PATIENTS KNOWLEDGE ABOUT CARIES PREVENTION AND ORAL HYGIENE - A COMPARATIVE STUDY

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ABSTRACT

Background: The caries aetiology is individual and multifactorial, and even though common causes are known to professionals, patients still suffer from the disease. The aim of this study was to investigate if the patient care education of today is optimal. The research question stated is if knowledge about caries prevention and self-care in the population is equal irrespective of age.

Methods: A questionnaire was designed and distributed to participants in two age groups, equally divided in two Swedish cities. The groups were constituted by adolescents aged 16-21 and senior citizens over 60 years of age.

Results: The findings indicate a higher tooth brushing frequency and use of interproximal hygiene aid among the elder population. The older age group claimed to have received information and instructions to a higher extent than the younger group. All participants showed poor knowledge regarding utilisation, dosage and beneficial properties of fluoride. The majority were willing to receive more information about oral hygiene and how to maintain good oral health, but an equal number was not interested in paying for more information.

Conclusions: In conclusion, most of the responders are performing basic oral hygiene. However, there are still some knowledge gaps remaining, whereas knowledge about caries prevention and self-care in the population is unequal in respect of age; the older population proved to be more well-informed.
INTRODUCTION

Caries disease

Caries is a disease in the oral cavity that can occur at any given time during a dentate person's life. As to epidemiology, results from a recent Swedish study shows that one third of the studied population (ages 20-85 years) had at least one decayed surface in 2013 (Edman et al., 2016). The caries aetiology is individual and multifactorial where the most common causes include insufficient oral hygiene, high frequency of cariogenic food intake and hyposalivation, among many other factors (Fure, 2004, Flink, 2013). When bacteria are left undisturbed on tooth surfaces or adjacent plaque retaining sites, the bacteria will form a biofilm and reproduce to optimise the chance for survival. As a result of the microbial metabolism in the bacterial plaque, acid is produced. When exposed to cariogenic food e.g. sugar, the bacteria will start to produce acid to survive the sugar-rich environment. The acid secreted from the microbes causes a drop in the pH of the biofilm as well as in the mouth (Marsh, 2006). The apatite crystals in teeth tissue go through a constant process of demineralisation or remineralisation depending on the pH value and saturation of minerals in the biofilm on the tooth surface. Acid produced by the bacteria lowers the pH and results in a demineralisation; loss of minerals in the tooth. In a similar way, favourable conditions in the form of neutral pH will result in remineralisation of the tooth, i.e. the apatite crystal regains minerals. If the pH-drop continues for a prolonged time the loss of mineral will be too great for the tooth to compensate for and a part of the tooth structure will be lost. This is the definition of decay (Takahashi and Nyvad, 2008). To prevent caries and ultimately decay, early caries diagnosis and caries risk profiling is the key. Irregular screening has been linked to higher risk of developing caries and losing teeth as a result of this (Petersen, 2005). Regular screening of patients usually consists of oral exams and bite-wing radiographs to monitor any possible carious development and evaluate the patient's oral self-care (Edman et al., 2016). Decay usually takes time and with early detection it is possible to avoid severe symptoms due to further caries progression. As long as the decay is a confined lesion and without a big loss of mineral, it is possible to control the disease in a non-operative way to make the process end. Non-operative caries-control can involve increased fluoride exposure, improved oral care and/or a change in diet. Which strategies to employ is individual and depends on the patients' risk factors regarding development of the caries disease. (Chaffee et al., 2015) The interval for regular check-ups is determined individually based on previous caries experience, activity and risk. (Flink, 2017)
**Patient care education**

The National Board of Health and Welfare in Sweden has developed national guidelines for professionals and decision-makers in the field, regarding patient education, dental conditions and diagnosis. The recommendations are based on a scientific basis, if available, otherwise an expert group takes a stand on the topic based on the best available knowledge at the time (National Guidelines, 2018). The Swedish Dental Service follow these guidelines to ensure that evidence-based medicine is practised and ultimately accomplishing a healthier population. Regular check-ups ought to contain extra-oral and intra-oral examinations, as well as five to ten minutes of basic patient education including verbal and/or practical instructions on how to acquire optimal oral health (The Dental and Pharmaceutical Benefits Agency, 2017).

**Diet**

From an oral health perspective, food is correlated to its cariogenicity - the ability to induce a transition of healthy tooth tissue to become carious. Only carbohydrates have the potential to generate a sufficient pH-drop since they dissolve into monosaccharides in the mouth and body when digested. Fat and proteins cannot be broken down into monosaccharides because of their chemical structure. Some foods; cheese and milk for example, may even have a protecting capacity against cariogenic bacteria. (Moynihan, 2000). From a cariological perspective, a frequent intake of sweet and sticky food favours cariogenic bacteria (Gustafsson et al., 1954). Thus, the Swedish Dental Service recommend a reduction in intake of sweets to one day a week, to minimise the exposure of sugar. Acidic food, e.g. juice, soft drinks and energy drinks create a harmful environment for the teeth resulting in a break-down of the tooth's mineral and protein matrix, so called erosion (Isaksson et al., 2014). The Dental Service recommends a limited amount of four to five meals per day, because of the impact high intake rates have on the salivary pH. After a meal the pH decreases and enables demineralisation. It takes time for the pH to return to a normal, non-harmful level, thus it is recommended to wait between meals for the pH to rise to a safe level and promote remineralisation. Stecksén-Blicks and Gustafsson (1986) found a correlation between low caries activity and low frequency of meals among children.

**Oral hygiene**

Optimal oral hygiene is essential for an adequate caries control and depends highly on the patient's compliance and ability to handle self-care. The quality of self-care is in turn
depending on the information and education the patient has been given during childhood and adult life by the caregiver. (Axelsson et al., 2004, Bernabé et al., 2010)

The Swedish Dental Service usually advocates the 4x2-technique:

- Tooth brushing 2 times a day; morning and evening
- 2 cm of toothpaste on the brush
- 2 minutes brushing duration
- No eating or drinking for 2 hours after brushing

Evenings are the most important time for brushing as the bacteria and leavings from the day otherwise are left undisturbed during the night when the flow of saliva is reduced (Dawes, 2008). Brushing in the morning is not to be underestimated, since it removes the bacteria that has formed during the night and enables further fluoride exposure. Brushing alone is for most patients inadequate to achieve a clean result. Mainly because of the tooth brush design - sufficient access to the proximal sites of the teeth are impossible. Consequently, the bacteria can reside in the area undisturbed and cause harm. Therefore, interval cleaning in the form of either dental floss or an interdental brush is often needed.

**Fluoride**

Fluoride plays a vital role in caries control. Its capacity to reduce the progress of caries lesions is a unique trait, which has made fluoride irreplaceable in the battle against the disease. The mechanism behind the protective properties include binding to the tooth surface to make it more resilient against pH-drops. Following binding, a slow transformation of hydroxyapatite into Fluor apatite mineral begins. This type of mineral stands lower pH-drops than the tooth's original mineral, hydroxyapatite. Another mechanism involves antimicrobial effect due to interfering with the bacteria metabolism which results in a lower acid production (Sheiham, 2001). Fluoride in large doses is toxic, but its ion fluoride, utilised in Swedish dental care has not been verified to have any toxic side effects in small doses (Martínez-Mier, 2012). The probable toxic dose of fluoride is 5 mg F/kg body weight. The recommended fluoride concentration in toothpaste for adults is 1450 ppm (parts per million). The recommended fluoride percentage in mouth rinse for adults is 0,2 %. The recommendation by the national guidelines is based on a study by Moberg Sköld et al., 2005.

Children are recommended a lower content of the substance due to risk for fluorosis, a dose dependant disorder. A large fluoride exposure during tooth formation can cause hypomineralization; a porous and less mineralized tissue more vulnerable than normal enamel (Fejerskov et al., 2015). Instructions on how to use fluoridated toothpaste varies between
caregivers. A recent study shows that professionals tend to assume that patients are already familiar with the correct way to use dentifrice (Jensen et al., 2014). Furthermore, the use of electric toothbrushes and enough fluoride toothpaste should be considered when instructing and informing patients.

**Aim**
The aim of this study was to investigate if the patient care education of today is optimal or not; an assessment if any improvement in caries prevention and education is needed, and what effect that could have on caries prevalence and treatment need. The research question stated as; if knowledge about caries prevention and self-care in the population is equal irrespective of age.

**MATERIAL AND METHOD**
**Population**
After reviewing and approval of the study and its design by the Committee of Ethics at the Department of Odontology, a questionnaire study was conducted. Four population groups were contacted and asked for willingness to participate in the study. The population sample was based on age and region of residence. Two groups based on age; adolescents and young adults 16 to 21 years of age, as well as senior citizens over 60 years of age, were divided on the two cities; Örebro and Sundsvall. Contact were established with the headmasters of local high schools and extradition of the questionnaires took place during a lecture, with respondents receiving oral information about the study before receiving a print out of the survey. In a similar way the chairmen of local retiree associations were contacted, and the study was conducted during a member meeting.

**Questionnaire**
The survey contained 26 closed, concise questions with single response and was pre-tested on smaller groups; one in each age group, to ensure optimal study design. The questions were developed to derive information on knowledge and compliance concerning behavioural and biological variables connected to the caries disease, e.g. oral hygiene, fluoride use, willingness to receive further caries prevention. The final questionnaire was handed out by the authors personally to each one of the groups (appendix). The participants were asked to answer the questionnaire individually; the students during a lecture and the seniors during a meeting.
**Literature search**

MeSH terms used in this study were: dental caries, fluoride and knowledge. Fifty articles were extracted from the search using the MeSH terms in combination with free text searches and references from the textbook *Dental Caries: The Disease and Its Clinical Management*, 3rd Edn. From the list of references, 31 articles and reviews were selected, which can be found in the reference section of this paper.

**Ethics**

The study and the design of the study was reviewed and approved by the Committee of Ethics at the Department of Odontology (spring-2017). The application consisted of information regarding the question at issue, population and material, considerations of research ethics and how to obtain consent from the participants.

Participation was optional; the participants could leave at any given time or choose not to participate by ticking the box in the consent forms. This option was intended to make sure that no one felt obligated to contribute. This can be an ethical problem; some might refuse to participate but feel obliged to, because of pressure from the surroundings. The subjects raised in this questionnaire can be considered private and sensitive. Therefore, it is important to make sure no persuasion or pressure to participate is applied.

Each completed survey was numbered and fed into an Excel document, to de-identify the forms. The numbering also ensured that inaccuracies during data processing could be backtracked and corrected, or if a participant wanted to extract their participation it was possible to track it back to that individual and extract it. Only the authors handled the surveys in a de-identified state. When this study was completed, all questionnaires were destroyed and were therefore non-trackable afterwards.
Statistical analysis
The results were analysed in IBM SPSS software; version 23, following insertion of the data. The Pearson Chi-square test in combination with Fisher's exact test were used to analyse the data to find statistical differences between the two groups; adolescents and seniors. When analysing, values of $p < 0.05$ were considered statistically significant.

RESULTS
A total of 214 of the 291 asked individuals participated in the study. 107 participants in each age group (Table 1). 26.5% ($n = 77$) of the asked individuals did not participate due to not wanting to participate, not filling in the consent properly or not filling in the form completely. The question 5b showed a higher incidence of internal drop-out for the two groups; 9.1% for the young group and 21.2% for the elder group. The reasons for drop-out was no response or question answered in a multiple response manner. The remaining questions showed minimal drop-out frequency (mean 1.6%).

Diet
Most of the respondents possess satisfactory knowledge about the subjects the questionnaire comprehended. Significant difference between the age groups were found concerning the number of recommended meals a day where the younger answered 4-5 meals to a larger extent (67% compared to 32%, $p < 0.05$).

Oral hygiene
Of the 107 adolescents and 107 elderly participants, about 90% in each group reported that they brushed their teeth twice or more per day and about 80% for two minutes or more (Table 2). Similarly, about 80% in each group answered that the recommended brushing frequency was twice a day. A higher prevalence of the elders claimed to use interproximal hygiene aid, than the younger (91% compared to 62%, $p <0.05$). Among these, the adolescents tend to use interproximal aid more sporadically compared to the elders. 75% of the elders and 60% of the adolescents have received information on how to use interproximal aid.

Knowledge and utilisation of fluoride
The older age group know to a higher extent that their toothpaste contains fluoride compared to the adolescents; every fifth youth didn't know ($p <0.05$). No significant difference between
the age groups concerning knowledge of the recommended fluoride content in toothpaste; the majority didn't know, 10–20 % thought 550 ppm, only 3–6 % answered 1450 ppm (Table 3). There was no significant difference between the age groups concerning knowledge of the recommended fluoride content in mouth rinse either; the majority didn't know. The older population did however know to a larger extent than the younger, that fluoride counteracts the formation of cavities (p <0.05).

**Perceived information and knowledge on self-care**

The majority had been instructed in tooth brushing technique, where the elders had been instructed to a larger extent; 69 % compared to 55 % (p <0.05). Less than one third of the entire population claimed not being instructed. Fifteen % of the adolescents did not know if they had received instructions. The majority of the two populations claimed to have received information about caries, but a higher prevalence in the older age group can be observed to have received information (79 % compared to 60 %, p <0.05). Almost every sixth individual could not recall if they had received any information. When asked which profession provided the information, the majority had received the information from dentists. Seventy-six percent of the adolescents and 54 % of the elders would like to receive more information on oral hygiene and how to maintain a good oral health. Seventy-seven percent and 64 % did not want to pay for more information.

**DISCUSSION**

This study indicates extensive basic knowledge on frequency and duration of tooth brushing, but some fail to comply with stated knowledge. This study indicates a discrepancy among the youth between knowledge and habits. As can be predicted, a larger fraction of the elders had received more information and abides to recommendations more than the younger group. This may be explained by longer experience with the dental service but can also be an effect of possible consequences previous negligence could have had on the oral health (Chiang *et al.*, 2018). Previous caries disease may have caused endodontic treatment need, tooth loss and expensive prosthetic restorations, which can be the ultimate motivation for increased self-care. A study conducted by Edman *et al.*, 2016, implies an increase in decayed surfaces among the oldest age group. This further indicates the need for caries prevention to all patients regardless of age, since patients face different challenges during a life span.
One important aspect of oral hygiene that might easily be foreseen, is the separation of the concepts tooth brushing and fluoride exposure. The caries risk must be evaluated based on etiological risk factors behind the current disease among other contributing factors. Electric tooth brush-aid can be invaluable in cases where the patient's motoric function obstructs adequate oral hygiene. The design of the tooth brush may however prevent the recommended dosage of two centimetres of tooth paste when applied, to enable optimal effect of fluoride when brushing. A compromise might be required when assessing a patient's need.

Although the dental health professions possess all the knowledge previously stated, patients still suffer from caries and a reasonable question is why. Can the busy and cost-effective environment of the Swedish Dental Service provide adequate patient education or is there a need of further behaviour-based prevention for the population to recover (Jensen et al., 2014); is there a knowledge gap that needs to be filled?

The world population is growing in number and age. Consequently, this leads to an increase in chronic diseases, including caries. WHO recommends an integration of an effective and affordable dental care regime to improve oral health (Petersen and Yamamoto, 2005). Moreover, unsatisfactory oral hygiene has been associated with a higher risk for cardiovascular diseases in a study by de Oliveira, (2010). Possibly, the risk of developing general diseases could be decreased with optimal oral health. However, further research is due on the subject.

Unfortunately, knowledge concerning utilisation, dosage and beneficial properties of fluoride, is inadequate among the majority of the respondents regardless of age. Thus, caregivers cannot presume that optimal fluoride use is applied when the patient is unaware of the favourable effects and why it is recommended. Recently, the notion that fluoride is toxic even in low concentrations has spread among the general public, why one of the Dental Service's challenges of today is to motivate and make fluoride use available, through instruction and evidence-based information. The discussion and concern regarding negative effects on children's cognitive development could be linked to fluoride in low doses in drinking water have been raised after the publication of articles written by Choi et al., (2012, 2014) and Grandjean and Landrigan (2014). These articles have been criticised by Perrott, (2015) and one reason among others is that no correlation between drinking water fluoride concentration and the used cognitive measurements were found. The correlation found by Choi et al. was
between moderate and severe dental fluorosis and lower test scores when measuring IQ. But as Perrott (2015) mentions, dental fluorosis is not only dependent on a high exposure to fluoride, but also influenced by environmental and hereditary factors.

The majority of the asked individuals had received information about caries from their dentist. Why that is, only speculations can be made. Perhaps it is because of the shift in division of labour that has increased recently, where other dental personnel's work assignments have expanded to maximise the total capacity of patients being treated in a day. The results of this study indicate that the younger population had been informed by dental nurses to a higher degree than the elders (Table 2, question 5b). Another reason can be persisting hierarchy, where instructions from dentists may be perceived as more important, and therefore remembered to a wider extent. Or it could be due to the reason that some people don’t know the difference between a dental hygienist and a dentist.

The recommended time aspect for information and instructions during an oral exam is vague, and highly dependent on the patients need, the examiners confidence and current timetable. It is difficult for patients to know what amount of prevention they are paying for, and hard for the caregiver to determine which patients who would benefit from further therapy. Individualized information is supposed to be a part of the examination, i.e. the patient should not be charged of an extra cost. If the patient indicates a need for additional education and/or guidance the patient will be debited for the intervention, if she consents to additional information. The setting of today's dentistry does not promote this kind of treatment, since many of the county councils are heavily focused on the hourly income. Furthermore, the current shortage of dentists in Sweden can also be a contributing factor. Non-operative treatments are usually not cost-effective on a short term, because of low income in comparison to the time spent by the dental personnel. Paradoxical, non-operative treatment is the safest way to maintain oral health on a long term, via low plaque levels and reduced gingival inflammation (Sbaraini and Evans, 2008).

When asked, the majority of the two groups are willing to receive more information about oral hygiene and how to maintain good oral health. Contradictive, the same number were not interested in paying for more information (Table 3, question 25, 26). This shows that it is naïve to think that all patients are motivated to pay for further information. It is problematic to call for the sometimes frugal dental care to offer individualised preventive care and caries.
control for free, particularly when the dental clinics and dentists are burdened with strict revenue claims.

The results of this study showed that every sixth individual have not experienced information about the caries disease. 25 % of the adolescents did not know if they had received information or not (Table 2, question 5a). This suggests a possible knowledge gap due to not receiving information, or not receiving enough information. Irrespective of which, it is reasonable to evaluate the patient education given on a frequent basis. As proposed by Flink et al., (2017) comprehensive efforts is in place to change practitioner's mode of operation, towards a more prophylactic and preventive care. An evaluation made by Hugoson et al., (2007) showed improved oral health among the young adults who received individualised information and instructions every two months compared to a control group. These studies combined with the results presented in this paper, indicates that a shift to an extended, customised non-operative care approach is appropriate.

According to the Swedish Council on Technology Assessment in Health Care (2002), dentists should offer preventive as well as restorative care, irrespective of age, to control caries, prevent further injury and possible prosthetic therapy. The situation observed today can guide us in the direction the proceeding journey to a better general oral health must take. This change will not be easy; it involves decision-makers from the smallest clinics to decision-makers on government boards. Tomar and Cohen, (2010) propose a similar thought in a report regarding the American oral health care system.

In conclusion, most of the responders are performing basic oral hygiene. However, there are still some knowledge gaps remaining, whereas knowledge about caries prevention and self-care in the population is unequal in respect of age; the older population proved to be more well-informed.

ACKNOWLEDGMENTS
We would like to thank our mentor Karin Sunnegårdh-Grönberg, for her time and guidance.
REFERENCES


[http://www.socialstyrelsen.se/nationalguidelines/nationalguidelinesforadultdentalcare](http://www.socialstyrelsen.se/nationalguidelines/nationalguidelinesforadultdentalcare)

[https://www.tlv.se/download/18.10ff552016050837da9b37e7/1513778824788/handbok_versi on_9.0_.pdf](https://www.tlv.se/download/18.10ff552016050837da9b37e7/1513778824788/handbok_versi on_9.0_.pdf)

Table 1. Participants in the study, 214 in total.

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<td>Older individuals, Sundsvall</td>
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### Table 2. Questions 5a, 5b and 10-13.

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<th>Drop out (%)</th>
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<td><strong>5a. Have you received information about caries from the dental service?</strong></td>
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<th>Dental nurse (%)</th>
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<td><strong>5b. If yes, from which work category have you received the information?</strong></td>
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<th>Several times a day (%)</th>
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<td><strong>10. How often do you brush your teeth?</strong></td>
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<td><strong>11. How often is it recommended to brush your teeth?</strong></td>
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<td><strong>12. For how long do you brush your teeth?</strong></td>
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<td><strong>13. For how long is it recommended that you brush your teeth?</strong></td>
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<td><strong>16. Do you know if your toothpaste contains fluoride?</strong></td>
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<td>Drop out (%)</td>
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<td><strong>17. What fluoride content is recommended for toothpaste for adults?</strong></td>
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<td>1450 ppm (%)</td>
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<tr>
<td>Older</td>
<td>10,3</td>
<td>2,8</td>
<td>86,9</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>18. What fluoride content is recommended for mouthrinse for adults?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.05 % (%)</td>
<td>0.2 % (%)</td>
<td>Don't know (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Younger</td>
<td>8,4</td>
<td>22,4</td>
<td>69,2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Older</td>
<td>9,0</td>
<td>12,0</td>
<td>79,0</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>19. Why is mouthrinse containing fluoride beneficial?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Counteracts caries (%)</td>
<td>Provides a fresh breath (%)</td>
<td>Kills bacteria (%)</td>
<td>Don't know (%)</td>
<td>Drop out (%)</td>
<td></td>
</tr>
<tr>
<td>Younger</td>
<td>49,5</td>
<td>2,8</td>
<td>31,8</td>
<td>13,1</td>
<td>2,8</td>
</tr>
<tr>
<td>Older</td>
<td>73,8</td>
<td>0,9</td>
<td>13,1</td>
<td>7,5</td>
<td>4,7</td>
</tr>
<tr>
<td><strong>25. Would you like to receive more information from the dental services about oral hygiene and how to maintain good oral health?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes (%)</td>
<td>No (%)</td>
<td>Drop out (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Younger</td>
<td>75,7</td>
<td>23,4</td>
<td>0,9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Older</td>
<td>54,2</td>
<td>43,9</td>
<td>1,9</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>26. Would you pay for information about oral hygiene and how to maintain good oral health?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes (%)</td>
<td>No (%)</td>
<td>Drop out (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Younger</td>
<td>22,4</td>
<td>75,7</td>
<td>1,9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Older</td>
<td>36,4</td>
<td>63,6</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX

Enkätundersökning: Kariesprevention och munhygien

Fredrika Lundberg Palm
Sofie Karlsson
Var vänlig och kryssa i ett svarsalternativ per fråga. Om du inte vet, välj alternativet ”Vet ej”.

1. Vilken könstillhörighet tillhör du?
   o Kvinna
   o Man

2. Hur gammal är du? ____

3. Kallas du till regelbundna besök av tandvården?
   o Ja
   o Nej
   o Vet ej

4. Vart går du?
   o Folk tandvård
   o Privattandläkare
   o Ingenstans

5a. Har tandvården gett dig information om varför man får karies (hål i tanden)?
   o Ja
   o Nej
   o Vet ej

5b. Om ja, från vilken yrkeskategori har du fått denna information? Välj det alternativ som stämmer bäst in.
   o Tandläkare
   o Tandhygienist
   o Tandsköterska

6. Hur många mål mat per dag är det rekommenderat av tandvården att du bör äta?
   o 0-3 st
   o 4-5 st
   o 6-7 st
   o Vet ej
7. Vilket av följande alternativ kan mest troligt orsaka karies (hål i tänderna)? Välj endast ett alternativ.
   o Sur kost
   o Klibbig och söt kost
   o Vet ej

8. Vilket av följande alternativ är det *bästa* för dina tänder?
   o Mjölk
   o Vatten
   o Kolsyrat vatten
   o Vet ej

9. Vilket av följande alternativ är det *sämsta* för dina tänder?
   o Kaffe
   o Juice
   o Mjölk
   o Vet ej

10. Hur ofta borstar du dina tänder?
    o Aldrig
    o Några gånger i veckan
    o En gång per dag
    o Två gånger per dag
    o Flera gånger per dag

11. Hur ofta är det rekommenderat att man bör borsta tänderna?
    o Aldrig
    o Några gånger i veckan
    o En gång per dag
    o Två gånger per dag
    o Flera gånger per dag
    o Vet ej
12. Hur länge borstar du tänderna ungefär?  
   o En halv minut  
   o En minut  
   o Två minuter  
   o Mer än två minuter  

13. Hur länge är det rekommenderat att man bör borsta tänderna?  
   o En halv minut  
   o En minut  
   o Två minuter  
   o Mer än två minuter  
   o Vet ej  

14. Har du blivit instruerad i tandborstteknik av tandvården?  
   o Ja  
   o Nej  
   o Vet ej  

15. När är det viktigast att borsta tänderna?  
   o Morgon  
   o Lunch  
   o Kväll  
   o Vet ej  

16. Vet du om din tandkräm innehåller fluorid (fluor)?  
   o Ja  
   o Nej  

17. Hur mycket fluorid (fluor) bör tandkräm för vuxna innehålla?  
   o 550 ppm (parts per million)  
   o 1450 ppm  
   o Vet ej
18. Hur mycket fluorid (fluor) bör munskölj för vuxna innehålla?
   o 0,05 %
   o 0,2 %
   o Vet ej

19. Varför är munskölj med fluorid (fluor) bra?
   o Motverkar karies
   o Ger fräsch andedräkt
   o Dödar bakterier
   o Vet ej

20. Använder du tandtråd eller mellanrumsborstar?
   o Ja
   o Nej

21. Om ja, hur ofta använder du tandtråd eller mellanrumsborstar?
   o En gång i månaden
   o En gång i veckan
   o Några gånger i veckan
   o En gång per dag
   o Två gånger per dag
   o Flera gånger per dag

22. Har tandvården informerat dig om hur man använder tandtråd och/eller mellanrumsborstar?
   o Ja
   o Nej
   o Vet ej

23. När var du på undersökning senast?
   o Senaste halvåret
   o Senaste året
   o Mer än ett år sedan
   o Vet ej
24. Hur ofta bör man besöka tandvården?
   o Två gånger per år
   o Varje eller vartannat år
   o Var tredje år
   o Det är olika beroende på individ
   o Vet ej

25. Skulle du vilja att tandvården informerade mer om munhygien och hur du behåller en god munhälsa?
   o Ja
   o Nej

26. Skulle du kunna tänka dig att betala för information om munhygien och hur du behåller en god munhälsa?
   o Ja
   o Nej