Patients' preferences for management of deep occlusal, initial occlusal and root carious lesions

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Abstract

Introduction: Evidence-based dentistry is a threefold method of working as a dentist. The threefold method is clinical experience, evidence-based research and patients' preferences. The purpose of this study was to investigate patient's preferences for management of different carious lesions; initial occlusal carious lesions, deep occlusal carious lesions, and root carious lesions, and if there was any relationship between patient's preferences and their characteristics.

Methods: This cross-sectional study consisted of a questionnaire and case vignettes. The questionnaire included questions about gender, age, population in home town, dental history, modified dental anxiety score and the ten-item personality score. The case vignettes consisted of description of two management options for each of three types of carious lesions: stepwise excavation and selective excavation for deep occlusal carious lesions, fissure sealant and fluoride/hygiene regimen for initial occlusal carious lesions, and filling and fluoride/hygiene-regimen for root carious lesions. We used convenient sampling to recruit participants at Pingvinhotellet, a hotel dedicated for patients and next of kin, at the University Hospital in North of Norway in Tromsø. There were 168 persons who were asked to participate, and 147 persons responded to case vignettes and questionnaires. Out of these 7 answers were excluded, which gave us 140 answers to analyze. The response rate was 88%. The results were analyzed using univariable and a multivariable binary logistic regression analysis.

Results: There were 65 men and 75 women that participated in the study. Out of them, 75 (53,6%) respondents preferred selective excavation and 65 (46,4%) preferred stepwise excavation when presented to the vignettes describing deep occlusal carious lesion. There were 86 (61,4%) respondents that preferred fissure sealant and 54 (38,6%) that preferred fluoride/hygiene regimen when presented to the vignettes describing initial occlusal carious lesion. There were 91 (65%) of the respondents that preferred filling and 49 (35%) that preferred fluoride varnish/ hygiene regimen when presented to the vignettes describing root carious lesion. For initial occlusal carious lesions, the multivariable binary logistic regression analysis showed that there was a statistically significant association between not having the same dentist or dental hygienist for three years or more versus having the same dentist for 3 years or more, and preference for fluoride varnish/hygiene regimen (OR 2.644, 95%CI 1.112-6.287). For root carious lesions, the analysis showed that the personality trait "agreeable" test was statistical significantly associated with the preference of operative management alternative (OR 0.562, 95%CI 0.358- 0.882). In addition, there was a statistically significant

association between preference of fluoride varnish/hygiene regimen and having a PhD academic degree versus primary school education (OR 10.620, 95%CI 1.062- 106.170).

Conclusion:

Regarding deep occlusal carious lesions, participants equality preferred both management option, while for initial occlusal and root carious lesions almost two third of the participants preferred more invasive management options, fissure sealing and filling, respectively.

There was a statistically significant association between the preferred management of initial occlusal carious lesions; preferring fluoride varnish/hygiene regimen and not having the same dentist for three years or more. It was also a significant association between the preferred management of root carious lesions; preference of the filling associated with having the personality trait "agreeable". Also, for root carious lesions there was a significant association between preferring fluoride varnish/hygiene regimen and having a PhD academic degree. The results in this study may open up for a connection and a dialogue with a patient and this may lead to let the patient feel that they are participating in the decision-making of management of different types of carious lesions, which in itself is an important part of practicing evidence-based dentistry. There is a need for more qualitative design research in order to understand which patient characteristics are important in decision making. In addition, there is a need for more research to find out if and which management associated factors are important to people to find their preferences for a particular management.

After working with the thesis, we have gained better insight into factors that might influence patients' preferences of management and how important they are in the decision making.

Author's Contributions:

TT and JS designed the study, sampled the data, drafted and revised the manuscript.

Table of content

Introduction

Caries and its distribution

Several factors, such as cariogenic bacteria, bad oral hygiene causing plaque accumulation, insufficient fluoride, high intake of sugar, saliva production and lifestyle habits contribute to carious lesion development (1).

In plaque present cariogenic bacteria use fermentable carbohydrates such as glucose, fructose and sucrose to produce acid that causes a tooth surface demineralization whereas calcium and phosphate ions get removed from the surface of hydroxyapatite crystals in dentine and enamel (2). This process starts when the pH reaches the critical value of 5.5 (3). pH 6.2-6.4 is the critical value for dentine demineralization because it contains a larger proportion of organic material as in collagen type 1 for the most part (4, 5). The balance between demineralization and remineralization will determine if a carious lesion will occur. If the demineralization is greater than the remineralization the equilibrium will shift and result in enamel dissolution and development of caries lesions (1, 6) When the tooth gets remineralized the calcium and phosphate ions which were lost, are replaced by ions from the surroundings in the oral cavity (6).

Ravald et al. (7) described the most commonly locations of root caries lesion to be placed at the border of prior restorations with (51%), the cemento-enamel junction (25%) and lesions which are associated with other lesions (17%).

According to the Global Burden of Disease 2010 Study, untreated dental caries in permanent dentition was the most prevalent chronic disease affecting one third of the global population (8).

Carious lesion detection

In a clinical context one of the most commonly used tool for occlusal and approximal carious lesion detection is the International Caries Detection and Assessment system (ICDAS). According to this system, the depth of the carious lesion seen clinically is divided into 6 stages, where stage 1-3 represents carious lesion in enamel and stage 4-6 in dentine. Initial carious lesions is only in enamel, and therefore these lesions will be in stage 1-2. In deep

carious lesions, stage 5 and 6, there are a distinct or extensive cavity with visible dentine when the tooth is examined clinically. Stage 0 is a tooth with no clinical signs of caries (9). Root carious lesion detection score is included in this system, but there is bias in this system because it lacks histological validation (10).

Root caries lesion detection is primarily done by using a visual-tactile method. The color, cavitation and surface texture will be examined (11). Clinically it manifests as a light tan to dark brown lesion according to root surface caries severity index which goes from grade I – incipient- to grade IV –pulpal (12). The lesion is often shallow, occurring circular at the root of the tooth over the gingival margin (6). The clinician often uses a dichotomous system which is a system where the lesion is divided into two groups, cavity or no cavity (13).

In Norway, the most common caries classification is based on Anne Bjorg and Ivar Espelid recommendations and it identifies 5 stages of carious lesions, where 1 is initial carious lesion with a lesion depth into outer half of the enamel and stage 5 is a large lesion reaching the inner third of the dentine based on a bitewing radiograph (14).

Occlusal initial carious lesions

Initial carious lesions may clinically often manifest as a white spot lesion when active and a brown spot lesion when arrested (9). Initial carious lesions histologically can be identified as subsurface area with loss of minerals and almost intact surface layer; therefore, they have a potential to remineralize. If they continue to demineralize loss of surface occurs and the tooth surface gets cavitated (15).

Initial carious lesions on occlusal surfaces may be managed in several ways, two of the most commonly used methods are enhancing the enamel resistance using topical fluoride and the application of fissure sealant to prevent the carious lesions to develop further (16). In one study about prevention of initial caries the success rate of fissure sealants after one year was 83% for effectiveness and 92% for complete retention and after 7- years, it was 55% and 66%, respectively (16)**.** A randomized controlled trial showed that fluoride varnish had a good effect compared with placebo, when it comes to progress of occlusal carious lesions. There was a 56% caries reduction when using Duraphat varnish (22600 ppm) compared with the control group (17).

A recent systematic review and a meta- analysis showed that fissure sealant can be effectively applied on permanent teeth in posterior regions in order to prevent caries (18). Cochrane systematic review, comparing fissure sealants and fluoride varnishes effectiveness in preventing or controlling dental caries on occlusal surface of permanent teeth of children and adolescents, could not reach meaningful conclusions due to the existence of diversity of the clinical data (17). A randomized control trial, investigating cost- effectiveness of fissure sealants and fluoride varnishes for caries prevention among 6-7 year-old children in the UK concluded that both methods in community programs were effective, and that fluoride varnish was cheaper (19).

To our knowledge there is no data regarding management of initial carious lesions among adults.

Occlusal deep carious lesions

Clinically this type of lesion is almost always cavitated with the visible dentine on the lateral and pulpal walls. The pulp under the deep carious lesions is always inflamed (20). No symptoms or sharp temporary pain to cold stimuli might indicate reversible pulpitis in connection to deep carious lesion (21). In this case the pulp has a potential to heal. If the carious process is not managed by operative means, it will gradually reach the pulp and cause irreversible changes in the pulp. This will require endodontic treatment (22).

According to International Caries Consensus Collaboration (ICCC) recommendations, deep carious lesions in the inner 1/3 or ¼ of the dentine should be managed by selective excavation to soft dentine or stepwise excavation (23).

Maltz and co-workers' studies showed similar success rated of stepwise excavation and stepwise excavation (24-26). The success rate was high if the seal had no leakage, and the dentine then got remineralized. The need for the second step in stepwise excavation when carious dentine is completely removed has been challenged (26-30). The success rate of selective excavation and stepwise excavation has been shown to be similar, 80% and 75% respectively, among mixed age population of children and adults (25). A cost- effectiveness analysis based on German health system showed that selective excavation was the cost- effective management alternative (31, 32).

Root carious lesions

Root carious lesions develops when the root is exposed to the oral environment, in particular where there are gingival recessions, which expose the surface of the roots. Furthermore, this has a connection with improved dental health care where there are fewer people in the population that is edentulous. As a result of this there is a higher count of exposed root surfaces (8, 33). Older people have a higher susceptibility towards periodontitis which results in recession and more exposed roots. Moreover, although everyone have a risk, the medications will increase the risk for this type of root caries especially when using medication which promotes hyposalivation leading to xerostomia (6, 34-36) .

Root carious lesions, even when cavitated, has a potential to remineralize, because biofilm is easily controlled on a root surface . If the lesion is shallow the most conservative choice of management is arresting the lesion through remineralization through increased fluoride intake and oral hygiene which requires good patient cooperation (37).

Moreover, the caries development of root carious lesions favors to expand throughout the cemento- enamel junction (CEJ) and primarily on the root surface under CEJ (38).

Several studies showed that root carious lesions showed higher success rates when managed by a conservative treatment which is operative with rotary burs and anesthesia rather than atraumatic restorative treatment (39) which is a method removing carious tissue with hand excavation only, often without anesthesia (8, 17, 40-43)   . The conservative management with high fluoridated toothpaste – 5000 ppm- resulted in a statically significantly higher surface hardness score of the lesion compared to the conservative management with regular toothpaste – 1450 ppm (44). Furthermore 78% of the lesions got arrested (45). On the other hand, operative management has a success rate of 85- 91% for ART and 91-98% for conventional treatment (42).

Evidence-based dentistry

The American Dental Association (ADA) defines evidence-based dentistry as "an approach to oral healthcare that requires the judicious integration of systematic assessments of clinically relevant scientific evidence, relating to the patient's oral and medical condition and history, with the dentist's clinical expertise and the patient's treatment needs and preferences" (46).

Evidence-based dentistry consists of three parts which are the dentist's clinical experience, the patients' need and preferences and clinically relevant evidence with a critical evaluation from the practitioner (47). Up to date, the scientific evidence is seen as a core for a decision-making. To acquire clinically relevant evidence, it is important to seek updated research based on evidence. Systematic reviews and meta- analyses of randomized controlled trials provide the highest level of evidence (48). On the other hand, the evidence of less quality is committee reports and expert opinions (49).

It is important to respect the patients' values, which must to be taken into consideration when planning a treatment. Therefore each patient should take part of the decision making (50). At the same time, the dentist should consider the duration of treatment to achieve the best quality of dental care. It is shown that empathy for the patient give trust and further improve the therapeutic effect (51). The dentist should base their decision taking into consideration time use and how to achieve the best quality of dental care (47).
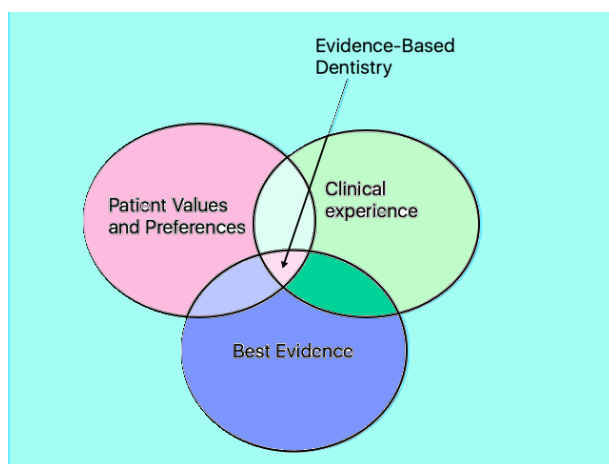
Figure 1: Triad showing evidence-based dentistry

Aim

To our knowledge there is only one publication investigating patients' preferences of management in deep carious lesions (52), but the data regarding patients' preferences for management of other types of carious lesions are lacking. The one known publication does not investigate patient's preferences in situations where scientific evidence presents equal success of different management options.

It is important to follow the individual patient's preferences when practicing evidence-based dentistry and at the same time make sure that the patient receives the best treatment as possible. Therefore, we want to investigate patients' preferences more thoroughly.

The purpose of this study was to find out patient's preferences for management of carious lesions; initial occlusal carious lesions, deep occlusal carious lesions, and root carious lesions, and if there was any relationship between preferences and characteristics of persons.

In the medical field there are many studies investigating factors which are influencing peoples' preferences for different treatments, such as predisposing factors, enabling factors, subjective needs, general health and attitudes. All of this has been found to be decisive factors for preferred treatment in the medical field. However, solid evidence for this in dentistry is lacking (23, 52). We have not investigated all the predisposing factors mentioned above in this study, only the characteristics of participants.

Hypotheses

Hypothesis 1: People who have a higher level of dental anxiety would rather prefer less invasive treatment.

Hypothesis 2: People who live in more rural areas would rather choose treatments which require fewer appointments, because this may indicate that the access to the dentist can be limited.

Material and Methods

Study design and participants

The study design was cross- sectional using vignettes and questionnaire. We found the participants in the hospital cafeteria and Pingvinhotellet at the University Hospital of North Norway in Tromsø. By doing so we got diversity by included participants from both town and village in the study. This means that we had a greater range of participants to base this study on. We found our participants using convenient sampling (53). To have the most possible random selection we asked every person sitting in the waiting area/cafeteria in the time period we collected answers.

The participants had to be over 20 years old because that is the age group in which people do not get free or highly discounted price at the dentist linked to the public dental service (Den

offentlige tannhelsetjenesten) unless they have certain diseases or qualified for free treatment (54).

Vignettes and questionnaire

We conducted a search in Pubmed, US National Library of Medicine- National Institutes of Health, for studies investigating different types of management options for deep occlusal carious lesions, initial carious lesions and root carious lesions. From the search we discovered which two managements that have the best success rates for each carious lesion type which were fissure sealant and fluoride varnish/hygiene regimen regarding initial occlusal carious lesions, selective excavation and stepwise excavation regarding deep occlusal carious lesions and filling and fluoride varnish/hygiene regimen regarding root caries. We then made overview tables consisting of the studies that investigated different management options (appendix 1).

We created case vignettes describing stepwise excavation, selective excavation for deep occlusal carious lesions, fissure sealant and fluoride varnish/hygiene regimen for initial occlusal carious lesions and filling fluoride varnish/hygiene regimen for root carious lesions (appendix 2). These case vignettes are written in a way that persons without any education and knowledge in dentistry or health service could easily understand. To validate this, we did a face validation, asking three clinical instructors at the University Dental Clinical in Tromsø and professor Sophie Doméjan at Clermont-Ferrand University, France, to give their comments. After implementing their comments, we did a test- retest. This was to ensure that the participants understood the text in the vignettes and questionnaires to minimize bias. The test- retest group consisted of 10 persons. We collected all answers from them and repeated the same procedure two weeks later to see if the result was reproducible. The result was reproducible, as 9 out of 10 persons preferred the same management both times. The last person preferred the same management both times for initial occlusal carious lesions and root carious lesions, but changed opinion in preferred management for deep occlusal carious lesion.

The vignettes consisted of three parts, two management options for deep occlusal carious lesions, initial carious lesions and root carious lesions. For deep occlusal carious lesions option 1 was less invasive selective excavation, option 2 was stepwise excavation. For initial occlusal carious lesions option 1 was fissure sealant, option 2 was less invasive fluoride varnish/hygiene regimen. For root carious lesions option 1 was filling, option 2 was less

invasive fluoride varnish/hygiene regimen. We used the vignettes while presenting the different management options to assure that the participants would have the same understanding and information about the different management options. They could ask questions at any given time during the case vignettes. When the participants chose if they wanted treatment number 1 or treatment number 2, they marked a cross on a line with a range from 0- 100, where treatment number 1 was on the left side of the line, 0, and treatment number 2 was on the right side of the line, 100. The line was measured to 15,6 cm. For every answer the distance was measured from the start of the line to the cross. This gave a number in centimeter, so the value could be used as a continuous value. For descriptive purpose we divided these answers into 4 groups;

1. Participants who marked their cross on the line between 0- 3.6 cm, meaning they preferred the first treatment 2. Participants who marked their cross on the line between 3.61-7.8 cm, meaning they preferred the first presented treatment, but were open to go through the second presented treatment, 3. Participants who marked their cross between 7.81- 11.4 cm, meaning they preferred the second presented treatment, but were open to go through the first presented treatment, 4. Participants who marked their cross on the line between 11.41- 15.6 cm, meaning they preferred the second presented treatment. For the binary logistic regression analysis, we combined group 1-2 and 3-4 which gave us a cut-off point at 7.81 cm.

This study included a questionnaire (appendix 3). We did a test- retest for the questionnaire as well with two weeks interval. The 10 persons who did the test-retest answered almost the same both times, two of ten persons had a different result in the TIPI-test which was slightly difference with one number separating the test and test-retest. One of the persons answered six regarding reserved/quiet and two weeks later the person answered five. The other person answered four regarding sympathetic/warm and answered five two weeks later. The participants first filled out the questionnaire and then we asked about the preferences for each case. The questionnaire included structured questions about age, gender, population in hometown, dental experience, opinion of own oral health, level of dental anxiety and personality traits. which treatment or management of caries that the patient prefers for the given type of caries. On the contrary, Schwendickes publication "Patients' preferences for selective versus complete excavation: A mixed-methods study." we included MDAS, root carious lesions, initial carious lesions and used stepwise excavation instead of complete excavation. The reason for this is, according to ICCC (International Caries Consensus

Colloboration), stepwise excavation has a better success rate than complete excavation, regarding the vitality of the pulp than total excavation (23).

We used the Modified Dental Anxiety Scale (MDAS) and Ten-Item Personality Inventory (TIPI) which are two validated Norwegian instruments (55, 56)

The MDAS score and the TIPI score for each personality trait were calculated.

MDAS

The Modified Dental Anxiety Scale (MDAS) is a validated and modified edition of Cora's Dental Anxiety Scale (DAS) (57). The MDAS also consists of questions regarding local anesthesia and to simplify the different categories (58). MDAS is a questionnaire consisting of five questions about the participants anxiety level when visiting a dentist, with a scale ranging from 1(not anxious at all) to 5 (extremely anxious). Total score ranging is from 5 to 25. A score between 5-14 can be considered as not anxious at all, while a score between 15-18 indicate moderate anxiety (58). A score between 19-25 indicates an extremely anxious person (59). MDAS has been translated into many different languages, including Norwegian (60).

TIPI

TIPI (Ten- Item Personality Index) is a measurement of personality traits. The questionnaire consists of ten different statements, which gives the participant an individual score for the five personality traits. The five- factor model consists of the traits; emotional stability/neuroticism, extroversion, conscientiousness, openness and agreeableness. The theory is that these traits are basic personality traits that everyone has, regardless of culture and age (61)

Persons with a low score of emotional stability, and then also a high score of neuroticisms, has been shown to worry more, be more unstable and are more exposed to develop anxiety and depression (39, 62).

The questionnaire has been validated and translated into Norwegian by Cristina Aicher (63). To calculate the TIPI score we used an excel spreadsheet made by Daniel DeNeui.

Participants and response rate

Altogether, 168 persons were asked to participate in this study. Out of them, 147 persons gave their written consent to be interviewed. That gave a response rate of 87,5%. In total 21

persons who declined the invitation to participate in this study. They were mostly elderly people (66+ years) who were tired after a treatment in the hospital. Some did not have time because of an appointment in the hospital. Three persons did not have time to complete the interview and two persons did not want to continue after the questionnaire without giving a specific reason. Two were excluded because of deficiencies in the questionnaire (e.g. skipping questions). That gave us 140 answers to analyze.

Statistics

We used the binary logistic regression analyses model since the outcome variable in logistic regression is binary/dichotomous compared to linear regression. We did the binary logistic regression analysis using SPSS Software version 25 (IBM Corporation, New York, USA) to analyze our data. For each carious lesion we constructed a separate model. This gave us three different models, one for each type of carious lesion. The three models consisted of both the univariable and the multivariable analysis.

Crude odds ratio was recorded from univariable binary logistic regression analyses. We then conducted a multivariable binary logistic regression analyses to find "adjusted odds ratio". Nagelkerke R^2 and Hosmer- Lemeshow goodness of fit tests were recorded. Nagelkerke R^2 is defined in Nagelkerke's article as the proportion of variance "explained" by the regression model makes it useful as a measure of success of predicting the dependent variable from the independent variables (64). Furthermore, we used Hosmer- Lemeshow goodness- of- fit test which by using a Pearson test statistic to compare the fitted and observed counts for the partition (65). It is estimated over the variety of fitted values determined by the covariates in the model, not the total number of covariates (66). Our results of Nagelkerke R^2 and Hosmer- Lemeshow goodness-of-fit test are presented in table 1.

In mulitivariable binary logistic regression analysis, we firstly included all variables that resulted in a p-value <0.1 in univariable binary logistic regression analysis. In the model for management of root carious lesions the Hosmer- Lemeshow goodness of fit test had a p-value<0.05 and we adjusted the model to get a better fit. Therefore, we included all the independent variables with a p-value <0.2 for further analysis in addition to age, gender, population in home town and MDAS- score. We did also get a better Nagelkerke- value in all three analysis when including all variables with a p-value <0.2.

We used the B (exp) to evaluate data statistically with $p \leq 0.05$ considered as statistically significant. The predictor variables were included based on the univariable binary logistic regression analysis, all variables with a p-value <0.2, and variables that concerns our hypotheses: MDAS- score and population in home town.

Table 1: Hosmer- Lemeshow goodness- of- fit test and Nagelkerke- values for the multivariable binary regression analysis

	Hosmer-Lemeshow.	Chi- square	Nagelkerke R-square
Deep occlusal carious lesions	0.136	12.356	0.215
Initial occlusal carious lesions	0.487	7.471	0.206
Root carious lesions	0.713	5.411	0.246

Ethics

Before the data collection sampling could be initiated, we sent a request to REK (Regional Committee for Medical and Health Research Ethics) to ensure that the study was ethical to conduct. REK confirmed that ethical approval was not needed for this kind of study so the sample collection could be started without conflicting with the health research law. We also applied to NSD (The Norwegian Centre for Research Data) and got an approval to start the project (Nr.60625). We had to give an information sheet and a signed consent from every participant (appendix 4).

Results

There were 75 (53,6%) of the respondents that preferred selective excavation and 65 (46,4%) that preferred stepwise excavation when presented to the vignettes describing deep occlusal carious lesion and two alternative management options and asked which management option they preferred. There were 86 (61,4%) of the respondents that preferred fissure sealant and 54 (38,6%) that preferred fluoride varnish/ hygiene regimen when presented to the vignettes describing initial occlusal carious lesions and two alternative management options and asked

which management option they preferred. There were 91 (65%) of the respondents that preferred filling and 49 (35%) that preferred fluoride varnish/ hygiene regimen when presented to the vignettes describing root carious lesion and two alternative management options and asked which management option they preferred (table 2).

Table 2: Descriptive statistics: Characteristics of participants according to their preferred management options for deep occlusal carious lesions

		Selective excavation	In between, but prefer selective excavation	In between, but prefer stepwise excavation	Stepwise excavation	Total
		N (%)	N (%)	N (%)	N (%)	N (%)
Gender	Men	21	24	16	14 (	75 (53.6)
	Women	22	8	22	13	65 (46.4)
Total		**43 (30.7)**	**32 (22.9)**	**38 (27.1)**	**27 (19.3)**	**140 (100)**
Inhabitants	1.0-4999	14	14	18	10	56 (40)
	2.5000-19999	11	10	7	7	35 (25)
	3.20000-49999	3	1	5	2	11 (7.9)
	4.50000+	15	7	8	8	38 (27.1)
Total		**43 (30.7)**	**32 (22.9)**	**38 (27.1)**	**27 (19.3)**	**140 (100)**
Age	20-35	9	4	8	5	26 (18.6)
	36-50	4	2	5	**7**	18 (12.9)
	51-65	14	9	10	6	39 (27.9)
	66+	16	17	15	9	57 (40.6)
Total		**43(30.7)**	**32(22.9)**	**38(27.1)**	**27(19.3)**	**140(100)**
Education	Primary school	9	6	8	3	26 (18.6)
	High school	19	16	16	11	62 (44.3)
	Bachelor's degree	6	5	8	11	30 (21.4)
	Master's degree	6	5	4	1	16 (11.4)

	PhD degree	3	0	2	1	6 (4.3)
Total		**43(30.7)**	**32(22.9)**	**38(27.1)**	**27(19.3)**	**140(100)**
Appointments	0	8	7	8	8	31 (22.1)
	1	20	14	21	11	66 (47.1)
	2	11	3	4	7	25 (17.9)
	3+	4	8	5	1	18 (12.9)
Total		**43(30.7)**	**32(22.9)**	**38(27.1)**	**27(19.3)**	**140(100)**
Same	Yes	27	21	24	20	92 (65.7)
	No	14	9	14	7	44 (31.4)
	Unsure	2	2	0	0	4 (2.9)
Total		**43(30.7)**	**32(22.9)**	**38(27.1)**	**27(19.3)**	**140(100)**
Trust	Yes	38	28	36	27	129 (92.1)
	No	3	1	1	0	5 (3.6)
	Unsure	5	2	1	0	6 (4.3)
Total		**43(30.7)**	**32(22.9)**	**38(27.1)**	**27(19.3)**	**140(100)**
Perception	Good	26	17	22	13	78 (55.7)
	Medium	16	14	14	14	58 (41.4)
	Bad	1	1	2	0	4 (2.9)
Total		**43(30.7)**	**32(22.9)**	**38(27.1)**	**27(19.3)**	**140(100)**

There were 86 (61,4%) of the respondents that preferred fissure sealant and 54 (38,6%) that preferred fluoride varnish/hygiene regimen when presented to the vignettes describing initial occlusal carious lesion and two alternative management options and asked which management option they preferred (table 3).

Table 3: Descriptive statistics: Characteristics of participants according to their preferred management options for initial occlusal carious lesions

		Fissure sealant	In between, but prefer fissure sealant	In between, but prefer fluoride/hygiene	Fluoride/hygiene	Total
		N (%)	N (%)	N(%)	N(%)	N(
Gender	Men	27	19	15	14	75 (53.8)
	Women	21	19	9	16	65 (46.4)
Total		**48 (34.3)**	**38 (27,1)**	**24 (17.1)**	**30**	**140 (100)**
Inhabitants	1.0-4999	21	15	9	11	56 (40)
	2.5000-19999	12	9	7	7	35 (25)
	3.20000-49999	2	4	2	3	11 (7.9)
	4.50000+	13	10	6	9	38 (27.1)
Total		**48(34.3)**	**38(27.1)**	**24(17.1)**	**30**	**140(100)**
Age	20-35	9	10	2	5	26 (18.6)
	36-50	8	2	6	**2**	18 (12.9)
	51-65	11	8	6	14	39 (27.9)
	66+	20	18	10	9	57 (40.7)
Total		**48(34.3)**	**38(27.1)**	**24(17.1)**	**30 (21.4)**	**140 (100)**
Education	Primary school	9	7	7	3	26 (18.6)
	High school	23	18	7	14	62 (44.3)
	Bachelor's degree	8	9	5	8	30 (21.4)
	Master's degree	7	3	4	2	16 (11.4)

PhD degree	1	1	1	3	6 (4.3)
Total	**48(34.3)**	**38(27.1)**	**24(17.1)**	**30(21.4)**	**140(100)**
Appointments 0	10	8	6	7	31 (22.1)
1	22	18	15	11	66 (47.1)
2	11	5	1	8	25 (17.9)
3+	5	7	2	4	18 (12.9)
Total	**48(34.3)**	**38(27.1)**	**24(17.1)**	**30(21.4)**	**140(100)**
Same Yes	35	27	16	14	92 (65.7)
No	12	11	6	15	44 (31.4)
Unsure	1	0	2	1	4 (2.9)
Total	**48(34.3)**	**38(27.1)**	**24(17.1)**	**30(21.4)**	**140(100)**
Trust Yes	44	35	23	27	129 (92.1)
No	3	2	0	0	5 (3.6)
Unsure	1	1	1	3	6 (4.3)
Total	**48(34.3)**	**38(27.1)**	**24(17.1)**	**30(21.4)**	**140(100)**
Perception Good	27	22	12	17	78 (55.7)
Medium	18	16	12	12	58 (41.4)
Bad	3	0	0	1	4 (2.9)
Total	**48(34.3)**	**38(27.1)**	**24(17.1)**	**30(21.4)**	**140(100)**

There were 91 (65%) of the respondents that preferred filling and 49 (35%) that preferred fluoride varnish/hygiene regimen when presented to the vignettes describing root carious lesion and two alternative management options and asked which management option they preferred (table 4).

Table 4: Descriptive statistics; Characteristics of participants according to their preferred management options for root carious lesions

		Filling	In between, but prefer filling	In between, but prefer fluoride/hygiene	Fluoride/hygiene	Total
		N(%)	N(%)	N(%)	N(%)	N(%)
Gender	Men	35	17	16	7	75 (53.6)
	Women	26	13	12	14	65 (46.4)
Total		**61(43.6))**	**30(21.4)**	**28 (20)**	**21 (15)**	**140 (100)**
Inhabitants	0-4999	24	14	8	10	56 (40)
	5000-19999	13	6	13	3	35 (25)
	20000-49999	5	1	4	1	11 (7.9)
	50000+	19	9	3	7	38 (27.1)
Total		**61(43.6)**	**30(21.4)**	**28(20)**	**21(15)**	**140(100)**
Age	20-35	11	6	6	3	26 (18.6)
	36-50	10	4	1	**3**	18 (12.9)
	51-65	15	7	8	9	39 (27.9)
	66+	25	13	13	6	57 (40.7)
		61(43.6)	**30(21.4)**	**28(20)**	**21(15)**	**140(100)**
Education	Primary school	10	5	7	4	26 (18.6)
	High school	28	12	12	10	62 (44.3)

Patients' preferences

	Bachelor's degree	12	9	5	4	30 (21.4)
	Master's degree	10	3	3	0	16 (11,4)
	PhD degree	1	1	1	3	6 (4.3)
Total		**61(43.6)**	**30(21.4)**	**28(20)**	**21(15)**	**140(100)**
Appointments	0	13	7	7	4	31 (22.1)
	1	30	16	12	8	66 (47.1)
	2	13	3	3	6	25 (17.9)
	3+	5	4	6	3	18 (12.9)
Total		**61(43.6)**	**30(21.4)**	**28(20)**	**21(15)**	**140(100)**
Same	Yes	44	17	18	13	92 (65.7)
	No	17	11	9	7	44 (31.4)
	Unsure	0	2	1	1	4 (2.9)
Total		**61(43.6)**	**30(21.4)**	**28(20)**	**21(15)**	**140(100)**
Trust	Yes	57	26	27	19	129 (92.1)
	No	2	1	1	1	5 (3.6)
	Unsure	2	3	0	1	6 (4.3)
Total		**61(43.6)**	**30(21.4)**	**28(20)**	**21(15)**	**140 (100)**
Perception	Good	32	17	18	11	78 (55.7)
	Medium	26	12	10	10	58 (41.4)
	Bad	3	1	0	0	4 (2.9)
Total		**61(43.6)**	**30(21.4)**	**28(20)**	**21(15)**	**140(100)**

Deep occlusal carious lesions

The results from the univariable and multivariable binary logistic regression analysis for preference of management of deep occlusal carious lesions is presented in table 5. None of the participants' characteristics were statistically significantly associated with deep carious lesion management options neither in univariable nor in multivariable binary logistic regression analyses.

Table 5: Association between management preferences for deep occlusal carious lesion (indicated if this OR shows odds for preference of selective or stepwise excavation) and characteristics of participants according to univariable and multivariable binary logistic regression analyses.

		Crude OR (95%CI)	Sig.	Adjusted OR (95%CI)	Sig
Gender	Men	1		1	
	Women	1.656* (0.847-3.236)	**0.14**	2.215 (0.988- 4.964)	0.054
Age	20-35 y	1.280 (0.505- 3.244)	0.60	2,147 (0.590- 7.814)	0.246
	36-50 y	2.560 (0.843- 7.775)	0.97	2.941 (0.774- 11.169)	0.113
	51-65 y	0.890 (0.390 – 2.032)	0.78	0.951 (0.350- 2.582)	0.921
	66+ y	1		1	
Inhabitants	0-4999 ppl	1		1	
	5000- 19 999 ppl	0.750 (0.321- 1.755)	0.51	1.839 (0.413- 2.693)	0.912
	20 000- 49 999 ppl	1.750 (0.460- 6.653)	0.41	1.939 (0.482- 11.907)	0.285
	50 000 + ppl	0.727 (0.317- 1.668)	0.45	4.407 (0.187- 1.585)	0.264
Education	Primary school	1		1	
	High school	1.052 (0.417- 2.655)	0.92	0.558 (0.213- 1.914)	0.423
	Bachelor's degree	2.727* (0.920- 8.087)	**0.07**	0.356 (0.570- 6.714)	0.287
	Master's degree	0.620 (0.167- 2.303)	0.46	1.092 (0.120- 2.56)	0.449
	Ph.D degree	1.364 (0,230- (8,081)	0.44	0.309 (0.234- 13.724)	0.575
Appointments	0	1		1	
	1	0.775 (0.329- 1.825)	0.56	0.485 (0.165- 1.426)	0.188

	2	0.647 (0.224- 1.868)	0.42	0.549 (0.159- 1.899)	0.344
	3+	0.412* (0.123- 1.379)	**0.15**	0.299 (0.074- 1.212)	0.091
Same dentist	Yes	1			
	No	1.091(0.532- 2.238)	0.81		
	Unsure	000 (000-)	0.999		
Trust in dentist	Yes	1		1	
	No	0.254 (0.028-2.334)	0.25	0.230 (0.020- 2.666)	0.240
	Unsure	0.203* (0.23- 1.787)	**0.15**	0.226 (0.022- 2.356)	0.214
Perception of own oral health	Good	1			
	In between	1.089(0.551- 2.151)	0.81		
	Bad	1.167 (0.156- 8.706)	0.88		
MDAS		0.952 (0.881- 1.027)	0.21	0.938 (0.847- 1.039)	0.219
Extroverted		1.028 (0.790- 1.336)	0.84		
Agreeable		0.980 (0.700- 1.371)	0.91		
Conscientious		0.995(0.695- 1.424)	0.98		
Stable		1.188 (0.882- 1.599)	0.26		
Open		0.914 (0.656- 1.275)	0.60		

*p<0.2 **p<0.05

Initial occlusal carious lesions

The statistical analysis for initial occlusal carious lesions showed no significant results in the univariable logistic regression analysis, but the multivariable regression analysis showed that there was a significant association with the persons that have not had the same dentist

or dental hygienist for three years or more and wanting the fluoride varnish/hygiene regimen (OR 2.644 95%CI 1.112- 6.287) (table 6). This means that if a person has not had the same dentist for three years or more, the chance that they would prefer the fluoride varnish/hygiene regimen would increase 2.6 times.

Table 6: Association between management preferences for initial occlusal carious lesion (indicated if this OR shows odds for preference of fissure sealant or fluoride varnish/hygiene regimen) and characteristics of participants according to univariable and multivariable binary logistic regression analyses. All variables that were included in the multivariable binary logistic analysis were gender, age, inhabitants in home place, same dentist in three or more years, trust in dentists and MDAS- score. The variables with a p- value <0.2 are marked in a bold font.

		Crude OR (95%CI)	Sig.	Adjusted OR (95%CI)	Sig
Gender	Men	1		1	
	Women	-0.991 (0.501- 1.962)	0.980	0.939 (0.434- 2.030)	0.872
Age	20-35 y	0.737 (0.264- 2.057)	0.560	0.519 (0.139- 1.937)	0.329
	36-50 y	1.600 (0.543- 4.714)	0.394	1.613 (0.479- 5.432)	0.440
	51-65 y	2.105* (0.913- 4.853)	**0.081**	2.089 (0.792- 5.511)	0.136
	66+ y	1		1	
Inhabitants	0-4999 ppl	1		1	
	5000- 19 999 ppl	1.200 (0.502- 2.863)	0.681	1.621 (0.608- 4.328)	0.335
	20 000- 49 999 ppl	1.500 (0.406- 5.541)	0.543	1.923 (0.437- 8.461)	0.387
	50 000 + ppl	1.174 (0.502- 2.746)	0.711	1.311 (0.502- 3.421)	0.580
Education	Primary school	1		1	
	High school	0.820(0.317- 2.117)	0.681		
	Bachelor's degree	1.224(0.420 – 3.568)	0.712		

	Master's degree	0.960(0.266- 3.467)	0.950		
	Ph.D degree	3.200(0.492- 20.809)	0.223		
Appointments	0	1			
	1	0.900(0.378 – 2.143)	0.812		
	2	0.779(0.263- 2.303)	0.651		
	3+	0.692(0.206- 2.327)	0.552		
Same dentist	Yes	1		1	
	No	1.887* (0.905- 3.394)	**0.090**	2.644** (1.112- 6.287)	**0.028**
	Unsure	6.200* (0.619- 62.135)	**0.121**	604022602 (000-)	0.999
Trust in dentist	Yes	1		1	
	No	000 (000-)	0.999	0.00(000-)	0.998
	Unsure	3.160* (0.558-17.895)	**0.193**	1.033 (0.116- 9.235)	0.977
Perception of own oral health	Good	1			
	In between	1.193 (0.595- 2.391)	0.620		
	Bad	0.563 (0.56- 5.670)	0.626		
MDAS		0.685 (0.943- 1.093	0.685	1.040 (0.944- 1.146)	0.425
Extroverted		0.836* (0.626- 1.097)	**0.196**	0.819 (0.594- 1.128)	0.221
Agreeable		0.884 (0.626- 1.246)	0.480		
Conscientious		0.799 (0.552- 1.153)	0.230		
Stable		1.180 (0.868- 1.604)	0.291		
Open		1.156 (0,820- 1,630)	0.409		

*p<0.2 **p<0.05

Root carious lesions

For root carious lesions the statistical analysis showed that the personality trait extroversion was statistically significant in the univariable logistic regression analysis (OR 0.731 95%CI 0.550- 0.973) (table 8). This means the higher the score in extroversion, the chance that a person would prefer the filling is 30% less likely. However, the multivariable binary logistic regression analysis did not show any statistical significance. It also showed that the personality trait agreeable was not statistically significant in the univariable analysis, but in the multivariable binary logistic regression analysis it showed significance (OR 0.562 95%CI 0.358- 0.882) (table 8). This means that the higher score in agreeableness (1-7), the chance that a person would prefer the filling would decrease with 56%. There was a significant association between wanting the fluoride varnish/hygiene regimen and having a Ph.D. degree (OR 10.620, 95%CI 1.062- 106.170) (table 7). This means that if a person has a Ph. D degree, the chance that they would prefer the fluoride varnish/hygiene regimen would increase 10.6 times.

Table 7: Association between management preferences for root carious lesion (indicated if this OR shows odds for preference of filling or fluoride varnish/hygiene regimen) and characteristics of participants according to univariable and multivariable binary logistic regression analyses. All variables that were included in the multivariable binary logistic analysis were gender, age, inhabitants in home place, education level, MDAS, extroversion and agreeableness. The variables with a p- value <0.2 are marked in a bold font.

		Crude OR (95%CI)	Sig.	Adjusted OR(95%CI)	Sig.
Gender	Men	1		1	
	Women	0.507 (0.750- 3.029)	0.249	2.128 (0.916- 4.942)	0.779
Age	20-35 y	1.058 (0.398- 2.815)	0.909	1.573 (0.410- 6.038)	0.509
	36-50 y	0.571 (0.165- 1.975)	0.376	0.680 (0.160- 2.887)	0.601
	51-65 y	1.545 (0.668- 3.576)	0.309	2.638 (0.913- 7.625)	0.073
	66+ y	1		1	
Inhabitants	0-4999 ppl	1		1	
	5000- 19 999 ppl	1.778* (0.745- 4.243)	**0.195**	1.766 (0.684-4.558)	0.240
	20 000- 49 999 ppl	1.759 (0.473- 6.537)	0.399	0.189 (0.251- 5.638)	0.827
	50 000 + ppl	0.754 (0.302- 1.881)	0.545	0.343 (0.101- 1.163)	0.086
Education	Primary school	1		1	
	High school	0.367 (0.294- 1.912)	0.547	0.465 (0.152- 1.427)	0.181
	Bachelor's degree	0.275 (0.194- 1.70)	0.340	0.737 (0.208- 2.615)	0.637
	Master's degree	0.214* (0.072- 1.378)	**0.125**	0.192 (0.034- 1.083)	0.061
	Ph.D degree	0.115 (0.422- 17.646)	0.292	10.620** (1.062- 106.170)	**0.044**
Appointments	0	1			
	1	0.791 (0.320-1.952)	0.610		
	2	1.023 (0.341- 3.070)	0.968		
	3+	1.818 (0.558- 5.923)	0.321		
Same dentist	Yes	1			
	No	1.124 (0.531- 2.383)	0.760		
	Unsure	1.968 (0.264- 14.643)	0.509		
Trust in dentist	Yes	1			

	No	1.203 (0.194- 7.462)	0.843		
	Unsure	0.361 (0.041- 3.183)	0.359		
Perception of own oral health	Good	1			
	In between	0.889 (0.437- 1.809)	0.749		
	Bad	000(000-)	0.999		
MDAS		1.047 (0.972- 1.128)	0.230	1.049(0.958- 1.148)	0.302
Extroverted		0.731** (0.550- 0.973)	**0.032**	0.762 (0.543- 1.070)	0.116
Agreeable		0.785* (0.552- 1.116)	**0.177**	0.562** (0.358- 0.882)	**0.012**
Conscientious		0.786 (0.541- 1.140)	0.204		
Stable		0.921(0.678- 1.251)	0.600		
Open		0.860 (0.607- 1.217)	0.394		

*p<0.2 **p<0.05

Discussion

Regarding deep occlusal carious lesions, participants equality preferred both management option, while for initial occlusal and root carious lesions almost two third of the participants preferred more invasive management options, fissure sealing and filling, respectively.

The results from the multivariable analysis showed that preferences for management of initial occlusal and root carious lesions had significant associations between preferred management option and having the same dentist, level of agreeableness and education level.

Regarding the hypothesis, the result was not as expected. None of the statistical analysis in deep occlusal, initial occlusal and root carious lesions showed any relationship in preferred management and MDAS score or number of residents in home town. These results did not support our hypothesis.

The research most similar to this study is Schwendickes' and co-workers study from 2016: "Patients' preferences for selective versus complete excavation: A mixed-methods study" (67). The similarity is that they used case vignettes and questionnaires. They also used the TIPI questionnaire about different personality types. However, they found participants by using the snow ball effect, which can give other bias as in, increasing irrelevant information from different sources which influence each other (68), than in our study. Furthermore, the study had vignettes regarding deep carious lesions with complete caries removal and selective excavation, while in this study different management options for deep carious lesions and two other types of carious lesions were investigated.

We found no statistically significant associations regarding deep carious lesions, which was found in the previously mentioned article. Schwendicke and co-workers found that the preference for selective excavation was significantly increased with an emotionally stable personality, university entrance degree, none or little dental anxiety and few dentist changes in the past. The different results might be due to different methodology used. In the study of Schwendicke et al. 2016 they had two focus group interviews to identify socio-demographic and personality traits and management to identify patients' preferences. After this they made the case- vignettes based on the qualitative findings in the focus group. They used convenient sampling to find participants in the waiting room in a dental clinic and gave out case-

vignettes together with a questionnaire. This was different to our study were the case-vignettes was made based on evidence-based research and prior to the collection of data. There were also differences in the questionnaire. In our study we did not include when the participants first visited a dentist/dental hygienist or the civil status. This was questions Swchendicke and co-workers included in their questionnaire. We chose to include number of residents in home town and if they have trust in their dentist or in dentist in general. Our study also included the number of visits the last year in the questionnaire. In addition, there were also differences in how the alternatives were presented. All of these differences may influence the result and why they did not conform.

Dental anxiety

It has been previously shown that invasive stimuli as in drilling, did cause more anxiety than non-invasive stimuli (69). Therefore, we wanted to investigate if there was a relation between the MDAS score and patients' preferences, especially if the level of anxiety would affect the choice of invasive or non-invasive management of the carious lesions, as in root carious lesions were the options were either a less invasive alternative fluoride varnish/hygiene regimen or an operative management: drilling and filling. This study did not get any statistically significant results regarding MDAS and operative management.

Same dentist

The results of the study indicate that participants who have not had the same dentist for three years or more, compared with persons with the same dentist for three years or more had 2,6 times higher odds to prefer fluoride varnish/hygiene regimen in the preferred management for initial occlusal carious lesions. We did not find any publications about this subject. If people have initial carious lesion and would manage this lesion with fluoride varnish/ hygiene regimen, it would be expected that the patient would follow up this with the same dentist as regularly dental attendance is associated with better health (70). However, this was not significant. on the contrary, participants who were not visiting the same dentist/dental hygienist had higher odds to prefer fluoride varnish/hygiene regimen versus operative management. Perhaps our participants were regular attendants, but just not attending the same dentist, further investigation should be done.

Agreeableness

Research showed that people with high level of agreeableness have a higher-level of prosocial behavior such as helping others like doing volunteering work, cooperating in groups and participating in the community (71, 72). Furthermore, it has been shown that persons with high agreeableness have a high level of socialization. One would expect that people with high agreeableness would be more social and would have higher demands when it comes to dental esthetics. For example, choosing a filling over fluoride varnish/hygiene regimen would more likely remove the discoloration from the root carious lesions leading to more esthetical outcome (73, 74) . The result in this study show on the contrary the higher score of agreeable, the chance that a person would prefer the filling would decrease 56%, in other words there were lower odds (0,056) to choose the indicated management. This is an interesting result and should be investigated in further research.

Education level

According to the results in this study, if a person had a Ph. D. degree, there were higher odds that the person is opting for fluoride varnish/hygiene regimen. Usually people with higher education, as in a Ph. D degree, have better oral health than less educated people and more likely they are opting for less invasive procedures (75, 76). One of the reasons for persons with a Ph. D. degree has higher odds for wanting the fluoride varnish/hygiene regimen could be because they may have more knowledge about the "death spiral" of the tooth as in the restoration get bigger by time when they are replaced and, in the end, it is not much left of the tooth (77). People with lower education have lower health literacy skills compared to high educated people (78, 79). People with a Ph. D. degree might be more willing to follow guidelines or the dentists' recommendations when the health literacy is sufficient.

Methodological considerations

The questionnaire and the case vignettes used in this study where not validated and this may introduce bias. Therefore, before the initiation of the date collection, we performed used face validation and test- retest with both the questionnaire and the case vignettes to minimize bias. Face validity is a discussed method in scientific studies. Some discuss that it is a crucial aspect and shows utility of a test, and other means that it adds little to the validation of a test (80).

There was not done any sample size calculations to assure that 140 data sets were enough. This might introduce type I and II errors. Type I error occurs if the examiners rejects a true null hypothesis, false positive (81). A type II error occurs if the examiners cannot reject a false null- hypothesis, false- negative (81). The statistical analysis did not show any statistically significant results between preferred management and MDAS score. This can either mean that there are no associations with the MDAS score and preferred management, that we needed a larger sample size or that there was type II error in the study design that affected the results. The larger sample size with more participants, the more robust is the statistical testing, and 140 participants is a respectable compromise in the number of participants.

We got the most answers (40%) from people living in a place with 0-4999 inhabitants. In fact, this makes it hard to apply the answers to Norway whereas in 2018 82% of the inhabitants lived in a rural place, however there was no data dividing Northern Norway from the rest of the country (82). The definition of a rural area was a at least 200 persons living there (approximately 60-70 residents) and that the distance between the residents shall normally not exceed 50 meters (83). We could have asked the participant more specific questions about this; despite this we chose not to do it to reduce the number of questions to make the questionnaire less time consuming for the participants.

Another possible bias in the study is that it is difficult to determine the individual persons' assumptions to really understand the different management options, and make a decision based on that information. We considered the use of HLS-N-Q12 (Health Literacy Survey Questionnaire, Norwegian short version) to ensure that the participants had health literacy (84). Moreover, this test would have taken 10-20 minutes to conduct, and together with the questionnaire and vignettes this would have been too time consuming for the participants and keeping in mind that people usually lose their concentration after 10-15 minutes and in that case maybe the answers would not have been as credible (85). It has been shown that the concentration level for participants during interviews do not last for the assumed time it would take to conduct both HLS- N-Q12 and the case vignettes.

The participants were not offered any allowances for participating in this study. This was to minimize bias with perhaps having more participants with lower socioeconomic status in this study (86, 87) . As already mentioned, staying at the Pingvinhotellet gave us a broader

diversity because there are people from both villages and towns that are staying there. On the other hand, staying at the hospital will probably give bias in the way that there are more elderly persons with diseases than younger people (88). This also gets confirmed in descriptive statistics in age distribution. We also have experienced that the persons that most often declined the invitation to join the study were elder people. We do not know if there was a relationship between the elderly that declined and which preferences they may have. The comments we got from participants after presenting the vignettes was that they had a long way to the dentist, therefore they would prefer the management that would demand less visits. Instead of asking how many inhabitants living in their home place, we should rather have asked them the distance to their dentist or the nearest dentist.

Concerning clinical relevance in this study, knowing what affects persons preferences for management options in different types of carious lesions can affect dentist on different levels. By presenting different management options to the patient, this can affect the dentist in a empathic level to make a connection with a patient, to possibly let the patient feel that they are a part of decision making which is important in evidence based dentistry, and also on an informative level; to explain the patient the different possibilities of management (23). The study did not investigate if patients' actually feel that they are a part of a decision making.

Conclusion

Regarding deep occlusal carious lesions, participants equally preferred both management option, while for initial occlusal and root carious lesions almost two third of the participants preferred more invasive management options, fissure sealing and filling, respectively. There was a statistically significant association between the preferred management of initial carious lesion; preferring the fluoride varnish/hygiene regimen and not having the same dentist for three years or more increased odds 2,6 times for preference of non-invasive management with fluoride varnish/hygiene regimen. Regarding preferred management for root carious lesion; the personality trait "agreeable" decreased odds 56% for restorative management preferences.

Having a PhD academic degree increased odds by 10,6 times for less invasive management option with fluoride varnish/hygiene regime. The study might have several has biases as described in the discussion. The hypothesis 1 and 2 in this study, which are presented in the aim did not get confirmed.

The results of this study showed that some participants preferred one management option and some the second in all three scenarios. Therefore, the results might suggest that it is important it is to establish a connection and a dialog with the patient. As a result, let the patient feel that they are a part of decision making when it comes to how to manage different carious lesions. This is an important part of practicing evidence-based dentistry. Furthermore, this study is one of the first in the field regarding patients' related factors in preferences of management conditions. In order to learn more regarding what people prefer further studies are necessary in relation to dental anxiety, personality traits and other external factors influencing patients' choices.

References

1.   Marsh PD. Microbial Ecology of Dental Plaque and its Significance in Health and Disease. Advances in Dental Research. 1994;8(2):263-71.

2.   Featherstone J. Dental caries: a dynamic disease. Australian Dental Journal. 2008;53(3).

3.   Bowen WH. The Stephan Curve revisited Odontology. 2013;101(1):2-8.

4.   Heijnsbroek M PS, Van der Weijden GA. Fluoride interventions for root caries: a review. Oral Health Prev Dent. 2007;5(2):145-52.

5.   Goldberg M, Kulkarni AB, Young M, Boskey A. Dentin: structure, composition and mineralization. Frontiers in bioscience (Elite edition). 2011;3:711-35.

6.   John O. Grippo TAC, Antonello Maria Messina, Daniel S. Oh. Journal of Esthetic and Restorative Dentistry. A literature review and hypothesis for the etiologies of cervical and root caries. Journal of Esthetic and Restorative Dentistry. 2018(00):1-6.

7.   Ravald N HS, Birkhed D. Long‐term evaluation of root surface caries in periodontally treated patients. J Clin Periodontol. 1986;13:758‐67.

8.   Arora G, Mackay DF, Conway DI, Pell JP. Ethnic differences in oral health and use of dental services: cross-sectional study using the 2009 Adult Dental Health Survey. BMC Oral Health. 2017;17.

9.   Gugnani N, Pandit IK, Srivastava N, Gupta M, Sharma M. International Caries Detection and Assessment System (ICDAS): A New Concept. International journal of clinical pediatric dentistry. 2011;4(2):93-100.

10.   Lee RC, Darling CL, Staninec M, Ragadio A, Fried D. Activity assessment of root caries lesions with thermal and near-IR imaging methods. Journal of biophotonics. 2017;10(3):433-45.

11.   Banting DW. The diagnosis of root caries. Journal of dental education. 2001;65(10):991-6.

12.   Billings RJ BL, Kaster AG. Contemporary treatment strategies for root surface dental caries. Gerodontics 1985;1:20-7.

13.   Karlsson L. Caries Detection Methods Based on Changes in Optical Properties between Healthy and Carious Tissue. International journal of dentistry. 2010;2010:270729.

14.   Becker T, Levin L, Shochat T, Einy S. How much does the DMFT index underestimate the need for restorative care? Journal of dental education. 2007;71(5):677-81.

15.   Abou Neel EA, Aljabo A, Strange A, Ibrahim S, Coathup M, Young AM, et al. Demineralization-remineralization dynamics in teeth and bone. Int J Nanomedicine. 2016;11:4743-63.

16.   Adair SM. The role of sealant in caries prevention programs. Journal of the California Dental Association. 2003;31(3):221-7.

17.   Ahovuo-Saloranta A, Forss H, Hiiri A, Nordblad A, Makela M. Pit and fissure sealants versus fluoride varnishes for preventing dental decay in the permanent teeth of children and adolescents. The Cochrane database of systematic reviews. 2016(1):Cd003067.

18.   Papageorgiou SN, Dimitraki, D., Kotsanos, N., Bekes, K., van Waes, H. Perfromance of pit and fissure sealants according to tooth characteristics: A systemativ review and meta- analysis. Journal of Dentistry. 2017;66:8-17.

19.   Chestnutt IG, Hutchings S, Playle R, Morgan-Trimmer S, Fitzsimmons D, Aawar N, et al. Seal or Varnish? A randomised controlled trial to determine the relative cost and effectiveness of pit and fissure sealant and fluoride varnish in preventing dental decay. Health technology assessment (Winchester, England). 2017;21(21):1-256.
20.   Rada RE. New options for restoring a deep carious lesion. Dentistry today. 2013;32(3):102, 4-5.
21.   Chen E, Abbott PV. Dental pulp testing: a review. International journal of dentistry. 2009;2009:365785.
22.   Ricucci D, Loghin S, Siqueira JF, Jr. Correlation between clinical and histologic pulp diagnoses. J Endod. 2014;40(12):1932-9.
23.   F. Schwendicke JEF, L.Bjørndal, M. Maltz, D.J. Manton, D.Ricketts, K. Van Landuyt, A. Banerjee, G.Campus, S. Doméjean, M. Fontana, S.Leal, E. Lo, V. Machiulskiene, A. Schulte, C. Splieth, A.F. Zandona, N.P.T. Innes. Managing Carious Lesions: Consensus Recommendations on Carious Tissue Removal. 2016(2):58-67.
24.   Maltz M, Jardim JJ, Mestrinho HD, Yamaguti PM, Podesta K, Moura MS, et al. Partial removal of carious dentine: a multicenter randomized controlled trial and 18-month follow-up results. Caries research. 2013;47(2):103-9.
25.   Maltz M, Koppe B, Jardim J, S. Alves L, Paula L, Yamaguti P, et al. Partial caries removal in deep caries lesions: a 5-year multicenter randomized controlled trial2017.
26.   Maltz M dOE, Fontanella V, Bianchi R. A clinical, microbiologic, and radiographic study of deep caries lesions after incomplete caries removal. Quintessence Int. 2002;33(2):151-9.
27.   Thompson V, Craig, R. G., Curro, F. A., Green, W. S., & Ship, J. A. Treatment of deep carious lesions by complete excavation or partial removal: A critical review. Journal of the American Dental Association (1939). 2008:705-12.
28.   Bjorndal L, Thylstrup A. A practice-based study on stepwise excavation of deep carious lesions in permanent teeth: a 1-year follow-up study. Community Dent Oral Epidemiol. 1998;26(2):122-8.
29.   M. Maltz RG, J.J. Jardim, L.M. de Paula, P.M. Yamaguti, M.S. Moura, et al. Randomized trial of partial vs. stepwise caries removal: 3-year follow-up. J Dent Res. 2012;91:1026-31.
30.   M. Hayashi MF, C. Yamaki, Y. Momoi. MomoiWays of enhancing pulp preservation by stepwise excavation—a systematic review. J Dent 2011;39:95-107.
31.   Schwendicke F, Stolpe M, Meyer-Lueckel H, Paris S, Dorfer CE. Cost-effectiveness of one- and two-step incomplete and complete excavations. J Dent Res. 2013;92(10):880-7.
32.   Paris S, Lausch J, Selje T, Dörfer CE, Meyer-Lueckel H. Comparison of sealant and infiltrant penetration into pit and fissure caries lesions in vitro. Journal of Dentistry. 2014;42(4):432-8.
33.   J B. The epidemiology of root surface caries. J Dent Res. 1990;69(5):1216-21.
34.   Grad H GM, Yanover L. Drug-induced xerostomia: the effects and treatment. J Can Dent Assoc. 1985;51:296-300.
35.   Randa ES. Diagnosis, prevention and treatment of root caries. Saudi Dental Journal. 2004;16(2):84-6.
36.   Handelman SL BJ, Espeland MA, Bergland KL. Prevalence of drugs causing hyposalivation in institutionalized geriatric populations. Oral Surg Oral Med Oral Path. 1986;62:26-31.

37.   Gati D, Vieira AR. Elderly at greater risk for root caries: a look at the multifactorial risks with emphasis on genetics susceptibility. International journal of dentistry. 2011;2011:647168.
38.   Schüpbach P GB, Lutz F. Human root caries: histopathology of advanced lesions. Caries research. 1990;24:145–58.
39.   Roccas S, Sagiv, L., Schwartz, S., Knafo, A. . The big five personality factors and personal values. Personality and Social Psykology Bulletin. 2002;28(6):789-801.
40.   Dorri M M-ZM, Walsh T, Marinho VC, Sheiham Deceased A, Zaror C. Atraumatic restorative treatment versus conventional restorative treatment for managing dental caries. Cochrane Database Syst Rev. 2017;12.
41.   Burrow M.F.a bSMAa. Management of Cavitated Root Caries Lesions: Minimum Intervention and Alternatives. 2017;27:106-14.
42.   Da Mata C AP, McKenna G, Cronin M, O'Mahony D, Woods N. Two-year survival of ART restorations placed in elderly patients: A randomised controlled clinical tria. Journal of Dentistry 2015;43(4):405-11.
43.   A. C. Cruz Gonzalez DJMZ. Clinical outcome of root caries restorations using ART and rotary techniques in institutionalized elders. Brazilian Oral Research. 2006;30(1).
44.   Srinivasan M, Schimmel M, Riesen M, Ilgner A, Wicht MJ, Warncke M, et al. High-fluoride toothpaste: a multicenter randomized controlled trial in adults. Community Dent Oral Epidemiol. 2014;42(4):333-40.
45.   S. Fure PL. Evaluation of Different Flouride Treatments of Initial Root Carious In Vivo. Oral Health Care Prev Dent. 2009;7(2):147-54.
46.   Association AD. ADA center for evidence- based dentistry ADA websites: ADA websites; 2018 [05.02.2019]. Available from: https://ebd.ada.org/en/about.
47.   Kishore M PS, Aggarwal A, Agarwal N, Upadhyay N, Alok A. Evidence Based Dental Care: Integrating Clinical Expertise with Systematic Research. Journal of Clinical and Diagnostic Research : JCDR. 2014;8(2):259-62.
48.   Haidich AB. Meta-analysis in medical research. Hippokratia. 2010;14(1):29-37.
49.   Burns PB, Rohrich, R. J., & Chung, K. C. The Levels of Evidence and their role in Evidence-Based Medicine. Plastic and Reconstructive Surgery. Plastic and Reconstructive Surgery. 2011;128(1):305-10.
50.   Bauer J1 SS, Chiappelli F, Prolo P. Evidence-Based Decision Making in Dental Practice. 5. 2005;3(13):125.
51.   Halpern J. What is clinical empathy? Journal of general internal medicine. 2003;18(8):670-4.
52.   Schwendicke F, Frencken JE, Bjorndal L, Maltz M, Manton DJ, Ricketts D, et al. Managing Carious Lesions: Consensus Recommendations on Carious Tissue Removal. Adv Dent Res. 2016;28(2):58-67.
53.   : Thousand Oaks, CA: SAGE Publications Ltd 2008. Encyclopedia of survey research methods
54.   Lov om tannhelsetjenesten (tannhelsetjenesteloven), (2014).
55.   Gosling SD, Rentfrow, P. J., & Swann, W. B. Ten Item Personality Measure (TIPI) www.midss.ie: Measurement Instrument Database for the Social Science; 2013 [
56.   Humphris GM MT, Lindsay SJE. The Modified Dental

Anxiety Scale: validation and United Kingdom norms. Community dental health. 1995;12:143-50.
57.   Corah NL GE, Illig SJ. Assessment of a dental anxiety

scale. J Am Dent Assoc. 1978;97:816 –9.

58.   Freeman R, Clarke HM, Humphris GM. Conversion tables for the Corah and Modified Dental Anxiety Scales. Community dental health. 2007;24(1):49-54.

59.   Klock OHKS. Avoidance of dental visits: the predictive validity of

three dental anxiety scales. Acta odontologica Scandinavica. 2000;58(6):255-59.

60.   Schwarz E B. H. Dental anxiety in Danish and Chinese adults —a cross-cultural perspective. Soc Sci Med. 1995;41:123-30.

61.   Pervin LA, John OP. Personality: Theory and research, 7th ed. Oxford, England: John Wiley & Sons; 1997. xxiii, 578-xxiii, p.

62.   Lahey BB. Public health significance of neuroticism. The American psychologist. 2009;64(4):241-56.

63.   P. K. Jonason EAT, D. P. Schmitt. The TIPI's Validity Confirmed:

Associations with Sociosexuality and Self-Esteem Individual Differences Research 2011;9(1):52-60.

64.   Nagelkerke NJD. A Note on a General Definition of the Coefficient of Determination. Biometrika. 1991;78(3):691-2.

65.   Agresti A. An introduction to categorical data analysis. 2 ed. Florida: Wiley Series in Probability and Statistics; 2007. 147 p.

66.   David W. Hosmer SL. Applied Logistic Regression 2ed: Wiley Series in Probability and Statistics; 2000.

67.   Schwendicke F MR, Otto I, Dörfer CE, Burkert S. Patients' preferences for selective versus complete excavation: A mixed-methods study. J Dent. 2016;46:47-53.

68.   Kassin SM DI, Kukucka J. The forensic confirmation bias: prob- lems, perspectives, and proposed solutions. J Appl Res Mem Cogn 2013;2:42-52.

69.   Oosterink FM, de Jongh A, Aartman IH. What are people afraid of during dental treatment? Anxiety-provoking capacity of 67 stimuli characteristic of the dental setting. Eur J Oral Sci. 2008;116(1):44-51.

70.   W. M. Thomson SMW, J.M. Broadbent, R. Poulton, D. Locker. Long-term Dental Visiting Patterns and Adult Oral Health. J Dent Res. 2010;89(3):307-3011.

71.   M. M. Habashi WGG, A. E. Hoover. Searching for the Prosocial Personality: A big Five Approach to Linking Personality and Prosocial Behavior. Personality and Social Psychology Bulletin. 2016.

72.   B. Laursen LP, R. Adams. The Antecedents and Correlates of Agreeableness in Adulthood. Developmental Psychology. 2009;38(4):591-603.

73.   Newton JT, Prabhu N, Robinson PG. The impact of dental appearance on the appraisal of personal characteristics. The International journal of prosthodontics. 2003;16(4):429-34.

74.   Khan M, Fida M. Assessment of psychosocial impact of dental aesthetics. Journal of the College of Physicians and Surgeons--Pakistan : JCPSP. 2008;18(9):559-64.

75.   M. Hakeberg UWB. Self-reported oral and general health in relation to socioeconomic position. BMC Public Health. 2017;18(63).

76.   Jamieson JMAGCMLM. Socioeconomic and psychosocial correlates of oral health. International Dental Journal. 2013;63(4).

77.   Sheiham A. Minimal Intervention in Dental Care. Medical Principles and Practice. 2002;11(1):2-6.

78.   Lee SY1 TT, Tsai YW, Kuo KN. Health literacy, health status, and healthcare utilization of Taiwanese adults: results from a national survey. BMC Public Health. 2010;16(10):614.

79.   Howard DH1 ST, Gazmararian JA. Impact of health literacy on socioeconomic and racial differences in health in an elderly population. J Gen Intern Med 2006;8:857-61.
80.   Dijksterhuis MGK, Jozwiak I, Braat DDM, Scheele F. An exploratory study into the effect of time-restricted internet access on face-validity, construct validity and reliability of postgraduate knowledge progress testing. BMC medical education. 2013;13:147-.
81.   Banerjee A, Chitnis UB, Jadhav SL, Bhawalkar JS, Chaudhury S. Hypothesis testing, type I and type II errors. Industrial psychiatry journal. 2009;18(2):127-31.
82.   Norway S. Tannhelsetenesta, 2014 Ssb.no2015 [Available from: https://www.ssb.no/helse/statistikker/tannhelse/aar/2015-07-02.
83.   Digitale tettstedsgrenser [Internet]. Statistics Norway. 2003 [cited 17.01.18]. Available from: https://www.ssb.no/a/kortnavn/beftett/digtettgr.html.
84.   Finbråten HS. Measuring health literacy : Evaluating psychometric properties of the HLS-EU-Q47 and the FCCHL, suggesting instrument refinements and exploring health literacy in people with type 2 diabetes and in the general Norwegian population [Doctoral thesis, comprehensive summary]. Karlstad: Karlstads universitet; 2018.
85.   Bradbury NA. Attention span during lectures: 8 seconds, 10 minutes, or more? Advances in Physiology Education. 2016;40:509-13.
86.   Jing Li KL, and Meng Guo. Do Socio-Economic Characteristics Affect Travel Behavior? A Comparative Study of Low-Carbon and Non-Low-Carbon Shopping Travel in Shenyang City, China. Int J Environ Res Public Health. 2018;15(7):1346.
87.   Vladimir Hobza I, Zdenek Hamrik , Jens Bucksch and Bart De Clercq. The Family Affluence Scale as an Indicator for Socioeconomic Status: Validation on Regional Income Differences in the Czech Republic. International Journal of Environmental Research and Public Health. 2017;14:1530.
88.   E. Jaul JB. Age-Related Diseases and Clinical and Public Health Implications for the 85 Years Old and Over Population. Front Public Health. 2017;5:335.

Appendix 1

Table 1. Overview of studies on the treatment of deep carious lesions in permanent teeth.

AUTHOR	DESIGN	NUMBER OF TEETH ANALYZED, AGE OF SUBJECTS	TREATMENT[1], MATERIAL(S)	CONTROL, MATERIAL(S)	DEPTH OF LESION, PULPAL STATUS	FOLLOW-UP	MAIN OUTCOMES
Studies investigating SWE versus TCE[2]							
Jordan & Suzuki, 1971	Pro-spective	n=243 8-37 years	SWE[3] Re-entry 10-12 weeks, CH (Dycal), CH and cresatin, ZOE[4]	-	Pulpal exposure expected Reversible pulpitis at most, hypersensitivity and mild pain included	-	Success rate (vital pulp, radiographic and clinic presence of remineralization, absence of exposure): 98% Radiographic signs of remineralization between 10-16 weeks (mean 12)
Leksell et al., 1996	RCT	n=57 treatment n=70 control 6-16 years (mean 10.2)	SWE Re-entry after 8-24 weeks, CH (Calasept)	TCE, CH (Calasept)	Pulpal exposure expected[5],	1-11 years (mean 3.6)	Pulp exposure: SWE 17.5%, TCE 40% Success rate (normal clinical and radiographic conditions): SWE 82%, TCE 60%
Bjørndal et al., 1997	Pro-spective	n=31, Unknown	SWE Re-entry after 6-12 months, CH containing base material	-	Pulpal exposure expected, 18 lesions >1/3, 13 ≤1/3 into dentine; Reversible pulpitis at most	6-12 months	No exposures Dentine harder, darker, dryer at re-entry, reduction in colony forming units
Bjørndal & Thylstrup, 1998	Pro-spective,	n=94, 11-65 years (median 24)	SWE Re-entry after 2-19 months ,	-	1 lesion <1/2, other ≥1/2 into dentine,	1 year	Five exposures Dentine harder and darker at re-entry

[1] In case of SWE, the interval before re-entry is indicated.
[2] Total caries excavation
[3] Stepwise excavation
[4] Zink oxid eugenol
[5] In case of total caries excavation

	multi center		CH containing base material		Reversible pulpitis at most		Success rate (vital pulp, absence of subjective symptoms and periapical lesion): 93%
Bjørndal & Larsen, 2000	Pro-spective	n=9 Unknown	SWE Re-entry after 4-6 months, CH containing base material	-	1 lesion <2/3, other ≥2/3 into dentine, Reversible pulpitis at most	4-6 months	No exposures Dentine darker, dryer at re-entry, reduction in colony forming units, dominated not cariogenic flora
Bjørndal et al., 2010	RCT multi-center	n=143 treatment n=149 control ≥ 18 years	SWE Re-entry after 8-12 weeks CH (Dycal)	TCE, CH	≥3/4 into dentine with well-defined radiodense zone, Reversible pulpitis at most, mild-moderate pain included	1 year	Pulp exposure: SWE 17.5%; TCE 28.9% Success rate (unexposed vital pulp and absence of periapical lesion): SWE 74.1%; TCE 62.4%
Corralo & Maltz, 2013	RCT	n=19 CH n=19 GIC n=19 wax, 11-35 years (mean and median 18)	SWE, CH (Dycal), GIC (Vitromolar)	SWE, Wax	≥2/3 into dentine, Reversible pulpitis at most	3-4 months	100% vital pulps and absence of periapical lesions On re-entry dentine harder, less cariogenic bacteria, no sig. difference between materials
Bjørndal et. al, 2010		n= 314 adults 25- 38 years	SWE Re- entry after 8.12 weeks CH (Dycal				

Table 2: Overview of studies investigating stepwise excavation vs. partial dentine removal in permanent teeth

Author	Design	Number of teeth / Age of participants	Treatment Materials	Control Materials	Depth of lesion / Pulpal status	Follow-up	Main Outcomes
Maltz et al., 2013	RCT	n= 101 SW n= 112 PDR[6] 6- 53 yo (mean 17,2 14 median)	PDR GIC[7] and amalgam/resin composite	SWE CHC[8] IRM (reopening after 90 days) and the same as PDR.(Zabokova- Bilbilova, 2014 #19)	Permanent molars with deep caries lesions (radiolucency > ½ into dentine. Reversible pulpitis at most	18 months	99 and 86% success in the PDR and SW groups, respectively (p = 0.016). Reasons for failure were: PDR – 1 pulpitis; SW – 8 pulpitis; 1 osteitis; 4 necrosis; 1 endodontic treatment
Maltz et al, 2018	RCT	n= 229 (121 teeth examined at the 5-year appointment, and 108 teeth contributed with data collected in previous follow-ups (18 months or 3 years)	PDR GIC and amalgam/resin composite	SWE CHC IRM (reopening after 90 days) and the same as PDR.	Permanent molars with deep caries lesions (radiolucency > ½ into dentine. Reversible pulpitis at most	5 years	Success rates equivalent to 80% in the PCR group and 56% in SW group ($p < 0.001$)

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[6] Partial Dentine Removal
[7] Glass ionomer cement (the cavity was partially filled)
[8] Calcium hydroxide cement

Table 3: Overview of studies on management of initial occlusal carious lesions in permanent teeth

Author	Design	Number of teeth Age of participants	Intervention	Control	Type of lesions	Follow- up	Results
Holm et al. 1984	RCT[9]	n=381 6y5m	Duraphat[10]	No clinical intervention	Occlusal surface of newly erupted first permanent molars	24 months	Caries reduction 56% compared with control group. Most in molars with shallow and deep fissures.
Flório et al, 2001	RCT	n= 98 6y6m	Group 1: Sealant[11] n=29 Group 2: Duraphat n=36	Tooth brushing and 0,2% NaF weekly mouthwashes n=33	Decayed occlusal lesions	**12 months[12]**	Group 1: 100% of arrestement of caries activity, 0% progression Group 2: 83,3%, 5,5% progression

[9] Randomized control trial
[10] Duraphat was applied every 6th month, altogether four times
[11] resin-modified glass ionomer - Vitremer
[12] Clinical evaluations were caried out over three, six, nine and twelve months. Caries activity and progression were ob served through clinical and radiographic evaluation.

							Group 3: 72,7%, 6,1% progression
Griffin et al, 2008	Systematic review, 4 RCT[13]	n=840 Not specified	Sealant[14]	No sealant	Initial occlusal caries	Up to 5 years	Sealing carious lesions reduced the probability of lesion progression. The summary prevented fraction was more than 70%, and in the sensitivity analyses, the lower bound of the 95%CI always exceeded 50%
Borges et al, 2010	RCT	n= 60 molars s[15] 12-19,5	Fluorshield (Dentsply sealant)	No clinical intervention	Non cavitated occlusal caries	**1 year**	Clinical and radiographic caries progression was significantly more frequent in control teeth when compared to the experimental group (P < 0.05). Caries progression was observed in 96.15% of the control teeth, but in only 3.84% of teeth of the experimental group.

[13] Four studies primarily sealed non-cavitated lesions, 1 exclusively sealed cavitated lesions, and 1 sealed both cavitated and non-cavitated lesions.
[14] Three studies used 2nd or 3rd generation resin-based sealants, 2 used glass ionomer cement (GIC), and 1 used 1st generation resin-based sealants
[15] Eight (13.3%) of the 60 teeth evaluated (eight subjects, four in each group) were lost to follow-up due to changes in address and the impossibility to come to the study location

Liu et al, 2012	RCT	n= 1491 9,1	5% NAF varnish	Placebo (water)	Non- cavitated occlusal caries in permanent first molars	**2 years**	PF[16] of NaF varnish application after 24 months at the tooth level was 39%
Da Silveira et al, 2012	RCT	n= 51 13 (mean)	Sealant[17]	No clinical intervention	Non cavitated occlusal caries	**1 year**	Radiograph evaluation of caries progression showed a significantly higher prevalence in the teeth of the control group (P=.004) There was a 78% decrease in the relative risk of radiological caries progression occurring among the sealed teeth
Marinho et al, 2013	Systematic review of 13 controlled trials[18]	n=9595 children 16	Fluoride Gel[19]	Placebo	Not specified	**Studies nearest to 3 years were used, at least 1y.**	PF estimate comparing fluoride varnish with placebo/no treatment was 43%. ((95% confidence interval (CI) 30% to 57%; P < 0.0001).

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[16] Prevented factor
[17] Vidrion-R (SS White) glass ionomer
[18] Twenty-five studies were included. 14 RCT
[19] Fluoride concentration ranged from 2425 ppm F to 12,500 ppm. The most common 12300 was used in at least half of the included studies,

| Ahovuo-Saloranta et al 2017 | Systematic Review | n=1322 children 5-10 | Resin- based sealant | No selant | Occlusal lesions in first permanent molars | **2 years** | Reduced caries by between 11% and 51% compared to no sealant, when measured at 24 months. If 70% of control tooth surfaces were decayed, there would be 19% decayed surfaces in the sealant group (95% CI 12.3% to 27.2%). |

Table 4: Overview of management of root caries lesions in permanent teeth

Author	Design	Number of teeth, Age of subjects	Intervention	Control	Type of lesion	Follow- up	Results
Billings, 1985	RCT	n= 54(6 patients) -	Control for incipient lesions: No control group For shallow lesions: Home application of 1% NaF gel Test: Gr1 incipient lesions: Polished + home application of 1% NaF fel Gr 2 shallow lesions: Carefully excavated, smoothed, polished +	For incipient lesions: no control group For shallow lesions: random allocation. Unbalanced groups.	Incipient lesions	2 years	Gr 1 lesions (n=20): 14 arrested, 3 active. 3 progressed to gr 2 and treated under the same regimen. Gr2 lesions: Control = NaF (5 lesions, 1 arrested, 4 active. Test = NaF + recontured smoothed (16 lesions, 16 arrested)

			home application of 1% NaF- gel.F				
Wallace et al. 1993	RCT	n= 466 (171 control, 148 treated), 60+	1.APF gel 2x yearly + placebo rinse 2. 0,05% NaF rinse daily	Placebo rinse	Root caries lesions	48 months/4 years	Mean number of reversed lesions 1,11 Control 1,01- APF gel 1,53- NaF rinse p<0,05 11,8% in 1 year and 22,7 in year 4
DePaola, 1993	RCT	n= 42 (35 were continuous participants (41 controls- 36 were continuous participants), Mean age of control 68,58 and treated subjects were 72,54 years	12000 ppm fluoride gel for daily home use + 2x daily brushing with fluoride dentifrices + extensive monitoring for compliance	Placebogel at 4 months intervals + 2x daily brushing with fluoride dentifrice + extensive monitoring for compliance	C1, C2 and AC where a C1 lesion is a well defined softened area, yellowish or light brown in colour but without the cavitation. A C2 lesion is a softened area, yellowish or light brown in colour with disruption of the surface contour. An AC lesion is arrested caries lesion- darkly stained almost black area with a leathery consistency with or without cavitation. The potensial subjects whose C2 lesions where beyond the earliest stages were excluded.	1 year	After the 12 month study 40% of C1 had arrested in the control participants and 91% in the treated participants. C2 had 13% arrested lesions at 4 months, 53% at 8 months and 57% at 12 months. Percent of patiens experiencing one or more lesions arresting: Fluoride gel 31%, Placebo Chisq p<0,05 Percent of initial (soft) lesions arrested: Fluoride gel 57% Placebo gel 8% Chisq p<0,001 Percent of early cavitated lesions arrested: Fluoride gel 57% Placebo gel 8% Chisq p<0,1
Cruz, 2006 (may)	Cluster, parallel RCT	Started with 75 participants (174 restoriations, 73	Gr. 1: ART Manual instrumentation to	Gr 2: CT[20]: High- speed handpiece with	Root caries permanent teeth (the softening of the root	6 months	Successful if the restoration was present and without marginal defects or

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[20] Conventional technique

		ART, 101 CT) Analysed: 64 participants/150 restorations 65 ART restorations 85 conventional restoration Age: 74,9 (mean), 60-101 (SD-range)- nursing home	remove decayed tissue + same procedure group 2	irrigation and round burs. Cotton rolls and retraction cord, 2% CHX 1 min, dried and sealed with Vitremer[21] following the manufactors instructions	dentin to a depth of 0,5mm.		secondary caries. Success rate 92,9% with conventional technique (p<0,03). Secondary caries was significancy highter in the ART group with 17 secondary caries from 64 ART restorations and only 1 in 84 CT restorations p <0,001.
Lo, 2006 (October)	RCT	n= 162 (103 persons)- 78 ART group and 84 control group) > 60 years. 78,6(mean)	ART: Only handinstruments used removing decayed dental tissue. Cotton rolls and gingival retraction cord when necessary for field isolation and moisture control. Prepared cavity was cleaned and conditioned for 10-15 sec with liquid of glass ionomer diluted with equeal amount of water. Then cleaned with water, dried and restored	Conventional: Local anesthesia. Cotton rolls and retraction cord. Used dental burs until the floor and walls were found to be hard. Cavity washed with water from a 3-in 1- syringe and then dried. Cavity conditioned with polyacrylic acid	Root surface caries. Dentin could be penetrated with light force. Lesions of 1 mm or more in depth measured with a periodontal probe were included. Lesions close to pulp were excluded	6 and 12 months follow up	12 months survival were 91,7% and 87,0% (p>0,05)

[21] Vitremer, ESPE: Light- curing composite resin

			with Ketac Molar [22] + clear cellulose matrix when building up to contour of the root.	for 10-15 sec, washed, dried and restored with FUJI II LC[23]. Curing light and polish during the same visit			
Petersson, 2007	Clinical trial	n= 50 55-81 years	Group A: Elex sensitive toothpaste 1400 ppm F + Elmex sensitive rinse 250 ppm F 1400 ppm FD + 250 ppm. Fluoride mouth wash (Elmex sensitive plus, colgate- Palmolive)	Group B: 1400 ppm. Placebo mouthwash twice a day	Primary root caries lesions	6 weeks	ECM:[24]; changes in surface texture, arrest and remineralizations of caries lesions
Fure, 2009	Prospective, randomized and single-blind controlled study	n= 60 31-85 years (55 +-13 years)	20 (18 after study) lesions treated with Carisolv chemomechanical and Duraphat (2,23% F)- fluoride varnish, 20 (19 after study) w. duraphat and 20 (19 after study) with stannous fluoride solution (8%)	Duraphat	Occurrence of initial primay root carious lesions with softened dentine involvement and a diameter of at least 2 mm and a depth of <1 mm	1 year	All but 4 lesions got arrested. Reduction in lesion size from 0,1 to 0,2 mm and colour change to a darker colour. Decrease in mean percentage in mutans streptococci in plaque from 3,5 baseline to 1,8% during a year- no significant difference between the groups.
Srinivasan et al, 2013	Single blinded, multicenter,	Start: n= 135 (end 130) Test: n= 67 (end 64)	High fluoride dentifrices (5000 ppm)	Regular fluoride toothpaste w 1350 ppm	At least 1 root caries lesions, mean surface hardness scoring of the carious lesion	6 months	Test group improves surface hardness p< 0,0001

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[22] Ketac Molar, 3M ESPE, Seefeld, Germany: High-strengt chemically cured glassionomer

[23] FUJI II LC, GC Corporation, Tokyo, Japan: A resin-modified glass-ionomer material

[24] Electrical caries monitor

	parallell RCT	Control n= 68 (end 66), (18-75)			were calculated for each patient from level 1: hard to level 5: soft		
Da Matac et al, 2014	RCT using a parallel group design	n= 82 > 65	ART[25]: Opening cavity with a dental enamel hatchet when necessary, removal of soft, completely demineralized carious tissue with excavators, conditioning of the cavity with polyacrylic acid for 20 seconds, washing and drying with cotton pellets and restoration with GC Fuji IX[26]	Convensional treatment: Local anesthesia, use of rotary instruments for access, rotary and hand instrument for removal all carious tissue, conditioning of the cavity with a polyacrylic acid for 20 sec, washing and drying with cotton pellets and a GC Guji II LC[27]	>1 dentinal carious lesion with no painful symptomatology	1 year	91,1 % ART (97,7% control)
Da Matac at el. 2015	RCT	n= 99 64-88, 73,2(mean)	ART: Opening cavity with enamel hatchet when necessary (occlusal cavities with no access), removal of soft ccarious tissue with excavators, conditioning with polyacrylic acid for	Anaesthesia. Rotary instruments for access and removal of carious tissue. Polyacrylic acid for 20 s, washing and	Inclusion criteria: At least 1 dentinal carious lesion (coronal or root) with no painful symptomatology and able to perform mechanical oral hygiene techniques	2 years	ART: 85,4 % survival proportion Control: 90,9%

[25] Atraumatic restorative treatment
[26] GC Fuji IX™: High-viscosity glass-ionomer cement
[27] GC Fuji II LC™: Hand-mixed resin-modified glass-ionomer

| | 29 s, washing and drying with cotton pellets and restoration with GC FUJI IX | drying with cotton pellets and placement of GC-Fuji II LC). | including toothbrushing. Caries when the lesion was yellowish/light brown, with a rough structure, and appeared non-glossy and soft or leathery to probing.

45.2% on root surfaces (62/142) in ART group and 41.1% (65/158) in the control group. Other surfaces: mesial/distal, buccal/lingual and occlusal/incisal. | |

Appendix 2

Spørreundersøkelse
Masteroppgave om pasienters preferanser for ulike behandlinger

Først noen spørsmål om deg og din tannlegeerfaring

1. Kjønn?

- ☐ Mann
- ☐ Kvinne
- ☐ Ønsker ikke å oppgi

2. Hvor mange innbyggere bor det på din boplass?

- ☐ 0- 4999 personer
- ☐ 5000- 19 999 personer
- ☐ 20 000- 49 999 personer
- ☐ 50 000+ personer

3. Alder?

- ☐ 20- 35 år
- ☐ 36- 50 år
- ☐ 51-65 år
- ☐ 66+

4. Siste fullførte utdanningsnivå?

- ☐ Grunnskole
- ☐ Videregående skole
- ☐ Bachelor
- ☐ Mastergrad
- ☐ Doktorgrad

5. Hvor ofte har du vært hos tannlege/tannpleier det siste året?

☐ 0

☐ 1

☐ 2

☐ 3+

6. Har du hatt samme tannlege/tannpleier i 3 år eller mer?

☐ Ja

☐ Nei

☐ Vet ikke

7. Har du tiltro til din tannlege? Dersom du ikke går til en fast tannlege- har du tiltro til tannleger generelt?

☐ Ja

☐ Nei

☐ Usikker

8. Oppfatning av egen munnhelse?

☐ God

☐ Middels

☐ Dårlig

9. **Dersom du skulle til tannlegen i morgen, hvordan ville du føle deg?**

☐ Ikke engstelig i det hele tatt

☐ Litt engstelig

☐ Ganske engstelig

☐ Meget engstelig

☐ Ekstremt engstelig

10. **Når du sitter på tannlegens venterom og venter på tur, hvordan føler du deg da?**

☐ Ikke engstelig i det hele tatt

☐ Litt engstelig

☐ Ganske engstelig

☐ Meget engstelig

☐ Ekstremt engstelig

11. **Hvordan føler du deg når du sitter i tannlegestolen og venter på at tannlegen skal bore i tannen/tennene dine?**

☐ Ikke engstelig i det hele tatt

☐ Litt engstelig

☐ Ganske engstelig

☐ Meget engstelig

☐ Ekstremt engstelig

12. Tenk deg at du sitter i tannlegestolen for å få rengjort tennene dine. Hvordan føler du deg når tannlegen tar frem instrumentene for å fjerne tannstein?

☐ Ikke engstelig i det hele tatt

☐ Litt engstelig

☐ Ganske engstelig

☐ Meget engstelig

☐ Ekstremt engstelig

13. Hvis du måtte ta bedøvelse (sprøyte) for behandling av en jeksel i overkjeven, hvordan ville du føle deg?

☐ Ikke engstelig i det hele tatt

☐ Litt engstelig

☐ Ganske engstelig

☐ Meget engstelig

☐ Ekstremt engstelig

Nå kommer det et utvalg av personlige egenskaper og trekk

Du vil se at noen av disse beskriver deg godt, mens andre ikke gjør det.

Vennligst angi hvor godt hvert utsagn passer for deg ved å skrive nummeret fra skalaen under i det åpne feltet.

Du skal her bedømme hvor mye hvert enkelt utsagnspar passer for deg, selv om ett av utsagnene passer deg bedre.

Meget uenig	Uenig	Litt uenig	Hverken enig eller uenig	Litt enig	Enig	Veldig enig
1	2	3	4	5	6	7

Jeg ser meg selv som:

1. _____ Utadvendt, entusiastisk

2. _____ Kritisk, kranglete

3. _____ Pålitelig, selv- disiplinert

4. _____ Engstelig, lett opprørt

5. _____ Åpen for nye erfaringer, kompleks

6. _____ Reservert, stille

7. _____ Sympatisk, varm

8. _____Uorganisert, skjødesløs

9. _____ Rolig, emosjonell stabil

10. _____ Konvensjonell, lite kreativ

Appendix 3
Vignetter

Dyp okklusalkaries

1.Selektiv ekskavering

Hvor: Hullet i tannen er på tyggeflaten i jekselen. Det er dypt og nærmer seg nerven.

Hva: Tannlegen din ønsker å gjøre en *selektiv ekskavering*, altså å fjerne det meste av hullet, men å la noe av hullet være igjen innerst mot nerven.

Tid: 1 besøk

Erstatning/fylling: Du får en tannfarget fylling med en gang etterpå. Ved å legge denne fyllingen vil bakteriene som har laget hullet bli forseglet, de vil da ikke få næring. Hullet hindres i å utvikle seg videre da bakteriene trenger næring for å lage hull. Om fyllingen får en sprekk/ikke legges riktig er det risiko for at hullet utvikler seg (bakteriene får næring). Hullet kan da bli så dypt at nerven skades slik at rotfylling blir nødvendig.

Misfarging: Fyllingen som legges er estetisk fin. Hvis hullet er for dypt og nerven skades må man måtte gjøre en rotfylling som kan føre til misfarging av tannen, som vil kunne synes når du smiler.

Smerte: Tannlegen vil anbefale bedøvelse da behandlingen kan medføre ubehag.

Kostnad: Behandlingen vil medføre noen kostnader for deg, men det vil være billigere enn en *trinnvis ekskavering***.**

2.Trinnvis ekskavering

Hvor: Hullet i tannen er på tyggeflaten i jekselen. Det er dypt og nærmer seg nerven.

Hva: Tannlegen din ønsker å fjerne hullet, men å gjøre dette i to omganger for å minke sjansen for å skade nerven. Ved første besøk vil tannlegen bore vekk mesteparten av hullet og du vil få en midlertidig fylling. Denne skal du ha i 3-6 måneder, før du kommer tilbake

Tid: 2 besøk.

Erstatning/fylling: Ved besøk 2 skal tannlegen fjerne den midlertidige fyllingen og bore vekk resten av hullet. Det er en risiko for nerveskade ved dette besøket, og da kan det være behov for en rotfylling. Du får nå en permanent fylling i tannfarge.

Misfarging: Fyllingen som legges er estetisk fin. Tannlegen informerer om at rotfylling ofte må utføres dersom nerven skades. En rotfylling kan føre til misfarging av tannen, som vil kunne synes f.eks. når du smiler.

Smerte: Tannlegen vil anbefale bedøvelse da behandlingen kan medføre ubehag.

Kostnad: Behandlingen vil medføre noen kostnader for deg, da du må to ganger til tannlegen for å få gjennomført denne behandlingen.

Du skal nå velge hvilken av de to behandlingene du ønsker. Tenk deg en linje med verdi fra 0-100, der behandling 1 står på venstre side av linjen (0), mens behandling 2 er på høyre side av linjen (100). Du skal nå plassere et kryss på denne skalaen basert på hvilken behandling du ønsker mest. Dersom det er akkurat det samme for deg, setter du krysset ved 50.

0 ┃──┃──┃──┃──┃──┃──┃──┃──┃──┃──┃ **100**

Selektiv ekskavering

Trinnvis ekskavering

Initialkaries

1.Fissurforsegling

Hvor: Du har et begynnende hull i tyggeflaten på jekslene (de bakerste tennene).

Hva: Dette er ikke et hull som foreløpig trenger å bores. For å forhindre at dette hullet ikke utvikler seg videre, ønsker tannlegen å fissurforsegle. Dette er å legge en veldig liten fylling i gropene i tannen, slik at bakteriene forsegles under denne fyllingen og ikke får næring.

Tid: Kun 1 besøk for behandling, kontroll ved hver undersøkelse (1-2 ganger i året).

Erstatning/fylling: Du må ikke bore noe for å legge denne fyllingen. Fissurforseglingen har en viss levetid, og må nok byttes ut på et senere tidspunkt.
Hygiene: Det er en risiko for at denne fyllingen ikke blir helt tett, og da vil bakteriene kunne lage et større hull uten at du klarer å rengjøre tannen- da fyllingen ligger i veien.

Misfarging: En fissurforsegling vil ikke kunne sees når du smiler. Den er tannfarget.

Smerte: Kan medføre et lite ubehag da du får en klamme rundt tannen for å holde den tørr under behandling.
Kostnad: Behandlingen vil medføre noen kostnader for deg.

2. Fluorbehandling

Hvor: Du har et begynnende hull i tyggeflaten på jekselen/tyggeflaten.

Hva: Dette er ikke et hull som foreløpig trenger å bores. For å forhindre at dette hullet ikke utvikler seg videre, ønsker tannlegen å behandle med å jevnlig med å påføre fluorlakk på tannen. Du må da til tannlegen oftere. Dette kan inaktivere det begynnende hullet.

Tid: Du må da gå jevnlig (hver 3-6 mnd.) til tannlege/tannpleier for å påføre fluorlakk på tannen frem til hullet eventuelt blir inaktivt.

Hygiene: Du må selv være nøye med å pusse godt 2 x daglig med fluortannkrem. Det må du gjøre så lenge tannen er i munnen.

Misfarging: Dersom hullet blir inaktivt kan du få misfarging i furene i tannen. Men dette vil sannsynligvis ikke synes når du smiler.

Smerte: Ingen smerte
Kostnad: Behandlingen vil ikke medføre så store kostnader for deg.

Du skal nå velge hvilken av de to behandlingene du ønsker. Tenk deg en skala fra 0-100, der behandling 1 står på venstre side av skalaen (0), mens behandling 2 er på høyre side av skalaen (100). Du skal nå plassere et kryss på denne skalaen basert på hvilken behandling du ønsker mest. Dersom det er akkurat det samme for deg, setter du krysset ved 50.

0   **100**

Fissurforsegling   Fluorbehandling
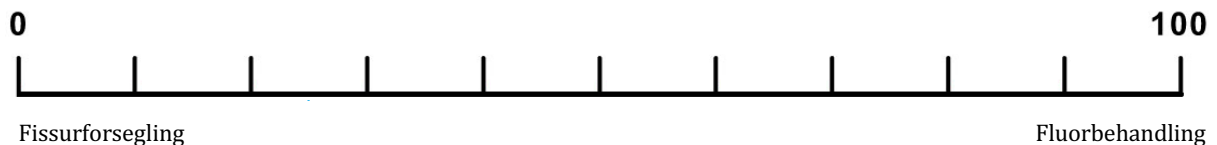
Rotkaries

1.Fylling

Hvor: Du har et hull på roten til tannen.

Hva: Tannlegen vil fjerne alt av bakterier som skaper hullet, for så å legge en fylling. Du må bore for å fjerne hullet. Boring vil føre til at tannen blir svekket, og på sikt kan dette føre til en rotfylling. Ved å fjerne alt kariesvev er det mindre sannsynlig å få hull igjen i dette området.

Erstatning/fylling: Hullet vil fylles. Fyllingen har en viss holdbarhet, og kan kreve omgjøring på et senere tidspunkt.

Tid: 1 besøk

Hygiene: Dersom du ikke er nøye med tannpuss kan du få et hull som kommer av at bakteriene setter seg rundt fyllingen og lager et hull i overgangen mellom tann og fylling. Dette må du gjøre så lenge tannen er i munnen.

Misfarging: Ved å fylle igjen med en fylling vil du mest sannsynlig fjerne all misfarging- tannen vil bli estetisk fin.

Smerte: Tannlegen vil anbefale bedøvelse da behandlingen kan medføre ubehag.

Kostnad: Behandlingen vil medføre noen kostnader for deg.

2.Hygiene og fluorbehandling

Hvor: Du har et hull på roten til tannen.

Hva: Tannlegen ønsker å ikke bore, men å observere denne. Ved å unngå å bore vil tannen ikke svekkes og tannen vil være frisk.

Tid: Du må da gå jevnlig (hver 3-6 mnd.) til tannlege/tannpleier for å påføre fluorlakk på tannen.

Hygiene: Dette vil kreve nøye oppfølging fra deg, da du bør pusse to ganger hver dag. Det krever også ekstra fluortilskudd. Dette må du gjøre så lenge tannen er i munnen.

Misfarging: Misfargingen på grunn av hullet vil være der, og kan vises f.eks. når du smiler.

Smerte: Ingen smerte

Kostnad: Behandlingen vil ikke medføre store kostnader for deg, den er billigere enn *fylling.*

Du skal nå velge hvilken av de to behandlingene du ønsker. Tenk deg en skala fra 0-100, der behandling 1 står på venstre side av skalaen (0), mens behandling 2 er på høyre side av skalaen (100). Du skal nå plassere et kryss på denne skalaen basert på hvilken behandling du ønsker mest. Dersom det er akkurat det samme for deg, setter du krysset ved 50.

0   100

Fylling   Hygiene og fluorbehandling

Appendix 4

Vil du delta i forskningsprosjektet?

" Patients' preferences for management of deep occlusal, initial occlusal and root carious lesion"

Dette er et spørsmål til deg om å delta i et forskningsprosjekt hvor formålet er å undersøke pasienters preferanser når det gjelder behandling for ulike karieslesjoner. I dette skrivet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

Bakgrunn og formål

Formålet med studien er å undersøke pasienters preferanser for behandling av ulike kariestyper som initial okklusal karies, dyp okklusal karies og rotkaries. Til vår kjennskap er det ingen publikasjoner som undersøker pasienters preferanser i situasjoner der vitenskapelig bevis har lignende suksessrate i ulike behandlingsalternativer. Det er viktig å forholde seg til den individuelle pasientens ønsker når man praktiserer evidensbasert praksis. Vår erfaring er at det er et stort fokus på evidens og klinisk erfaring og ferdigheter, men ikke så mye når det kommer til pasienters preferanser for ulike typer behandling. Derfor ønsker vi å undersøke pasienters preferanser mer grundig.

Prosjektet er en del av en masteroppgave for odontologi ved Universitetet i Tromsø. Studien inkluderer et spørreskjema og vignetter med to alternativer for hver type karies. Deltakerne fyller først ut et spørreskjema, og deretter vil vi gjennomføre et intervju der vi spør om preferanser for hver type karies. Vi bruker vignettene mens vi intervjuer deltakerne slik at vi forsikrer oss om at alle deltakerne får samme forståelse og informasjon om behandlingen. Vi skal finne deltakerne for studien i sykehuskaféen/Pingvinhotellet på Universitetssykehuset Nord- Norge. Ved å gjøre dette vil vi inkludere deltakere både fra by og distrikt i studien. Dette gjør at vi får et større spekter å basere studien på. Deltakerne må være over 20 år.

Hvem er ansvarlig for forskningsprosjektet?

Dersom du i etterkant har spørsmål til studien, ta kontakt med veileder for master Lina Stangvaltaite, tlf. 77649132. Dersom du har spørsmål om ditt personvern i denne studien, kontakt The Norwegian Centre for Research Data AS: personverntjenester@nsd.no, eller tlf. +47 55582117.

Studien er meldt til Personvernombudet for forskning, NSD - Norsk senter for forskningsdata AS.

Hvorfor får du spørsmål om å delta?
Deltakerne er tilfeldig utvalgt på det gitte tidspunktet intervjuene finner sted.

Hva innebærer det for deg å delta?

Deltakelse i studien innebærer å fylle ut en spørreundersøkelse og sammen med en tannlegestudent gå gjennom vignetter og svare på hvilken behandling man ønsker. Opplysninger som innhentes vil være alder, kjønn, omtrentlig befolkningstall på boplass, utdanningsnivå, vurdering av egen oral helse, tannlegeerfaring, nivå av tannlegeskrekk (bruker her et spørreskjema som er validert i Norge- Modified Dental Anxiety Scale), personlighetstrekk (bruker her et spørreskjema som er validert i Norge - Ten-Item Personality Inventory), og hvilken behandling av karies som er foretrukket for deltakeren for de ulike typer av karies. Gjennomføring av spørreskjema og intervju vil ta ca. 10-15 min. Data registrerer i form av notater.

Det er frivillig å delta
Det er frivillig å delta i studien, og du kan når som helst avbryte intervjuet uten å oppgi noen grunn. Dette vil ikke få noen konsekvenser for deg. Dersom du deltar i studien har du rett til å få tilgang til dine svar, du har rett til å endre eller få dine registrerte opplysninger slettet. Du har også rett til å få en kopi av dine opplysninger som er registrert. Du kan også sende en klage til Datatilsynet vedrørende behandlingen av dine personlige data.

Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger

All data vil bli behandlet konfidensielt. Det er kun prosjektgruppen (2 studenter og veileder) som vil ha tilgang til datamaterialet. Dine svar vil under forskningsperioden oppbevares i et låst rom på universitetet.

Hva skjer med opplysningene dine når vi avslutter forskningsprosjektet?
Direkte personidentifiserende data vil ikke bli samlet. Samlet data vil ikke bli koblet direkte mot individuelle informanter. Prosjektet skal avsluttes 04.06.2020 og oppsamlet data vil anonymiseres etter denne datoen.

Hva gir oss rett til å behandle personopplysninger om deg?
Vi behandler opplysninger om deg basert på ditt samtykke.

På oppdrag fra Institutt for klinisk odontologi har NSD – Norsk senter for forskningsdata AS vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

Med vennlig hilsen

Lina Stangvaltaite   Jenny Salomonsen og Thea Torres

Prosjektansvarlig   Masterstudenter
Forsker/veileder   3

Samtykkeerklæring
Tilpass avkryssingsboksene etter hva som er aktuelt i ditt prosjekt. Det er mulig å bruke punkter i stedet for avkryssingsbokser. Men hvis du skal behandle særskilte kategorier personopplysninger og/eller de fire siste punktene er aktuelle, anbefaler vi avkryssingsbokser pga. krav om eksplisitt samtykke.

Jeg har mottatt og forstått informasjon om prosjektet *(sett inn tittel)*, og har fått anledning til å stille spørsmål. Jeg samtykker til:

☐   å delta i *intervju og spørreskjema*

Jeg samtykker til at mine opplysninger behandles frem til prosjektet er avsluttet, ca. *Juni 2019*

(Signert av prosjektdeltaker, dato)