Smokers who use Internet and Smokers who Don’t: *Data from the 2003 and 2007 Health Information National Trends Survey (HINTS)*

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Smokers and the Internet

- Internet has changed the way information about smoking cessation is disseminated

- Web-assisted Tobacco Interventions
  - Greater reach
  - Greater access
  - Public *ehealth* strategy

- Digital Divide
HINTS 2003 analysis revealed economic and health disparities between smokers who did/did not report Internet use

- Non Internet-connected smokers
  - Older
  - Lower income
  - > Psychological Distress
  - > Barriers to Healthcare

Stoddard & Augustson (2006). Nicotine Tob Res, 8, S77-S85
Study Objectives: HINTS 2007

- Update prevalence and correlates of Internet use among smokers
- Assess changes in smokers’ use of Internet from 2003 to 2007
  - Has prevalence of smokers online changed since 2003?
  - Are characteristics of smokers who do/do not use internet in 2007 same/different from 2003?
Study Variables: HINTS 2003 & 2007

- Internet Use
  - “Do you ever go online to access the Internet or World Wide Web, or to send or receive e-mail?”

- Smoking Status
  - “Have you smoked at least 100 cigarettes in your entire life?”
  - “On how many of the past 30 days did you smoke a cigarette?”
Study Variables: HINTS 2003 & 2007

- Age
- Gender
- Race/Ethnicity
- Education
- Income
- Employment Status
- Health Insurance
- Health Status
- Cigarettes per day
- Intent to Quit
- Psychological Distress
- Trust health info on the internet
Method of Analysis

- Cross-sectional analyses
  - Identify study variables associated with smokers’ use of Internet (Chi-Square; Logistic Regression)

- Trend analyses
  - Estimate changes in the odds of Internet use between 2003 and 2007 (Logistic Regression)
  - Determine whether study variables associated with internet use are consistent over time (Chi-Square)
HINTS 2007 Update

Prevalence and correlates of Internet use among smokers
Internet Use: HINTS 2007

- Internet users: n=798
- Non-Internet users: n=458
Sociodemographics: HINTS 2007

HINTS Smokers

<table>
<thead>
<tr>
<th>Category</th>
<th>Percent of Smokers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>52</td>
</tr>
<tr>
<td>Age 45+</td>
<td>43</td>
</tr>
<tr>
<td>Non-White</td>
<td>28</td>
</tr>
<tr>
<td>$50,000+</td>
<td>36</td>
</tr>
<tr>
<td>College</td>
<td>55</td>
</tr>
<tr>
<td>Employed</td>
<td>60</td>
</tr>
</tbody>
</table>
Sociodemographics: HINTS 2007

The diagram shows the percentage of smokers in various sociodemographic categories for Internet and Non-Internet users. The categories include:

- Male
- Age 45+
- Non-White
- $50,000+
- College
- Employed

The data indicates higher percentages of smokers among Internet users compared to Non-Internet users in all categories except for the age 45+ category, where there is a similar percentage of smokers in both groups.
Health/Behavior Variables: HINTS 2007

- Health Ins
- Fair/Poor
- Distress
- Trust
- 20+ cpd
- Plan to Quit

% of Smokers

Internet
Non-Internet

(ns)
## Predictors of Non-Internet Use: HINTS 2007

<table>
<thead>
<tr>
<th>Variable</th>
<th>OR</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong> (Ref = 45+)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-34</td>
<td>.23</td>
<td>.12-.45</td>
</tr>
<tr>
<td>35-39</td>
<td>.50</td>
<td>.17-1.44</td>
</tr>
<tr>
<td>40-44</td>
<td>.59</td>
<td>.26-1.30</td>
</tr>
<tr>
<td><strong>Gender</strong> (Ref = Female)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>2.35</td>
<td>1.43-3.85</td>
</tr>
<tr>
<td><strong>Education</strong> (Ref = College)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HS or less</td>
<td>4.11</td>
<td>2.59-6.54</td>
</tr>
<tr>
<td><strong>Income</strong> (Ref = $50,000+)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;$50,000/yr</td>
<td>3.72</td>
<td>2.02-6.86</td>
</tr>
</tbody>
</table>

Model included age, gender, race/ethnicity, education, employment status, income, self-reported health status, insurance, trust info online, and interest in quitting.
HINTS  Trends 2003-2007

Assess changes in smokers’ use of internet from 2003 to 2007
Internet Use: HINTS 2003 & 2007

Percent of Smokers

- 2003: 728 Internet users, 516 non-Internet users
- 2007: 798 Internet users, 458 non-Internet users

Data sources: National Cancer Institute, Division of Cancer Control & Population Sciences
<table>
<thead>
<tr>
<th>Variable</th>
<th>OR</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Survey Year (Ref=2007)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>1.52</td>
<td>1.14-2.03</td>
</tr>
<tr>
<td><strong>Age (Ref =45+)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-34</td>
<td>.21</td>
<td>.14-.31</td>
</tr>
<tr>
<td>35-39</td>
<td>.34</td>
<td>.20-.56</td>
</tr>
<tr>
<td>40-44</td>
<td>.60</td>
<td>.40-.91</td>
</tr>
<tr>
<td><strong>Gender (Ref=Female)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1.58</td>
<td>1.18-2.11</td>
</tr>
<tr>
<td><strong>Education (Ref=College)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HS or less</td>
<td>4.64</td>
<td>3.41-6.31</td>
</tr>
<tr>
<td><strong>Income (Ref=$50,000+)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;$50,000/yr</td>
<td>4.24</td>
<td>2.94-6.11</td>
</tr>
<tr>
<td><strong>Health Status (Ref=Fair/Poor)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excellent/Good</td>
<td>.69</td>
<td>.50-.95</td>
</tr>
<tr>
<td><strong>Trust Info Online (Ref=No)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>.58</td>
<td>.38-.89</td>
</tr>
<tr>
<td><strong>Interest in Quitting (Ref=No)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>.71</td>
<td>.53-.96</td>
</tr>
</tbody>
</table>

Model included survey year, age, gender, race/ethnicity, education, employment status, income, self-reported health status, insurance, psychological distress, trust info online, and interest in quitting.
Characteristics of Non-Internet Users
2003 v. 2007

Percent of Smokers

- Male
- College
- >$50,000
- Non-White
- Fair/poor
- Trust

2003
2007

0 10 20 30 40 50 60 70
Characteristics of Internet Users
2003 v. 2007
Summary

- Economic and health disparities between smokers who did/did not report Internet use persisted in HINTS 2007
- Some encouraging indicators of a narrowing digital divide
- There remain significant limitations to the use of the Internet to reach and engage subpopulations of smokers
Next Steps

- Formal tests of interactions between survey year and study variables
- Compare smokers’ internet use patterns to internet use patterns in the general population
- Manuscript development
Acknowledgments

- HINTS Data Collaborators
  - Erik Augustson
  - Wen-Ying Sylvia Chou
  - Rick Moser
  - Lila Finney-Rutten
  - Amy Yaroch

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Thank You

Questions & Comments