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Oral Hygiene Habits Among Students With Regular Access to Dental Care, High Self Perceived Oral Health Education, and Awareness of the Consequences Associated With Inadequate Oral Hygiene.

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ABSTRACT

Proper oral hygiene is essential to preserving oral and overall health. However, many middle and high school students fail to follow oral hygiene recommendations. While previous research has examined the relationship between socioeconomic background and oral hygiene behaviors, less attention has been given to characterizing the oral hygiene habits of those with regular access to dental care, high self perceived oral health education, and knowledge of the consequences associated with not adhering to general oral hygiene recommendations. The purpose of this study was to characterize the oral hygiene practices of students who reported regular access to dental care and high self perceived oral health education through a voluntary anonymous survey. To collect data, a survey was administered to 80 students in grades 5 through 12 between the ages of 11 and 18. In this survey participants were asked questions about their oral hygiene habits, awareness of consequences associated with inadequate oral hygiene, perceived barriers to following recommended oral hygiene behaviors, and access to dental care.

All respondents reported visiting their dentist at least once per year and 83.8% reported visiting at least twice. Most participants reported brushing their teeth twice a day (91.3%). However, only 45.1% of respondents reported brushing their teeth for the standard recommendation of at least 2 minutes, and only 41.2% of respondents reported flossing daily. Although 86.3% of respondents reported being at least mostly educated about oral health and all participants identified at least one consequence of poor oral hygiene, only 21.3% adhered to all recommended oral hygiene practices. Within this sample, adherence to recommended oral hygiene behaviors varied despite the fact that participants reported having regular dental care access, awareness of consequences associated with inadequate oral hygiene practices, and high self perceived oral health education.

INTRODUCTION

Oral health is an essential aspect of health and wellbeing and is tied to our ability to perform tasks such as eating and speaking[1]. Research in public health has consistently shown that oral health is strongly

influenced by daily oral hygiene practices[2]. Poor oral hygiene in teenage years is associated with increased risk for long term issues such as tooth decay, gum disease, and tooth loss[4]. It has also been reported that cavities are common in adolescents between the ages of 12 and 19 despite them being largely preventable by adhering to recommended oral hygiene practices [3].

The general recommendations, as stated by the American Dental Association, for maintaining proper oral hygiene include brushing teeth twice daily for at least two minutes, flossing or cleaning between teeth once daily, and visiting a dentist regularly [5]. These recommendations were used as the criteria in this study and may not apply identically to every individual. The intention behind these recommendations is to reduce the presence of oral diseases such as periodontal disease and dental caries[1]. Furthermore, these recommendations are also given to reduce missed school hours due to emergency dental care treatment [1].

Despite widespread oral hygiene recommendations, studies have shown that many adolescents remain noncompliant with oral hygiene standards [6]. In particular, previous research has shown that adolescents from lower socioeconomic backgrounds and those with limited access to dental care are less likely to follow these standard recommendations[6]. Much of existing research is focused on the oral hygiene habits of adolescents with lower socioeconomic backgrounds. Contrastingly, less is known about the oral hygiene habits of adolescents who have regular access to dental care and perceive themselves to be well educated about oral health and the consequences associated with not adhering to recommended oral hygiene practices. Understanding this population better may help to determine whether oral hygiene practices are consistently adhered to among students who report having regular access to dental care, knowledge of the consequences associated with not following general oral health guidelines, and substantial oral health education.

The purpose of this study was to characterize the oral hygiene practices of students who reported regular access to dental care and high self perceived oral health education through a voluntary anonymous survey. This survey evaluated behaviors such as flossing, tooth brushing, frequency of dentist visits, and self reported oral health education. It also examined participants' awareness of consequences associated with not adhering to oral hygiene recommendations. Additionally, for respondents who reported themselves as not following standard oral hygiene recommendations, this survey recorded the reason why respondents didn't follow standard recommendations.

METHODOLOGY

This study used a survey to collect and examine data about the oral hygiene habits of students with regular access to dental care, high self perceived oral health education, and knowledge of the consequences associated with not adhering to general oral hygiene recommendations. Responses were summarized using descriptive statistics, including frequencies and percentages, and presented graphically

through pie charts, and bar charts. Information was obtained through an anonymous online Google Forms survey.

The survey was administered to 80 students in grades 5 through 12 between the ages of 11 and 18. Participants were recruited through convenience sampling and were primarily students of schools in Fairfield County, a relatively affluent region of Connecticut. For the purposes of this study, regular access to dental care was defined as being able to visit the dentist at least once per year. By this definition, all participants reported regular access to dental care. Collection of data occurred between 5/18/26 and 7/6/26.

Participation in this survey was voluntary and anonymous. Additionally, no personally identifying information about respondents was collected. Informed consent was obtained by all participants. For younger participants, the survey was distributed through parents who determined whether their child would participate. Older high school students completed the anonymous survey voluntarily after reviewing the study information.

The survey consisted of multiple choice questions about how often participants floss, brush their teeth, and visit the dentist. It also asked participants to identify consequences associated with not adhering to general oral health recommendations, how long they brush their teeth for, and their perceived level of oral health education. For respondents who reported not brushing their teeth or flossing according to the general standards, they were asked to explain why. Furthermore, the survey collected demographic information such as the age and school attended by each participant.

RESULTS

There were 80 survey respondents in total between grades 5 through 12 with the majority of survey respondents, 62.5%, being high school students.

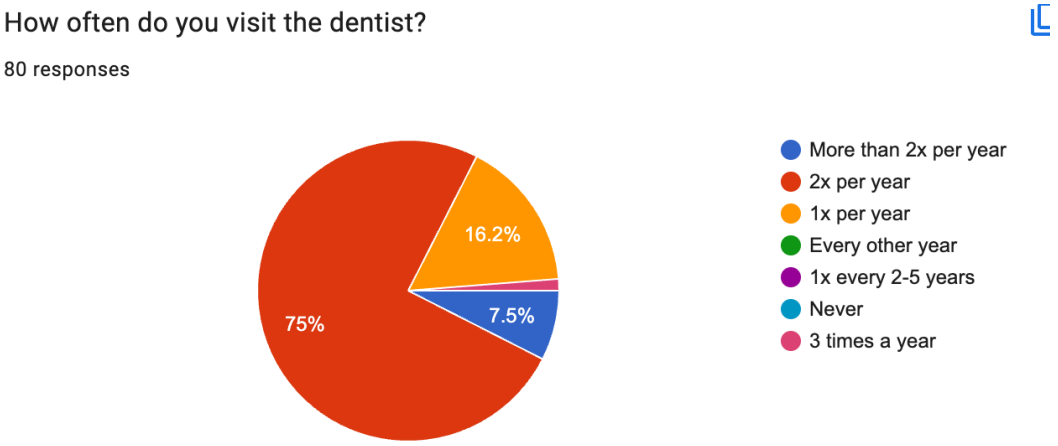


Figure 1: Percentage of respondents by frequency of dentist visits

100% of respondents reported that they visit their dentist at least once a year. Additionally, 83.8% reported seeing their dentist at least twice a year (Figure 1).

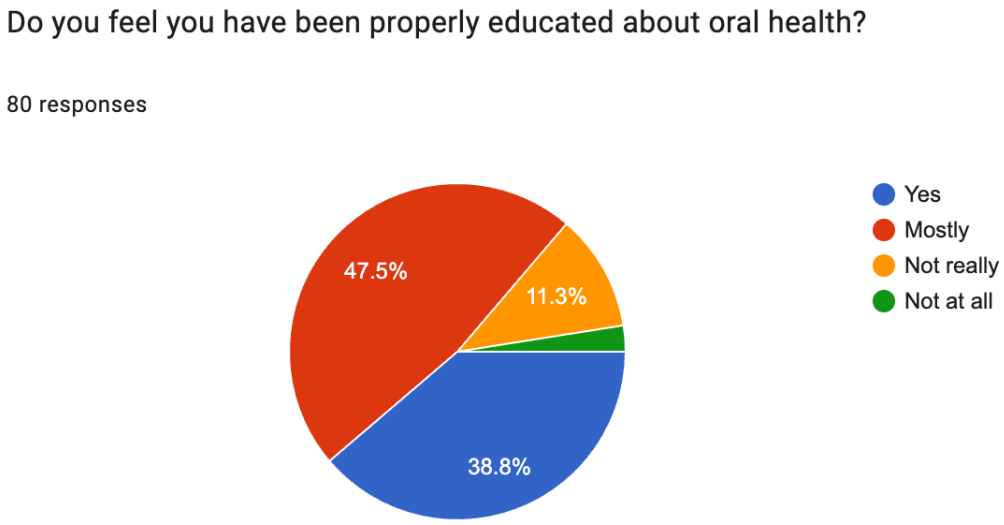


Figure 2: Percentage of respondents by self evaluation of oral health education.

Nearly all respondents evaluated themselves as being at least mostly educated about oral health. Only 11.3% of respondents reported being not really educated about oral health and 2.5% reported being not educated about oral health at all (Figure 2). Only a small percentage of respondents identified themselves as having limited education about oral health.

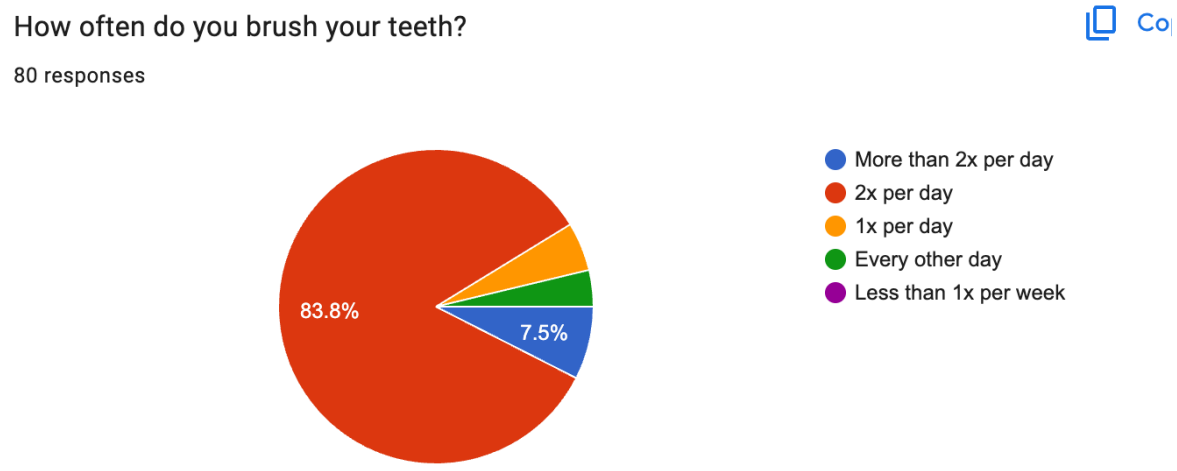


Figure 3: Percentage of respondents by frequency of tooth brushing
Most participants reported brushing their teeth according to the generally applicable recommendation of twice per day. Only 8.7% reported brushing their teeth less than twice per day (Figure 3).

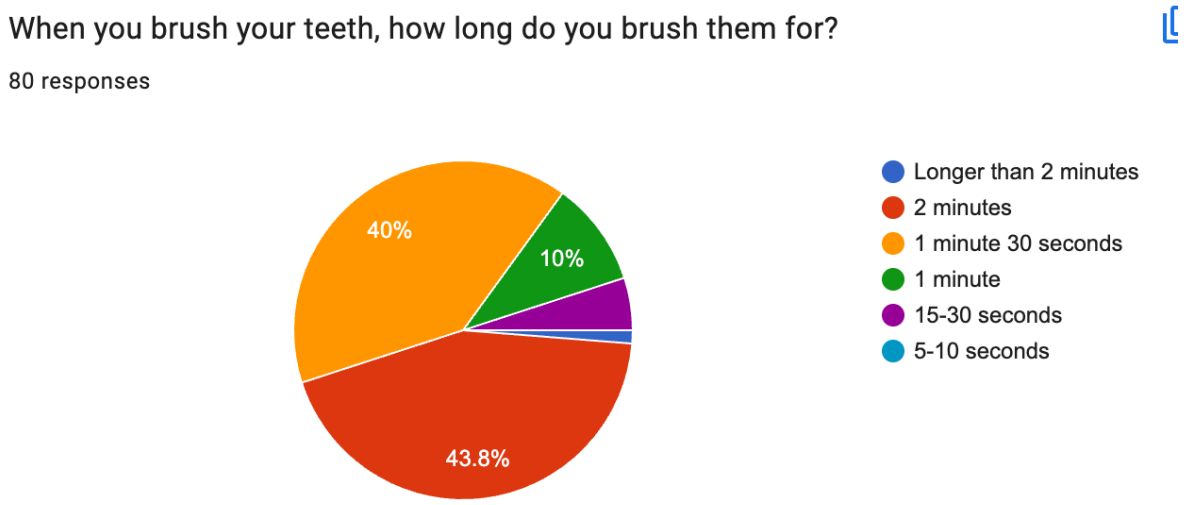


Figure 4: Percentage of respondents by length of tooth brushing
45.1% respondents reported brushing their teeth for the generally recommended length of at least 2 minutes. However, only 15% reported brushing their teeth for under 1 minute (Figure 4).

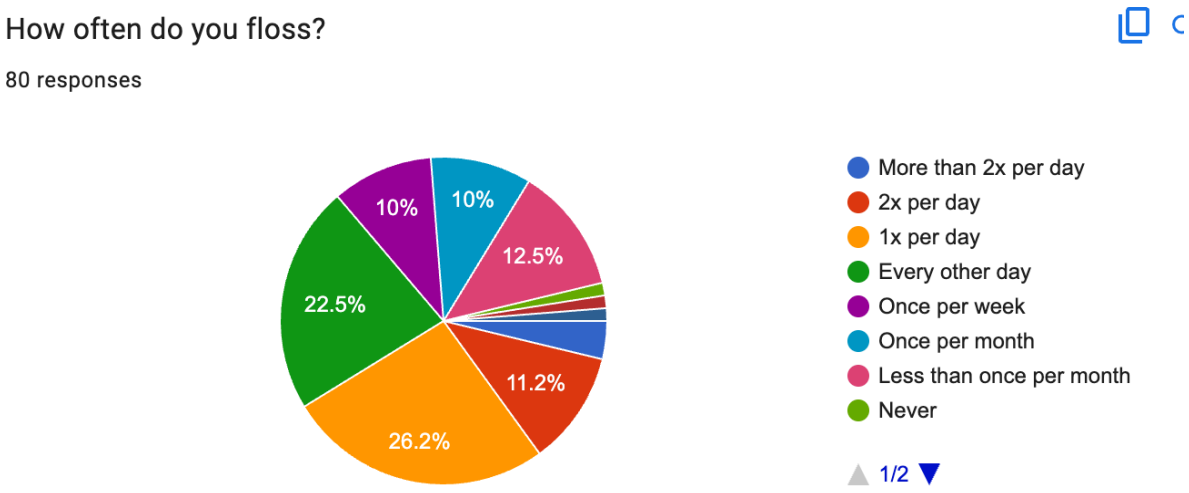


Figure 5: Percentage of respondents by frequency of flossing
Participant responses on frequency of flossing were mixed. Overall it was found that only 41.2% of respondents floss daily in accordance with the generally applicable recommendation (Figure 5).

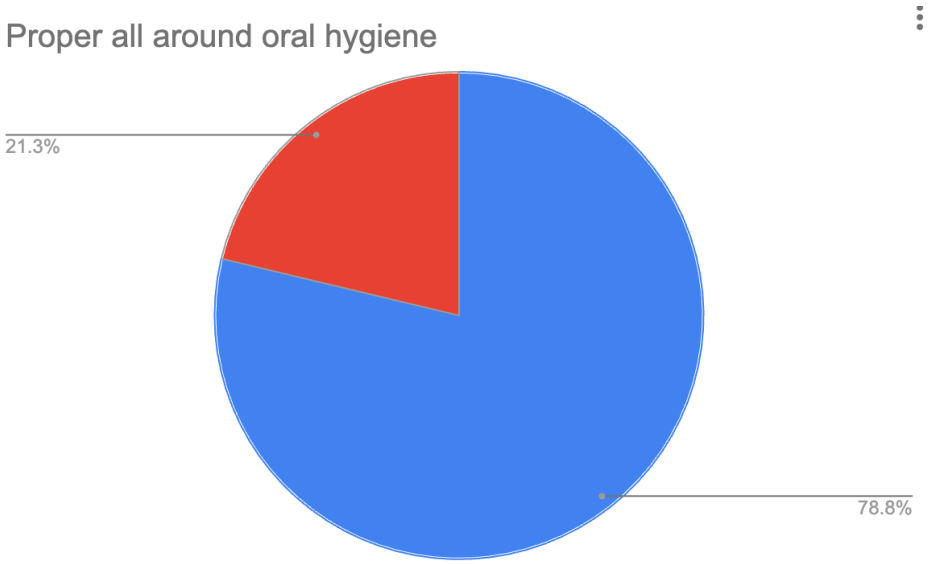


Figure 6: Percentage of respondents who adhere to all oral hygiene recommended habits

It was found that only 21.3% of respondents followed all of the general recommendations for oral health--brushing twice per day for at least two minutes, flossing or cleaning between teeth daily, and visiting the dentist regularly (Figure 6). Although individual oral hygiene recommendations were followed to a greater degree, only a small fraction of participants adhered to all recommendations simultaneously.

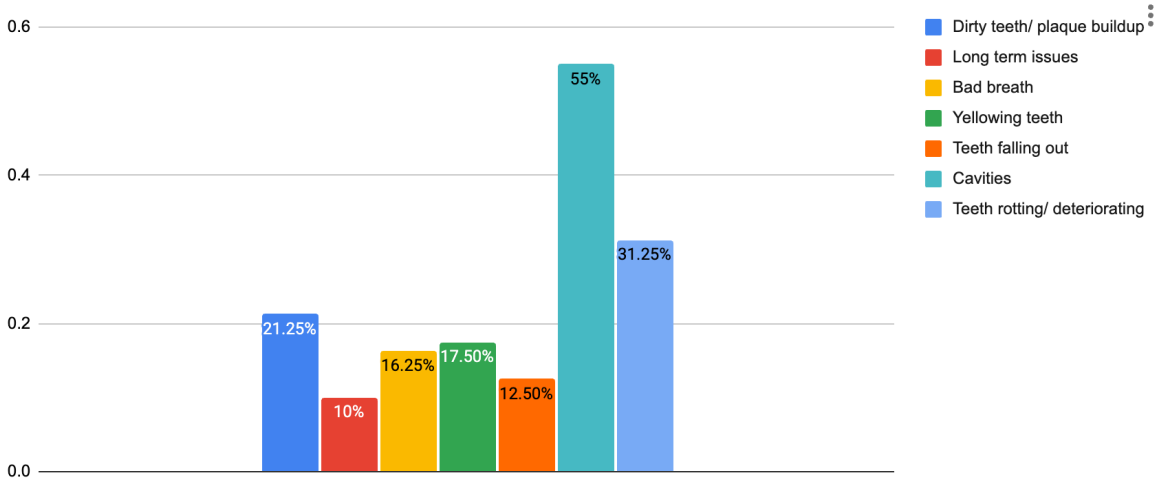


Figure 7: Negative consequences identified by respondents of not brushing teeth

All respondents were able to cite at least one negative consequence of not brushing their teeth. Respondents were able to include multiple consequences within their response. The most commonly identified negative consequences of not brushing teeth were cavities(55%), tooth decay(31.25%), plaque buildup(21.25%), yellow teeth(17.5%), bad breath(16.25%), tooth loss(12.5%), and long term health issues such as heart problems (10%) (Figure 7).

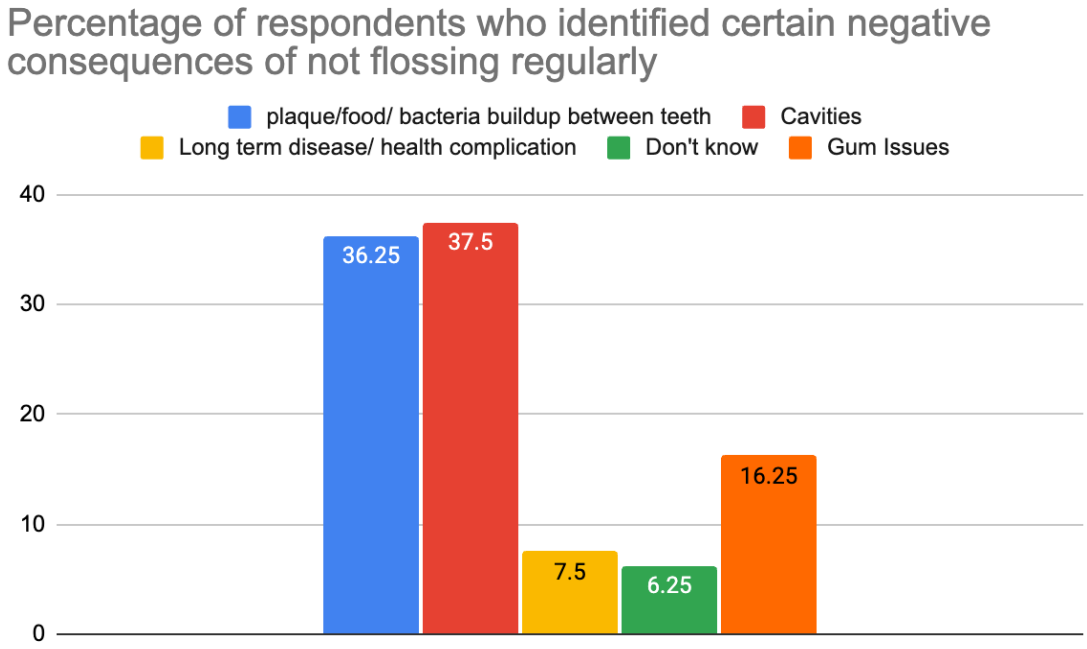


Figure 8: Negative consequences identified by respondents of not flossing

Nearly all (93.75%) of respondents were able to identify a negative consequence of not flossing regularly. Some commonly identified consequences were plaque/food/bacteria buildup between teeth (36.25%), cavities (37.5%), gum health issues (16.25%), and diseases/ health complications (7.5%) (Figure 8). Participants were able to identify multiple consequences within their response. Although a small percent of participants were not able to identify negative consequences of not flossing, the vast majority of participants were able to.

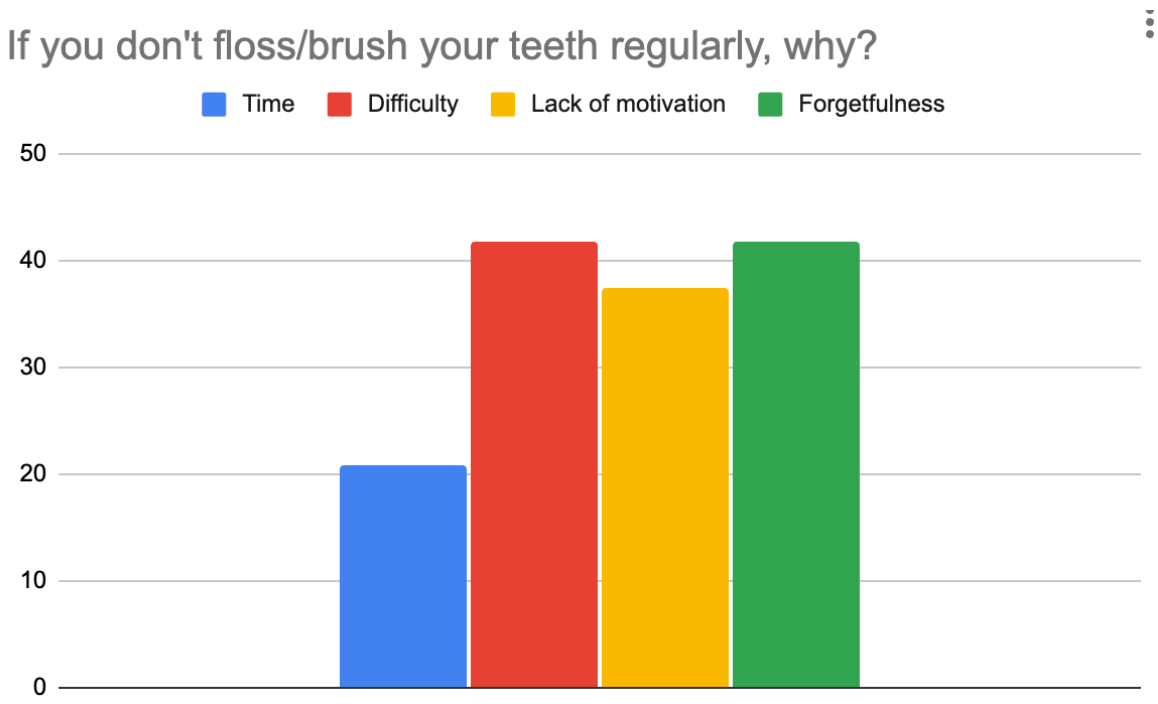


Figure 9: Reasons given by participants about why they don't brush their teeth or floss regularly

For participants who reported themselves as not flossing regularly, the reasons they gave for not regularly flossing all fell into four categories: lack of motivation, perceived difficulty, time constraints, and forgetfulness (Figure 9).

DISCUSSION

Results from this survey show that 100% of the 80 participants reported visiting a dentist at least once per year, meeting this study's definition of regular access to dental care. Also, 86.3% of respondents reported that they perceived themselves to be at least mostly well educated about oral health.

Despite having regular dental care access, high self perceived oral health education, and knowledge of consequences associated with not adhering to general oral hygiene recommendations participants didn't universally adhere to general oral hygiene recommendations. While respondents were generally compliant with recommendations for teeth brushing frequency, with 91.3% (Figure 3) adhering to the recommendation of twice per day, adherence to recommended teeth brushing duration was generally lower with less than half, 45.1%, of respondents reporting brushing their teeth for the recommended 2 minutes (Figure 4). Moreover, data about flossing revealed that only 41.2% of respondents adhered to flossing recommendations(Figure 5). The data from this survey largely aligns with existing data in that recommendations for brushing frequency are more widely adhered to than flossing recommendations [7]. While previous data has shown that low access to dental care and lower socioeconomic backgrounds are

associated with less favorable oral hygiene habits[6], the findings of this study demonstrate inconsistent adherence to recommended oral hygiene practices was present among participants who reported regular access to dental care, relatively high self perceived oral health education, and knowledge of the consequence associated with not adhering to general oral hygiene recommendations.

Additionally, data shows that 100% of respondents were able to cite at least one negative consequence for not brushing their teeth (Figure 7), 93.75% were able to identify at least one negative consequence for not flossing (Figure 8), and 86.3% reported being at least mostly educated about oral health (Figure 2). This suggests that participants in this survey perceived themselves to be relatively well educated about oral health and had fairly high knowledge of negative consequences associated with not following recommended oral hygiene practices. Despite this knowledge of the negative consequences of not maintaining proper oral hygiene, only 21.3% (Figure 6) of respondents followed all of the generally recommended oral hygiene practices assessed in this survey, including tooth brushing frequency, tooth brushing duration, and flossing frequency. This demonstrates that participants' ability to identify negative health consequences from not adhering to recommended oral hygiene practices did not necessarily correspond with proper adherence to such recommendations.

Additionally, the reported barriers to flossing in this sample were primarily behavioral and practical as opposed to barriers pertaining to accessing dental care. Among participants who reported not flossing regularly their reasons fell under the categories of forgetfulness, perceived difficulty, lack of motivation, or time constraints. This finding can be interpreted through the COM-B framework. The COM-B system suggests that capability, opportunity, and motivation are essential elements for any behavior to occur [8]. In applying this framework to the findings of this survey, perceived difficulty in flossing may relate to capability, time constraints may relate to opportunity, and lack of motivation may correspond with motivation. Since this study didn't directly measure the presence of COM-B components, these interpretations should be considered as exploratory rather than as evidence of the impact of the COM-B system on oral hygiene behaviors. However, the barriers reported among this population, that have regular dental care access and knowledge of the consequences associated with not adhering to proper oral hygiene habits, may suggest other factors contribute to inadequate oral hygiene practices among students. These factors, beyond access to dental care and awareness of oral health consequences, may be worth researching in the future.

This study was limited by several factors. One such factor was that participants were recruited through convenience sampling. This may have introduced sampling bias since it's possible that participants in this survey may differ from students not invited to participate. Another limiting factor is that although socioeconomic background wasn't measured in this study, respondents were primarily students from a relatively affluent region of Connecticut, therefore this study might not be representative of adolescents in different communities. Furthermore, because all participants in this study reported regular access to dental care, the study didn't have a comparison group of participants with limited access to care. Therefore, this study can't determine whether oral hygiene behaviors differed among these two groups. Also, oral hygiene behaviors were self reported, and therefore may have been incorrectly recalled by participants. In

addition, data from this survey may have been impacted by social desirability bias through participants reporting their behaviors as more socially favorable by their perception. Moreover, participants' reported level of oral health education is not objectively measured data and may have been impacted by social desirability bias and self reporting bias. Additionally, the number of participants, 80, was relatively low, which could limit the generalizability of this study.

CONCLUSION

This study characterized the oral hygiene practices of 5th through 12th grade students between the ages of 11 and 18 with regular access to dental care, relatively high self perceived oral health education, and awareness of consequences associated with inadequate oral hygiene practices. While most participants reported brushing their teeth twice daily, in accordance with the general oral hygiene recommendations, adherence to recommendations for flossing and teeth brushing duration was lower.

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