Knowledge of Oral Health in School Children aged 7-8 years

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ABSTRACT

Nationally an increased inequality in oral health is seen. Children coming from a lower socio-economic background, as well as children with immigrant background show a higher prevalence of caries. The reason for this can be cultural differences but also parental unawareness.

In this study, the differences in knowledge and oral health habits of children aged 7-8 are investigated. The hypothesis is that an increased education and training of oral health in primary school can help to provide a more equitable oral health in children, regardless of their background.

Three schools where chosen for this study based on their representation of different socio-economic areas. A total of 176 pupils participated in the study, where they were asked to fill out a questionnaire about their habits and knowledge of oral health. The same questionnaire was filled out at a later time after they had an educational session and illustrative teaching material was handed out to all of the pupils. The results from the first and second session were compared and analysed.

This study shows that there are big differences in children's oral habits and knowledge in between different schools depending on their socioeconomic level. Differences could also be seen depending on the children's cultural background, as children with foreign-born parents had a lower knowledge and in some aspects more lacking oral habits. It could also be concluded that education in school had a positive impact on the children’s knowledge in oral health regardless of their background.
INTRODUCTION

Oral and dental behaviour is established early in life and has a big impact on the oral health in adulthood. These behaviours are mainly transferred from the parents, making the parental awareness and own knowledge in the area crucial for a sustainable behaviour in their children (Poutanen et al., 2006). The oral hygiene habits differ in people depending on for example their socioeconomic status and cultural background. In Sweden there is a social inequality in oral health, as a major part of children who have caries comes from families with low education, low income and also from families with immigrant background. Their oral hygiene habits are usually insufficient and their visits to the dentist are often less frequent than in children who grow up under more convenient social circumstances (The National Board of Health and Welfare, 2013).

In the city of Umeå where this study has taken place there has been a series of cross-sectional studies investigating the prevalence of caries. In these studies a change could be seen between the years 2002 and 2007, where the occurrence of caries was decreased (Stecksén-Blicks et al., 2008). This was coherent with a decrease in the intake of sugary snacks and an increase in tooth brushing. In a follow-up five years later it was shown that the decline in caries was however limited to non-immigrant children, leaving immigrant children with a higher prevalence of caries (Stecksén-Blicks et al., 2014). Equivalent results could be seen in a similar study from Norway (Wigen et al., 2009). A particular difference in behaviour in children with caries separating them from the caries-free children was the intake of sugar. The Swedish concept of candy being limited to Saturdays could be a reason to why immigrant children might have a higher sugar consumption. This aspect as well as the lesser frequency of tooth brushing with parental assistance might partly explain the skewed distribution of caries in immigrant children compared to that of non-immigrant children (Christensen et al., 2010).

It has also been observed that regardless of attempts in educating the parents with immigrant background in their children’s oral hygiene, there is no improvement in their oral health. This may be explained by the differences in priorities due to difficult life situation or barriers such as language that prevents them from understanding the information. Another observed difference in these families is the significantly lower consumption of dental care, even in the Nordic countries where dental care is free. This
is believed to be due to a tradition where a visit to the dentist merely is made in emergencies, which makes prophylactic dental care and education more difficult. (Christensen et al., 2010).

In the beginning of 1960's fluoride was introduced to schools in Sweden at the same time as the first fluoride toothpaste was released commercially. Thus leading to a significant increase in dental health in the country under the years 1979 to 1988, where the amount of caries free 7-year-old children went from 12 % to 78 %. It can be speculated that the introduction of fluoride in school had a positive impact on the overall oral health of the population, not only by the effect of fluoride itself but perhaps also by awakening and awareness in the children about oral health overall. (Folkhälsovetenskapligt centrum Östergötaland, 2009)

The Swedish school system indicates that a comprehensive understanding of the human body, its function and health should be taught to all children in class 1-3 (aged 6-9) (The National Agency for Education, 2016). This should also involve oral health. It is a period of major changes in the mouths of the children, as their permanent teeth start to erupt around that age (Poulsen and Koch, 2009). It has also been noted that regardless of the recommendation of parental assistance in tooth brushing until the age of 10, many children start brushing by themselves at the age of 6 (Sandström et al., 2011), which makes the knowledge about oral health and hygiene crucial in the educational ages 6-9.

In a British study (Blake et al., 2014) a brief oral health promotion intervention was made in schools, which generated immediate short-term improvements in the children's oral health knowledge. A similar but more extensive study was made in Finland under a longer period of time where greater improvements in knowledge and behaviour was observed in the randomized group that had health-promotion in form of dietary and oral hygiene counselling (Tolvanen et al., 2009). These studies show that children can improve their oral health knowledge and behaviour by educational interventions. The importance of prophylactic education in Swedish schools is more evident today as there is an increasing amount of children within the risk group for insufficient oral health. A focus on education in the subject of oral health and habits in school could help to minimize the gap in knowledge, thus sustaining a more equal dental health for all children.
Therefore, the purpose of this study was to investigate the knowledge and habits in oral health in school children aged 7-8 in different socio-economic areas. The hypothesis is that education in oral health in primary schools could provide a more equitable oral health in children.

**METHOD AND MATERIAL**

**Procedure/strategies**

Principals of three schools in Umeå were contacted (by e-mail and telephone) and offered to participate in a project about "oral health in school". The principals forwarded the information about the project to the teachers in first and second class. The teachers also received written information about the project. Suggestions of dates for the sessions were sent to the teachers. The information the teachers got was that the sessions would take approximately one hour and take part during class. The first session was booked in October and the second about two months later. The first session was divided in three parts:

- Part one - the questionnaire - 30 minutes.
- Part two - review of the questionnaire with educational power point
- Part three - question time

The second session consisted of part one and three. The questions were read aloud and the pupils answered the questionnaire individually. (Appendix 1)

**Participants**

Pupils in first and second class from three different schools in Umeå municipality were invited to take part of the project. Overall there were twelve classes resulting in 226 pupils. The schools (Ålidhemsskolan, Sävar Skola och Språkskolan) were selected on the basis that they represented different socioeconomic areas. The statistical database of Umeå municipality, 2013, was used to get the socioeconomic information in the specific areas. The particular age was chosen, as it is an active development period and many dental changes takes place (Poulsen and Koch, 2009). Also, at this age the
children gain more responsibility about their own hygiene and start brushing their teeth without parental assistance (Sandström et al., 2011).

**Ethical approval and reflection**

The Ethics Forum of the Department of Odontology finds that appropriate ethics consideration have been integrated into this degree project.

As the pupils are under-age a consent form was sent to their guardians, at least two weeks before the first session. The teachers had the opportunity to get the consent forms translated into languages other than Swedish, which facilitated that the information got to all participants, even those with non-Swedish speaking guardians. The consent form contained written information about the aim of the project and informed the guardians that participation was voluntarily. The participants were anonymous and the result was encoded except from what school and session it represented. A positive ethical outcome of the study is that all children regardless of background receives an equal education in the subject.

**The questionnaire**

A questionnaire aimed to children aged 7-8 was made. There was no pilot study. The questions were written and images illustrated the possible answers. The questionnaire included questions about eating habits, knowledge in oral health and personal background facts. (Appendix 1)

**Teaching material**

A booklet containing evidence-based information about basic tooth anatomy, caries, caries prevention and erosions was written and illustrated (Appendix 2). The illustrations and the text were made in a childish manner aimed to children in primary school. The purpose of the booklet was to increase understanding in children as well as their guardians about the importance of their own oral health. All participants received a booklet after the first session. A Power point presentation was made with the booklet as basis, which then was used as teaching material during the first session. The teaching material was all composed and made by the authors. Sugar cubes were used to illustrate a quantity of sugar in a concrete way to answer question 17 in the questionnaire.
Sponsorship

Dental companies (Colgate, Proxident, Flux) were asked to sponsor the project with oral health products for children. This resulted in a "goodie bag" with a toothbrush, sugar free chewing gum and toothpaste to each participating child.

The public dental health service in Västerbotten sponsored the project by printing the booklets.

Statistical analysis

The data from the questionnaire were compiled in Excel 2013 and analyzed in IBM SPSS Statistics version 22, build 22.0.0.0 (SPSS Inc., Chicago, IL, USA) The data was analyzed by comparing percentages and presenting descriptive data. To get an overview of differences in the answers of the knowledge questions between the schools, a mean-value was calculated. Statistical significance value (p) was set to 0.05 and calculated when appropriate with Chi-2-test.

Literature

The database PubMed was used when searching for articles published in the selected area. MeSH terms used were Child, Dental caries, immigrants, intervention and health education. The articles were chosen based on their relevance to our study. An inclusion criterion was research made in Europe and preferably Scandinavia, as the culture of oral health is similar to the Swedish. All articles focused on children up to 12-years of age.

Other sources used for literature search was the textbook "Pediatric dentistry A clinical approach" (Koch and Poulsen, 2009) and "Sociala skillnader i tandhälsa bland barn och unga - Underlagsrapport till Barns och ungas hälsa, vård och omsorg 2013".
RESULTS

Total amount of participants in session 1 was 176 children. One of the invited classes could not participate in the study due to a field day. In session 2 there was a total of 175 children. The distribution of participants for each school differed from session 1 to session 2, where the greatest difference was seen in Ålidhemsskolan. The gender distribution was in total 53 % boys and 47 % girls. The distributions of children in the different schools as well as their nationality are seen in table 1. The group named “foreign born” includes children with immigrant parents.

Oral health habits are seen in table 2. Most of the children (90 %) brushed their teeth twice a day. In Ålidhemsskolan there was the highest frequency of children (18 %) brushing only once a day whereas Sävar Skola had the lowest (2 %). Children with foreign-born parents brushed their teeth once a day in a higher frequency (14 %) than children with non-foreign born parents (7 %) (p=0.11).

When asked who brushed the children’s teeth, there was a big difference between the schools. In Sävar Skola 70 % answered that they brushed their teeth with parental assistance, compared to Ålidhemsskolan where it was only 33 % and the rest stated that they brushed their teeth themselves. Språkskolan had similar results as Sävar Skola, children with foreign-born parent brushed with assistance in 44 % of the cases and those with non-foreign-born parents in 66 %. Overall there was a significant difference in “who’s brushing your teeth” between children with non-foreign born parents and foreign-born parents (p=<0.001). There were no significant difference between boys and girls (p=0.84).

Dietary habits in the children are seen in appendix 3. Consumption of juice every day was common in all of the schools (16-20 %). Most of the children eat candy and cookies once a week (84-91 %). Overall, there was no significant difference in dietary habits in between the schools.

The results of the questions about oral health knowledge are seen in table 3. In the questionnaire there was only one alternative that was correct. The effect of fluoride was the question that the children had the most problems correctly answering. The same question showed the greatest increase from session 1 (25 %) to session 2 (51 %). The average results in the schools showed that there was a difference in oral health knowledge between the schools. The school with the lowest percentage of
correct answers was Ålidhemsskolan, with a mean value of 61 % in session 1. Språkskolan had the greatest percentage with 72 %, all of the schools showed an increase in correct answers (8-11 %) from session 1 to session 2.

Caries frequency was investigated by the amount of children that had got operative treatment at the dentists. This was used as a surrogate measurement for caries experience. There was a small difference within the schools, with a range of 44 %-55 % of children that had had operative treatment. 62 % of the children with foreign-born parents answered that they had got a filling at the dentist compared with 41 % in non-foreign born children (table 2).

The children were asked to guess the amount of sugar cubes in common meals and beverages (Risifrutti, Festis and yoghurt). The range in answers is seen in figure 1. The common belief was that there was less sugar in the products than it actually is. The range in the answers fluctuated from 0-1000000 sugars cubes.

When the children were asked who teaches them about oral health, 2 % of the children answered that they learned from the teacher. The majority answered that they got their knowledge from dentists (33 %). The parental influence was similar to the dentist’s with 24 % and 23 % answered a combination of parent and dentist. 18 % stated that nobody teaches them about oral health (table 2).

**DISCUSSION**

The total amount of participants was 176 in the first session and 175 in the second. The level of participants was acceptable for this study as our purpose was to get a deeper knowledge about the understanding in oral health. It would have been preferable to have a more even distribution of children between the schools as Språkskolan represented only 19 % of the participants and Sävar Skola 48 %. To get a more equitable representation of the schools, a third of the participants should have been from each school.

There are some sources of error when it comes to filling out the questionnaires. Even though the alternatives were illustrated in a childish way, there was still a possibility for misinterpretation. In some cases, many questions were left blank. Approximately half of the participants had just begun school, thus having a somewhat low reading ability,
which limited their ability to answer the questions without assistance. Some of the children with immigrant background did not understand the language and proper translation was not possible, which could have affected their answers. Maybe a translation of the questionnaires would have been necessary for a more reliable result. The questionnaires could have been filled out in a smaller group to enable a better explanation of each question at an individual level. The children sat next to each other, and although the questionnaires were supposed to be filled individually some children answered the same as their neighbour.

The schools chosen for the participation of this study were elected due to the differences in their socioeconomic characteristics. The schools of the municipality of Umeå are not divided based on their socioeconomic level, but in districts. The election of Sävar Skolan and Ålidhemsskolan was based on the assumption, that the students in these schools are represented by people living in the district, thus having the same socioeconomic level. (The statistical database of Umeå municipality, 2013). With Språkskolan however, the same assumption could not be made, as it is a private owned school. Its students do not necessarily represent the people living in the district but more likely of people choosing to go there. The choice of private school might insinuate a higher socioeconomic level with parents with higher education (IFAU, 2015). The socioeconomic level has been proven to have a great impact on the oral health (The National Board of Health and Welfare, 2013), which can also be seen in this study.

Ålidhemsskolan with the lowest socioeconomic status had the lowest results in the knowledge part of our study. They also showed more insufficient oral habits than the children in the other two schools (table 2). It could be seen that the children in Ålidhemsskolan did not brush their teeth with assistance as often as the children in the other schools. Here, there was also a clear difference depending on whether their parents where foreign born or not. More than half of the children with foreign-born parents brushed their teeth by themselves. Only 34 % of the children with non-foreign born parents did the same. This could possibly be due to a difference in cultural background and not only due to their socioeconomic level.

In this study the criteria for being foreign born was to have another nationality than Swedish. This also included Nordic countries and Western Europe. These countries have similar traditions in oral health habits as Sweden (Patel, 2012), which could have
affected our result. A more realistic result would have been given by a more refined
categorization of nationality. This was however not an option for this study as it was
aimed to be in a population level and in order to preserve the anonymity of the
participants the nationality could not be specified.

Children in the primary educational age do not have a fully developed consequence
understanding. This makes the parental role crucial in e.g. the children’s oral hygiene in
order to prevent insufficient oral health (Skeie et al., 2006), (Östberg et al., 2016). To
make this possible for all children it’s important to have information that the parents can
understand. In multicultural districts like Ålidhem there is a wide range of different
languages. In order to educate both children and their parents it would facilitate if
information were translated into the parent’s mother tongue. In Ålidhemsskolan the
consent form was translated into five different languages, which indicated that many of
the parent did not understand Swedish.

In retrospect, the booklet given to the children to take home in educational purpose
should have been translated into the different languages as well. In the best case
scenario, this would have given an even better result in session 2 as the parents
would’ve been more involved.

The caries frequency was unreliable in the study as the measurement was based on a
question, which could have been misinterpreted. Many of the children have probably
done a fissure sealing and interpreted it as a filling. That could explain the high
percentage of children that has made a filling at the dentist (48 %). To obtain a more
reliable result the question should have been directed to the parent, or a clinical
screening should have been made. Caries experience in the children could be a good
aid to pinpoint the districts with the most children in risk groups, thus enabling a
preventive measure to take place in the necessary schools (Strömberg et al., 2012).

The results in dietary habits have no noteworthy difference in between the schools or
nationality. It implies that the concept of sweets being limited to Saturdays is applicable
to most of the children in the study. It was seen however that juice consumption was
quite common every day. This could be due to a common misconception on society
level that the amount of sugar in juice is low, as the content of fruit perceives it as
healthy (Gefvert, 2005). There is a general unawareness about sugar levels in common
foods and beverages. E.g. a yoghurt drink that is a common mid-day snack for
Swedish children, has a sugar content of approximately 15 sugar cubes. (The national food agency, 2016) As it is seen in figure 1A, there is a wide range in answers that shows lack of knowledge in the subject. Most of the children guessed a lower amount of sugar cubes in all of the products in session 1. A child in that age is not fully able to grasp the concept of quantity the same way as an adult, and was thus not really expected to know how much sugar the different products have. It did however give an image to whether or not they found the products healthy depending on the sugar content guessed on. In the diagrams in figure 1A and 1B it can also be seen that there was a difference from session 1 to session 2. In the later one (fig. 1B) the children had a more realistic view on sugar content than in session1 (fig. 1A). This is probably a result from the educational intervention. When talking to the teachers, they were also unaware of the sugar content in the different products.

In Sweden, dental personnel traditionally were the ones that thought about dental health. Whether the education takes place in the clinic or the school, there are a lot of resources needed. It could be more cost effective if the teachers would involve oral health in their ordinary curriculum (Crowley et al., 2000). Only 2 % of the participants stated that they learned about oral health from their teachers.

When comparing the results from session 1 and 2 there was an increase in knowledge in oral health. The increase was the result from 30-minute educational intervention combined with an educational booklet. None of the schools had previously educated in the subject oral health. The increase in knowledge was similar in all of the three schools (8-11 %), which supports our hypothesis that education in school can improve oral health equality regardless of socioeconomic status. If the education is given more frequently and in a combination of demonstration (e.g. tooth brushing technique) and information a better result could be expected. If this were incorporated in schools it would function as a primary prevention in population basis (Blake et al., 2014).
Conclusion
This study shows that there are vast differences in oral habits and knowledge in between different schools depending on their socioeconomic level. Differences could also be seen depending on the children’s cultural background, as children with foreign-born parents had a lower knowledge and in some aspects their oral habits were more lacking. It could be seen that education in school had a positive impact on the children’s oral health knowledge regardless of their background.

ACKNOWLEDGEMENTS

We would like to thank our tutor Pernilla Lif Holgerson for all the help and guidance during this study. We would also like to thank all the sponsors, school staff and participating children that made this study possible.
REFERENCES


The national food agency (2016).


Table 1.
Participants at baseline. Distribution of children with non-foreign born- and foreign-born parents at the different schools.

<table>
<thead>
<tr>
<th>SCHOOL</th>
<th>Parental background</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non foreign born parents</td>
<td></td>
</tr>
<tr>
<td>Ålidhemsskolan</td>
<td>14 (23 %)</td>
<td>47 (77 %)</td>
</tr>
<tr>
<td>Språkskolan</td>
<td>12 (37.5 %)</td>
<td>20 (62.5 %)</td>
</tr>
<tr>
<td>Sävar Skola</td>
<td>81 (97.6 %)</td>
<td>2 (2.4 %)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>107 (60.8 %)</strong></td>
<td><strong>69 (39.2 %)</strong></td>
</tr>
</tbody>
</table>
Table 2.
Oral habits. Based on the answers of questions 3, 5, 7 and 8 in the questionnaire. The results are presented in percentage (%).

<table>
<thead>
<tr>
<th>Who teaches you about oral health?</th>
<th>A* n=61</th>
<th>Sp* n=32</th>
<th>Sä* n=82</th>
<th>TOTAL n=176</th>
<th>Non foreign parents n=107</th>
<th>Foreign parents n=69</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent</td>
<td>30</td>
<td>16</td>
<td>23</td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dentist</td>
<td>32</td>
<td>19</td>
<td>37</td>
<td>33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent and dentist</td>
<td>16</td>
<td>43</td>
<td>22</td>
<td>23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nobody</td>
<td>20</td>
<td>19</td>
<td>16</td>
<td>18</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How often do you brush your teeth?</th>
<th>A* n=61</th>
<th>Sp* n=32</th>
<th>Sä* n=82</th>
<th>TOTAL n=176</th>
<th>Non foreign parents n=107</th>
<th>Foreign parents n=69</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once a day</td>
<td>18</td>
<td>13</td>
<td>2</td>
<td>10</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Twice a day</td>
<td>82</td>
<td>87</td>
<td>98</td>
<td>90</td>
<td>93</td>
<td>86</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Who brush your teeth?</th>
<th>A* n=61</th>
<th>Sp* n=32</th>
<th>Sä* n=82</th>
<th>TOTAL n=176</th>
<th>Non foreign parents n=107</th>
<th>Foreign parents n=69</th>
</tr>
</thead>
<tbody>
<tr>
<td>Myself</td>
<td>67</td>
<td>28</td>
<td>30</td>
<td>43</td>
<td>34</td>
<td>56</td>
</tr>
<tr>
<td>Myself with assistance</td>
<td>15</td>
<td>57</td>
<td>53</td>
<td>40</td>
<td>50</td>
<td>25</td>
</tr>
<tr>
<td>Parent</td>
<td>18</td>
<td>15</td>
<td>17</td>
<td>17</td>
<td>16</td>
<td>19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Have you filled a cavity at the dentist?</th>
<th>A* n=61</th>
<th>Sp* n=32</th>
<th>Sä* n=82</th>
<th>TOTAL n=176</th>
<th>Non foreign parents n=107</th>
<th>Foreign parents n=69</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>55</td>
<td>47</td>
<td>45</td>
<td>48</td>
<td>41</td>
<td>62</td>
</tr>
<tr>
<td>No</td>
<td>45</td>
<td>53</td>
<td>55</td>
<td>52</td>
<td>59</td>
<td>38</td>
</tr>
</tbody>
</table>

*Å: Ålidhemsskolan, Sp: Språkskolan, Sä: Sävar Skola
Table 3.
Knowledge questions of oral health. Based on the right answers of questions 10-16 on the questionnaire. The results are presented in percentage (%). Chi-2 test compared right answer session 1 and 2 total participants. Significance level P=0.05.

<table>
<thead>
<tr>
<th>Session</th>
<th>Å*</th>
<th>Sp*</th>
<th>Sä*</th>
<th>Total</th>
<th>P value</th>
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<tr>
<td>1</td>
<td>80</td>
<td>94</td>
<td>90</td>
<td>88</td>
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<td>2</td>
<td>87</td>
<td>97</td>
<td>94</td>
<td>93</td>
<td></td>
</tr>
<tr>
<td>Sugar is food for bacteria</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>48</td>
<td>69</td>
<td>69</td>
<td>61</td>
<td>0.035</td>
</tr>
<tr>
<td>2</td>
<td>76</td>
<td>74</td>
<td>70</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td>Caries is a cavity in teeth made by bacteria</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>59</td>
<td>63</td>
<td>61</td>
<td>61</td>
<td>0.037</td>
</tr>
<tr>
<td>2</td>
<td>72</td>
<td>82</td>
<td>68</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>Dental plaque consists of food and bacteria stuck to the tooth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>54</td>
<td>66</td>
<td>53</td>
<td>56</td>
<td>0.018</td>
</tr>
<tr>
<td>2</td>
<td>65</td>
<td>85</td>
<td>63</td>
<td>68</td>
<td></td>
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<tr>
<td>A child has 20 primary teeth</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>1</td>
<td>79</td>
<td>94</td>
<td>90</td>
<td>87</td>
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<td>81</td>
<td>100</td>
<td>86</td>
<td>87</td>
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</tr>
<tr>
<td>You should brush your teeth twice a day</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>90</td>
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<td>92</td>
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<td>0.868</td>
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Figure 1A & 1B. Illustrating the participating children’s answer of the questions about sugar content of different well-known products, before and after education in the field.
ENKÄT OM DINA TÄNDER
RINGA IN RÄTT SVAR!

1. ÄR DU KILLE TJEJ

2. ÄR DINA FÖRLÄDRAR FRÅN

SVERIGE ANNAT LAND

VILKET: ______________________

3. HUR OFTA BORSTAR DU TÄNDERNA?

MORGON KVÄLL MORGON & KVÄLL VET EJ

4. VAD ÄNVÄNDER DU?

TANDBORSTE ELTANDBORSTE FLUORSKÖLJ TANTRÅD

5. VEM BORSTAR DINA TÄNDER?

JAG SJÄLV PAPPA MAMMA SYSKON
6. Vad dricker du till maten?

- Läsk
- Mjölk
- Vatten
- Juice

7. Vem lär dig om dina tänder?

- Mamma/pappa
- Lärare
- Tandläkaren
- Ingen

8. Hur ofta äter eller dricker du...

- Grönsaker
  - Aldrig
  - En gång i veckan
  - Varje dag
- Juice
  - Aldrig
  - En gång i veckan
  - Varje dag
- Kakor
  - Aldrig
  - En gång i veckan
  - Varje dag
- Mjölk
  - Aldrig
  - En gång i veckan
  - Varje dag
- Godis
  - Aldrig
  - En gång i veckan
  - Varje dag
- Läsk
  - Aldrig
  - En gång i veckan
  - Varje dag
- Nötter
  - Aldrig
  - En gång i veckan
  - Varje dag
9. Vad är bra för dina tänder?

- Läsk
- Godis
- Mjölk
- Grönsaker

10. Vad händer när du äter socker?

- Det bildas en hatt på tanden
- Det gör tanden starkare
- Det ger mat åt bakterier

11. Vad är karies?

- Ett hål på tanden skapad av bakterier
- Det som gör tanden extra hård och stark
- En riktigt smutsig tand

12. Vad är plack?

- Matrester och bakterier som fastnat på tänderna
- Gammap tandkräm som fastnat på tänderna
- Torkat spott som fastnat på tänderna

13. Hur många mjölktänder har man som barn?

10 20 30
14. Hur ofta borde man borsta tänderna?

1 gång i veckan  
1 gång om dagen  
2 gånger om dagen

15. Vad gör fluor med dina tänder?

- Bygger upp och förstärker tanden
- Gör hål i tanden
- Tvättar tanden

16. Vad gör din mun surast?

- Mjölk
- Light-läsk
- Vatten

17. Hur många sockerbitar innehåller?

- Risfrutti:______st
- Festis:______st
- Drickyoghurt:______st

18. Har du lagat en tand hos tandläkaren någon gång?

Ja  
Nej
Flora är en riktig sockerråtta. Hon älskar att äta glass i stora lass. Massor med läsk, godis, kakor och chokladmjölk käkar hon varje dag! Mums!
EN DAG FÅR FLORA ONT I EN TAND. "JAG KANSKE HAR ETT HÅL?" TÄNKER FLORA

HUR MÅNGA SÖCKERBITAR FINNS I...?

SVARET HITTAR DU I SLUTET PÅ SISTA SIDAN!
Flora tar en spegel och tittar i munnen. Hon ser en ljusbrun fläck på samma tand som gör ont. Kan du hitta den?
FLORA RÄKNAR TILL 20 TÄNDER, 10 UPPE OCH 10 NERE. FÖRUTOM DEN BRUNA FLÄCKEN HITTAR HON ÄVEN SMÅ GROPAR PÅ NÅGRA AV TÄNDERNA. DET FINNS OCKSÅ ETT GULT KLET PÅ TÄNDERNA SOM HON KAN SKRAPA BORT.

"VAD ÄR ALLT DET HÄR?" FRÅGAR FLORA SIN MAMMA.
"JAG TROR ATT DET ÄR DAGS ATT BOKA EN TID HOS TANDLÄKAREN" SÄGER MAMMA.

TÄNDER
BARN HAR NORMALT 20 TÄNDER. DESSA KALLAS FÖR MJÖLKTÄNDER. NÄR MAN ÄR VUXEN KAN MAN HA UPP TILL 32 TÄNDER.

HUR SER EN TAND UT?
TANDEN BESTÄR AV OLIKA LAGER, HÅRDASTE LAGRET HETER EMALJ. UNDER EMALJEN FINNS DET LITE MJUKARE DENTINET OCH LÄNGST IN I TANDEN GÖMMER SIG PULPAN SOM GER TANDEN KÄNSEL.
HEJ FLORA! JAG HETER SOFIE OCH ÄR DIN TANGLÄKARE. JAG SKA TITTA I DIN MUN OCH SE OM JAG KAN HITTA DET SOM GÖR ONT. GAPA STORT!

HÄR SER JAG ETT HÅL! DET KALLAS ÄVEN FÖR KARIES. PÅ MÅNGA AV TÄNDERNA FINNS DET OCKSÅ ETT GULT KLADDIGT LAGER SOM KALLAS PLACK.

VAD ÄR PLACK?

NÄR VI ÅTER FASTNAR EN DEL AV MATEN PÅ TÄNDERNA. DETTA BLIR SEDAN MAT TILL BAKTERIER SOM BOR PÅ TANDEN. DET HÄR LAGRET KAN MAN BORSTA BORT MED TANDBORSTEN.

VAD ÄR KARIES?

NÄR PLACKET INNEHÅLLER MYCKET SOCKER FÄR BAKTERIERNA EXTRA MYCKET ENERGI. BAKTERIERNA KAN DÅ BÖRJA BRYTA NED TANDENS OLIKA LAGER. OM MAN UPPTÄCKER KARIES I GOD TID SÅ KAN MAN STOPPA BAKTERIERNAS FRAMFART!
Plack

Erosioner
Om man äter och dricker mycket surt så kan emaljen försvinna. Detta ser ut som små gropar på tanden.

Karies
Först bryts emaljen ner och det kan se ut som en vitare fläck på tanden. Om bakterierna äter sig in i dentinet så kan det göra ont. Det kan se lite brunt ut. Det är nu man har ett hål.
Jag heter **Herr Mutans** och är en bakterie. Min armé har tagit över Floras tand!
Här finns massa gott socker att knappra på. Här får vi all energi vi behöver för att förstöra Floras tand!
Moahahahaha!
Du har karies flora.
Herr Mutans och hans arme har tagit över tanden och gjort ett hål.
Ibland när man har hål så måste vi tandläkare borra bort det sjuka för att tvätta bort herr Mutans och hans arme.

Men du upptäckte herr Mutans i god tid, så du kan stoppa hans framfart och rädda tanden! Hur tror du att du kan göra det?

Hur undviker man karies?

- Borsta 2 gånger om dagen, 2 minuter per gång använd fluor tandkräm
- Försök att äta sötsaker max en gång i veckan
- Byt ut söt youghurt och chokladmjölk mot ex mjölk och fil med müsli
- Om du äter något sött, drick vatten efteråt!
Få se...
Herr Mutans älskar socker. Om jag äter mindre socker, så får han mindre energi och då orkar han inte förstöra tanden mer! Om jag dessutom tillsammans med en vuxen borstar bort placket så fort som möjligt så hinner inte hans arme få fäste! Tänk om det också fanns något man kunde förstärka och skydda tanden med...
HELT RÄTT FLORA!
SLUTA GE HONOM SOCKER OCH BORSTA TÄNDERNA VARJE DAG!
DET FINNS OCKSÅ NÅGOT SOM HETER FLUOR SOM FÖRSTÄRKER OCH SKYDDAR TANDEN! KOMBINERAR MAN ALLT DETTA SÅ KAN MAN RÄDDA TÄNDERNA FRÅN HERR MUTANS OCH HANS ARMÉ!

FLUOR FUNGERAR SOM EN BYGGSTEN OCH BYGGER UPP TANDEN IGEN EFTER ATT BAKTERIER HAR BRUTIT NER DEN. FLUOR GÖR DET OCKSÅ SVÄRARE FÖR BAKTERIERNA ATT PÅBÖRJA ETT HÅL. DETTA GOR ATT FLUOR ÄR BRA ATT ANVÄNDA VARJE DAG, OAVSETT OM MAN HAR KARIES ELLER INTE.

FLUOR FINNS I FLUORSKÖLJ, FLUORTANDKRÄM & FLUORTUGGUMMI

FLUOR I JÄTTESTORA MÄNGDER KANvara farligt, men om man använder så mycket som tandläkaren säger så är det bara bra.
HUR MAN BORSTAR TÄNDERNA

1. Blöt tandborsten och kläm ut en sträng fluortandkräm, ca 2 cm.

2. Rikta borsten snett ner mot tandkötet och gnugga på alla tänder, minst 2 min.


2 gånger om dagen

Be en vuxen om hjälp!
HJÄLP FLORA ATT HITTA TILL DEN FRISKA TANDEN
GENOM ATT FÖLJA DET SOM ÄR BRA FÖR DINA TÄNDER!

FÄRGLÄGG HERR MUTANS
Pyssla med Flora

antal sockerbiter: rissifruti: 7 st, drickyoghurt: 15 st, glass: 15 st, festis: 10 st

Hjälp Flora att lösa korsordet!
TAG KONTAKT MED DIN FOLKTANDVÅRDSKLINIK OM DU VILL VETA MER. 
DU ÄR ALLTID VÄLKOMMEN MED DINA FRÅGOR OCH FUNDERINGAR!

Medicinska fakulteten 
Institutionen för Odontologi 
Umeå Universitet

I samarbete med Folk tandvården Västerbotten
HEJDÅ!
TA HAND OM DINA TÄNDER!

SKRIVEN OCH ILLUSTRERAD AV EMELE ÅSTRÖM OCH LUISA MONTOYA
2015 ©
Appendix 3. Dietary habits
Based on the answers of question 8 in the questionnaire.
All of the results are presented in percentage (%).

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