Introduction

In this study, we extend the analysis presented in a 2017 article by Mendez et al., extending the analysis period to 2019. The aim of this work is three-fold.

• First, we want to estimate the most up-to-date value for the adult cessation rate. This figure is helpful as an indicator of the country’s progress in combating the smoking epidemic and as a necessary parameter to evaluate potential future scenarios of the trajectory of smoking prevalence.

• Second, we want to assess whether the cessation rate value obtained for the most recent period is significantly above or below the expectation derived from previous periods' data.

• Third, we want to evaluate the implications of the cessation rate change for future smoking prevalence in the U.S.

Methods

• We repeated an analysis, in a 2017 article by Mendez et al., extending the period from 2014 to 2019.

• Employing National Health Interview Survey (NHIS) and National Survey on Drug Use and Health (NSDUH) data, we estimated the adult cessation rate in six-year intervals, using weighted non-linear least squares.

• We then employed a meta-regression model to test whether the cessation rate has increased beyond expectation.

• We used cessation rate estimates and smoking initiation rate estimates to project smoking prevalence in 2030 and eventual steady-state prevalence.

Results

• The annual cessation rate increased 29% using NHIS data (from 4.2% in 2008-2013 to 5.4% in 2014-2019) and 33% with NSDUH data (4.2% to 5.6%).

• The cessation rate increase accounts for 60% of a smoking prevalence decline greater than the 1990-2013 predicted trend. The remaining 40% owes to declining smoking initiation.

• With current initiation and cessation rates, smoking prevalence should fall to 8.3% in 2030 and eventually reach a steady state of 3.53%.

Results (cont.)

<table>
<thead>
<tr>
<th>Period</th>
<th>NHIS (%)</th>
<th>NSDUH (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990-1995</td>
<td>2.4 (1.5, 3.3)</td>
<td></td>
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<tr>
<td>1997-2001</td>
<td>3.4 (3.1, 3.7)</td>
<td></td>
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<tr>
<td>2002-2007</td>
<td>3.5 (2.7, 4.3)</td>
<td>3.2 (2.6, 3.8)</td>
</tr>
<tr>
<td>2008-2013</td>
<td>4.2 (3.5, 4.9)</td>
<td>4.2 (3.6, 4.8)</td>
</tr>
<tr>
<td>2014-2019</td>
<td>5.4 (3.1, 7.6)</td>
<td>5.6 (4.9, 6.3)</td>
</tr>
</tbody>
</table>

Table 1. Estimated Smoking Cessation Rate by Period and Survey, 1990-2019

Discussion

• The smoking cessation rate continued to increase during 2014-2019. NHIS and NSDUH results are practically identical.

• The larger share (60%) of the smoking prevalence decrease, beyond expectation, attributable to the increased cessation rate is encouraging since the positive health effects of cessation occur much sooner than those derived from declining initiation.