

# Broken Smiles:

## Oral Health and Employment

### Introduction

**The intent of the Patient Protection and Affordable Care Act (ACA) of 2010 is to increase access to health care services so that all Americans may experience good health.** The ACA however falls short of this goal, as dental coverage is not a requirement under the law<sup>1</sup> thereby perpetuating existing gaps. In 2009, the number of Americans who lacked dental insurance was 2.7 to 3 times greater than those lacking medical insurance, a growing trend compared to 2.5 times in 2003.<sup>2,3</sup> Medicaid expansion under the ACA increases the categories of low-income persons eligible for medical coverage, but dental coverage remains an optional benefit, leaving behind many Americans suffering with untreated oral disease.

Untreated oral diseases can cause considerable pain and suffering, dietary restrictions, poorer quality of life, lower well-being, aesthetic dissatisfaction<sup>4-8</sup>, and reduced social engagement for individuals<sup>9</sup>. The impact of untreated oral disease however, extends well beyond the individual. Dental infection, inflammation and disease contribute to an array of social ills, some of which include the inappropriate and overuse of the emergency department,<sup>10,11</sup> inability of military forces to deploy<sup>12</sup>, loss of productivity in the workplace,<sup>13</sup> and under-employment and unemployment.<sup>14-16</sup>

Untreated oral diseases can impact employment in several ways. First, it may increase absenteeism in the workplace not only from pain, but also from lowered self esteem, and sensitivity to personal appearance.<sup>17,18</sup> Second, if long term, such workplace absenteeism may be seen by employers as a signal for low productivity and deteriorated skills.<sup>19</sup> Third, general physical appearance has been demonstrated as an important factor affecting the employability of job applicants.<sup>19,20</sup> Fourth, individuals with noticeable untreated oral disease may experience limited social and employment mobility as well as lower employment wages due to their appearance.<sup>21</sup> Finally, all of these unfavorable aesthetic-employment related conditions may adversely affect the total economic strength of the state—a costly consequence of untreated oral disease.<sup>19</sup>

### Methods

**Data from the 2011-2012 Continuous National Health and Nutritional Examination Survey (NHANES) were used to estimate the impact of noticeable untreated dental disease on employment.**<sup>22</sup> The analysis in this brief is based on the 3,722 participants aged 21 through 64 from the 9,756 NHANES participants who completed a dental examination.

## Impact of Untreated Dental Disease on Aesthetics and Employment



before restorative care



after restorative care

### Costs to society

- Impact on individual
- Impact on society
- Economic impact

### Return on investment

- Economic strength and stability
- Oral health equity
- Greater employability

Using NHANES tooth count and surface condition data from the upper and lower permanent front teeth, researchers developed an Oral Health Aesthetic Index (OHA1) assigning an aesthetic score to each of the subsample participants. It ranged from 0 (completely disfigured) to 100 (perfect appearance). Researchers then assessed the NHANES employment status of the subsample participants by their OHA1 score, adjusting for age, race, gender, years of education, and single parent household status.<sup>23</sup>

## Results

**The analysis revealed that nearly 70% of the subsample population was employed, working for pay on average ( $\pm$  standard deviation) 39.9 ( $\pm 15.7$ ) hours per week.** The average completed years of education were 13.9 years ( $\pm 2.7$ ) with an average household monthly income of \$4,752 ( $\pm 3,650$ ). Fifty-one

percent of the sample were female, 64% white, and 70% had medical insurance, including 7% who had Medicaid as the primary or secondary insurance.

Of the study population, 59% had visited a dentist within one year prior to the exam. Only 1.4% had never been to a dentist. Of those who did not seek dental services 12 months prior to the exam, 19.8% needed dental services but reported that they were not able to receive the needed care. Specifically, 81.6% reported that they could not afford the cost, 18.0% stated that insurance did not cover the needed treatment, 7.4% were afraid of dentists, 9.7% were not able to take time from work to get the needed treatment, and 1.8% expected the dental problem to resolve itself without visiting a dentist. Other reasons for not visiting a dentist include lack of willingness to pay the extra fee (6.9%), providers' availability concerning both location and time (4.7%), and other unspecified reasons (6.4%). Researchers found a statistically significant difference between those who needed dental care but could not receive it varied by insurance type: only 29.6% of those with private medical insurance stated that they needed dental service but couldn't get it, compared to 70.4% of those who reportedly had public insurance or who were not insured ( $p < 0.001$ ).

The overall OHA1 average score was 91.7 ( $\pm 14.7$ ). The average OHA1 was 93.4 ( $\pm 11.7$ ) for those with private medical insurance, 90.7 ( $\pm 16.3$ ) for the uninsured, and 85.0 ( $\pm 20.9$ ) for those with Medicaid as main or secondary insurance.

## Conclusions

**Empirical data were used to examine the impact of untreated dental disease and oral aesthetics on employment.** The literature on applicant selection helped assess employers' choices among job candidates. Access to employment was determined by applicants' observable characteristics, or signals, used by employers to help them rate promising job applicants, and determine their value and fit to the job.<sup>25, 26</sup> These signals include age, gender, race, immigration status, education, appearance, good health, and long-term unemployment. While age, gender, and race are unchangeable characteristics, other characteristics such as appearance, can be improved to meet employers' expectations.<sup>19</sup>

Results showed that, for the sampled population of working age, 71.5% [CI: 67.9%-75.0%] were employed. This number is very close to the national rate for the year 2012 of, 71.8%, which further validates the final model used in this study.<sup>27</sup> Holding other variables constant, increasing the OHAI score by 5 points, from 91.67 (the current average) to 96.67 increases the probability of being employed by 1.1 percentage points to 72.3%.

To understand better the impact of the OHAI, that is, the relevance of this score on employment, consider a 42 year-old white female, who is a single mom, and has 14 years of education. Using the same model, if she has Medicaid coverage, her expected OHAI would be 87.7 and the probability of her being employed would be 65.5% [CI: 51.2%-77.9%]. If she has private dental insurance, her expected OHAI would be 93.4 and her probability of employment would be 66.8% [CI: 51.9%-78.9%], 2 percentage points higher.

## Policy Implications

**These findings have important policy implications. They suggest that improvement in access to dental care for adults may reduce the prevalence of untreated dental disease, thereby improving the employability of job applicants and supporting the economic strength of communities.**

Federal and State policy makers should consider the return on investment to funding an adult dental benefit in Medicaid. Such a benefit would not only support individual health and well-being among America's most vulnerable adults, but could also improve the employment status and socio-economic strength of communities and states.

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