-dwellers. The purpose of this study was to explore conventional and behavioral economic variables as a function of urban/rural status, as these variables may relate to the higher smoking prevalence and lower quit success that have been observed among pregnant women living in rural regions. This study explored individual differences in nicotine dependence, sociodemographics, and measures of cigarette demand among a national sample of pregnant women living in urban versus rural areas.

METHODS

Participants
- N = 401 pregnant women who completed an intake assessment to assess eligibility for a smoking cessation trial.
- Women are categorized by whether they identify living in an urban (N = 213) or rural (N = 63) county.

Conventional Predictors
- Sociodemographics (age, race, educational attainment, marriage status, working for pay outside home).
- Smoking history (age at first cigarette).
- Nicotine dependence (cigarettes per day, time to first cigarette).

Hypothetical Cigarette Purchase Task
- Assesses hypothetical demand for cigarettes across a range of increasing prices.

Kirby Delay Discounting Task
- Measures rate at which subjective value of money declines with time (log).

Bivariate analyses were conducted to determine which variables are associated with urban or rural status using t-tests for continuous variables and chi-square tests for categorical variables. Those variables that are significantly associated with antepartum quit attempts at the bivariate level were included in the regression modeling detailed below.

Outcome analyses stepwise logistic regression predicting antepartum quit attempts will be conducted using participant characteristics that differed significantly in the bivariate analyses including the CPT demand indices.

OUTCOMES

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Point Estimate</th>
<th>OR CI (95%)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-0.067</td>
<td>0.935 [0.88-0.99]</td>
<td>0.0187</td>
</tr>
<tr>
<td>Married</td>
<td>-0.886</td>
<td>Reference</td>
<td>0.420</td>
</tr>
<tr>
<td>Smoking menthol cigarettes</td>
<td>0.745</td>
<td>Reference</td>
<td>2.107</td>
</tr>
</tbody>
</table>

DISCUSSION

- Bivariate analyses indicate that relative to urban areas, rural-dwelling pregnant smokers were older, less likely to smoke menthol cigarettes, smoking more cigarettes per day, were more likely to be non-Hispanic white, and were more likely to be married (all p < 0.05).
- Variables that remained significantly associated with rural-dwelling pregnant smokers in the stepwise regression model were older age, more likely to be married, and less likely to smoke menthol cigarettes (all p < 0.05).

Several sociodemographic and smoking history variables, excluding cigarettes per day and time to first cigarette after waking, differ among women as a function of urban/rural status, and may contribute to smoking disparities between pregnant women living in urban versus rural areas.

Behavioral economic measures of the reinforcing value of cigarettes, however, do not appear to be influenced by urban or rural status.

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