Variations in Use of Preventive Dental Services among U.S. Diabetic Adults, BRFSS 2010

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Learning Objectives

1. Describe the magnitude of dental health problems among diabetic adults in the United States
2. Describe dental health services utilization patterns among diabetic adults in the United States
3. Discuss strategies to eliminate the barriers to dental health services experienced by diabetics

Background

Healthy People 2020 Objectives
- Increase the proportion of persons with diagnosed diabetes who attend at least one annual dental exam by 10% with a baseline target of 61.2%
- Promote and support the use of preventative dental services among the diabetic population
- Diabetes may be unaware of their risk level for oral complications such as dental caries, dry mouth, and periodontitis
- Oral complications can be temporarily related to diabetes
- Glycemic levels and nutritional intake and absorption need monitoring
- Preventive care can reduce oral complications, lead to the improvement of glucose metabolism and nutritional intake
Study Objectives
Examine variations in use of dental services, and identify systemic barriers to the use of dental health services by American diabetic adults

Variables of Interest

Dependent
• Dental cleaning in the past 12 months

Independent
• Socio-demographic variables
  • Age, gender, race and ethnicity, marital status
• Predisposing variables
  • Body mass index, alcohol consumption, smoking cigarettes, and general health status
• Enabling Variables
  • Employment, insurance, income

Methods

Data
• 2010 Behavioral Risk Factor Surveillance System

Study Population
• N= 57,480
• Diabetic men & women
• Age 18+

Statistics
• Frequency distributions
• Cross tabulations
• Multiple logistic regression
**Descriptive Results**

<table>
<thead>
<tr>
<th>Variable</th>
<th>No. Observations</th>
<th>Weighted Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 35 years</td>
<td>972</td>
<td>5.21 %</td>
</tr>
<tr>
<td>35–49 years</td>
<td>5,610</td>
<td>17.6 %</td>
</tr>
<tr>
<td>50–64 years</td>
<td>20,867</td>
<td>38.1 %</td>
</tr>
<tr>
<td>&gt; 64 years</td>
<td>29,592</td>
<td>38.4 %</td>
</tr>
<tr>
<td>Missing</td>
<td>439</td>
<td>0.66 %</td>
</tr>
<tr>
<td><strong>Race / Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>40,840</td>
<td>62.1 %</td>
</tr>
<tr>
<td>Black/African American</td>
<td>7,286</td>
<td>14.8 %</td>
</tr>
<tr>
<td>Hispanic</td>
<td>4,849</td>
<td>14.9 %</td>
</tr>
<tr>
<td>Others</td>
<td>4,505</td>
<td>8.2 %</td>
</tr>
</tbody>
</table>

**Teeth Cleaning in the Last 12 Months**

- 57.9% Had Teeth Cleaned
- 42.1% Did Not Have Teeth Cleaned

**Results**

**Significant predictors of dental services utilization ($p \leq 0.001$):**
- Education (completion of high school and/or college)
- Race/Ethnicity (Black/African American)
- Income
- Unemployment
- Overweight
- Smoking cigarettes
- Insurance coverage
- General health status
- Lack of exercise

**Significant predictors of dental services utilization ($p \leq 0.01$):**
- Age (>64 years)
- Gender
- Marital status
Dental Services Use by Income

<table>
<thead>
<tr>
<th>Variable</th>
<th>Dental Cleaning in past 12 months</th>
<th>Last Dental Visit in past 12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. Obs.</td>
<td>Weighted %</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>less than $20,000</td>
<td>4,783</td>
<td>7.78 %</td>
</tr>
<tr>
<td>$20,000 - $34,999</td>
<td>6,030</td>
<td>9.37 %</td>
</tr>
<tr>
<td>$35,000 - $49,999</td>
<td>8,509</td>
<td>15.4 %</td>
</tr>
<tr>
<td>$50,000 and more</td>
<td>5,395</td>
<td>12.8 %</td>
</tr>
<tr>
<td>Other (missing)</td>
<td>4,147</td>
<td>6.74 %</td>
</tr>
</tbody>
</table>

*** p < 0.001

Distribution of Dental Services Use by Gender

<table>
<thead>
<tr>
<th></th>
<th>Females</th>
<th>Males</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. Obs.</td>
<td>Weighted Percent</td>
</tr>
<tr>
<td>Last Dental Visit in past 12 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes (12 months or less)</td>
<td>19,077</td>
<td>28.3 %</td>
</tr>
<tr>
<td>No</td>
<td>15,116</td>
<td>21.3 %</td>
</tr>
<tr>
<td>Dental Cleaning in past 12 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>16,653</td>
<td>25.1 %</td>
</tr>
<tr>
<td>No</td>
<td>17,540</td>
<td>24.4 %</td>
</tr>
</tbody>
</table>

*** p < 0.001

Dental Services Use by Education Level

<table>
<thead>
<tr>
<th>Education Level</th>
<th>No.</th>
<th>Weighted %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than High School</td>
<td>5.0%</td>
<td></td>
</tr>
<tr>
<td>High School Education</td>
<td>39.3%</td>
<td></td>
</tr>
<tr>
<td>College and Above</td>
<td>18.1%</td>
<td></td>
</tr>
<tr>
<td>Refused/Missing</td>
<td>0.1%</td>
<td></td>
</tr>
</tbody>
</table>

*** p < 0.001
Odds Ratio of Dental Services Use by Educational Level

- Less than High School (Ref)
- High School Graduate
- College and Above
- Refused/Missing

Significance level:
* p<0.05  ** p<0.001  *** p<0.0001

Odds Ratio of Dental Services Use by Income

- Less than $20,000 (Ref)
- $20,000 - $34,999
- $35,000 - $49,999
- $50,000 and more
- Other (missing)

Significance level:
* p<0.05  ** p<0.001  *** p<0.0001

Odds Ratio of Dental Services Use by Insurance Status

- Insured (Ref)
- Not Insured

Significance level:
* p<0.05  ** p<0.001  *** p<0.0001
Conclusion

Use of dental health services among diabetics appears to be associated with several sociodemographic, predisposing, and enabling factors.

References


