

# More Than Just Brushing

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## Background

Identifying social determinants of health is a relatively recent phenomenon in healthcare and is a radically different approach than looking at traditional biological causes of illness. Although determining traditional causations is key to advancing our medical knowledge, advances in this area tend to require substantial time, research and development; and the associated costs. Conversely, identifying and targeting social factors is a more cost-effective method of reducing illness, while having the potential to be implemented in a shorter time span due to the lack of clinical trials. By preventing illness through the study of the indirect causes of illness, the potential exists to increase quality of life and overall health, while reducing illness and cost.

Existing research indicates that a decline in oral health can result in several related issues, including lower self-esteem and a higher risk of iron deficiency in young children (Sinton and Winger). Furthermore, research is clear that social factors impact the oral health of children, both in terms of prevention and treatment. In particular, income and access to dental insurance are likely to play a role (Edelstein), possibly along with cultural and educational factors- although the role of each individual factor varies between existing studies. Of note, there is no existing literature directly pertaining to Brant County, nor any census based studies. As public health policies can vary widely between jurisdictions, a significant potential area of research exists in Brant County.

### **Purpose:**

To determine the effect that a variety of demographic factors (including income, education, and housing security) have on the oral health in kindergarten students in Brant County.

### **Hypothesis:**

If social risk factors increase, then the likelihood of decay will increase.

### **Procedure**

- Calibration training of the screening team was carried out by Health Canada.
- A Brant County Health Unit oral health screening team (consisting of one registered dental hygienist and one dental assistant) visited each school during the time period. Every available senior kindergarten student was individually screened and recorded on an identical, individual survey.
- The required survey results were requested from the Brant County Health Unit and entered into a database using EpiData.
- The oral health data was converted from postal code to census dissemination area using Statistical Package for the Social Sciences (SPSS) and merged with 2006 census data.
- Several dental indices were then recoded from this data set using SPSS.
- One-variable statistics were recorded from the data set to determine baselines.
- The combined data was tested for any correlations significant at the 0.05 level between oral health status and demographic information.
- Relatively strong correlations were then analysed using an ANOVA test to look for overall significance.

- Relationships identified as being significant at the 0.05 level were then analysed using a Tukey post-hoc test to find specific differences between oral health status groups.
- Dental indices were then graphed with significant social determinants.

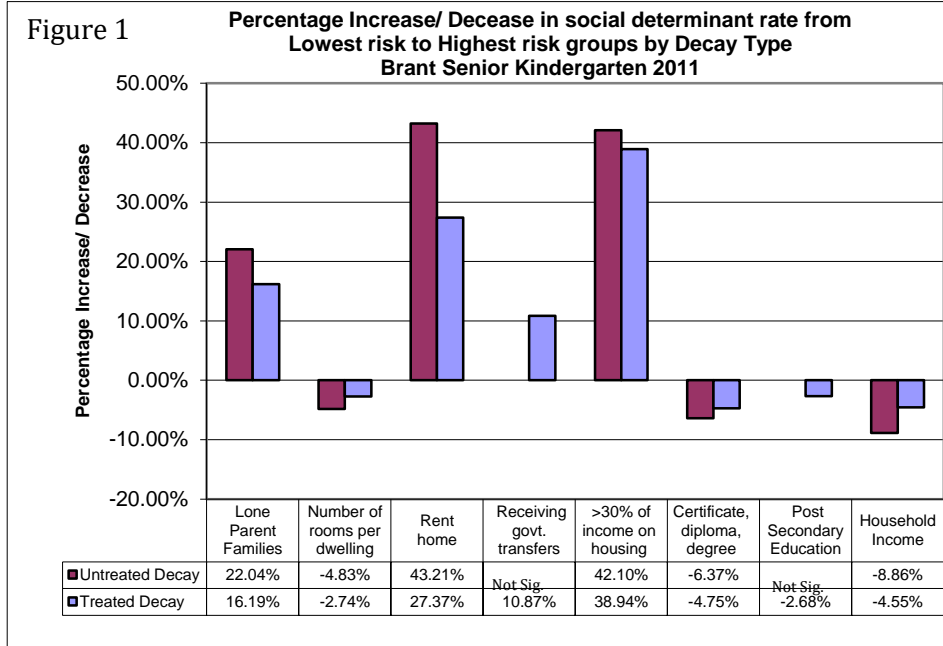
## **Results**

The results supported the original hypothesis. A clear trend was visible between social factors and oral health, with higher risk social factors correlating with reduced oral health scores. This suggests that social factors impact the oral health of kindergarten students.

Several other trends were observed. A strong relationship was observed within the housing related demographics. Students with high decay rates were significantly more likely to come from families spending more than 30% of their gross income on housing. Furthermore, high decay groups exhibited higher rates of renting a home. Together, these results suggest that housing stresses are a significant contributor to decay. This trend was stronger than the relationship with income, suggesting that it is not entirely attributable to common-cause. Conversely, although the level of education of parents had some impact on overall decay, it was not as significant as other factors.

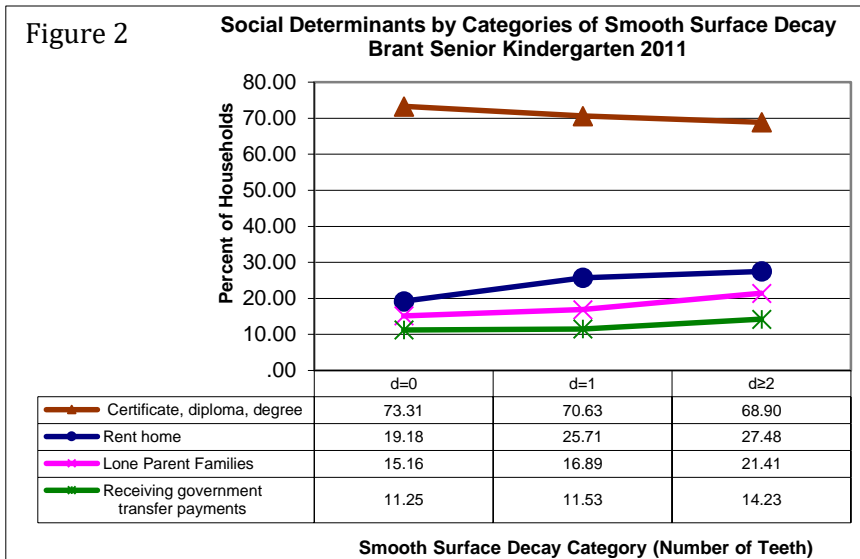
Smooth surface decay rates presented a unique opportunity for study. Smooth surface decay is largely preventable with regular oral hygiene, and is therefore an excellent indicator of preventative care. The groups with the highest rates of smooth surface decay tended to have higher rates of lone parent families, suggesting that family stresses may correlate with reduced preventative care.

Figure 1 demonstrates the percentage change in the rate of the social determinant between the lowest and highest decay group, excluding differences not



significant at the 0.05. An important finding relates to the impact of dental coverage. In particular, the percentage of participants receiving government transfers provides proxy for dental insurance, as most government transfer programs include a dental coverage component for children.

Increases in the rate of participants receiving government transfer payments should result in equal or greater rates of coverage. Therefore, differences are a result of



non-coverage related determinants. The increase in the percentage receiving government transfers demonstrates that access to coverage is not the sole contributor to oral health, although its smaller increase suggests a role is played by coverage.

### **Applications:**

1. That as a result of the relationship between housing security and decay, a higher priority is given to areas of the city showing high rates of housing related demographic risk factors.
2. That further investigation be undertaken to determine a more qualitative understanding of the relationship between housing and dental health.
3. That resources continue to be used, with a focus on lone parent families and families with less education, to reduce the overall and demographic specific rates of surface decay, and increase overall preventative care.
4. To continue to study socio-economic effects on oral health in a larger number of ages.

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