The relationship between personality characteristics of dentists, dental anxiety, negative stories, and negative experiences with dental treatment.

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Acknowledgement

This thesis was written as a part of the master’s degree in clinical dentistry at the UiT The Arctic University of Norway. We have experienced negative stereotypes about the dentist in mass media and social settings. Because of this, we were interested to see if there are any specific factors influencing these stereotypes. We chose to focus on dental anxiety, having negative dental experience and hearing negative stories about dentist.

We would like to thank our supervisor Jan-Are Kolset Johnsen, associate professor at the Department of Clinical Dentistry for good guidance and help with analyzing the data in our study. We would also like to thank the students who responded on the questionnaire.

The three of us have all contributed in all the steps of this thesis, from making the questionnaire, writing the introduction and analyzing the results.

Keywords: Stereotypes, dental anxiety, dental experience, stories about the dentist.
Abstract

**Background:** Negative stories about the dentist are prevalent in mass-media and in social discourse. There are few studies about the effect of this, and we know that dental anxiety has not decreased over time, even though there have been a lot of changes in dental care. This study explores the impact of dental anxiety, negative stories and negative experiences on the rating of dentists’ personality characteristics.

**Method:** A questionnaire was sent out to students at the UiT The Arctic University of Norway, and 118 students chose to participate in the study. The questionnaire included questions on dental anxiety, negative stories, negative experiences of dental treatment, and ratings of dentists’ personality characteristics.

**Results:** There are significant differences in ratings of personality characteristics based on level of dental anxiety and having previous negative dental experiences. People who have not had a negative dental experience and those with low dental anxiety will rate the dentist more favorably on personal characteristics. Almost half of the participants (45.8 %) had at least one negative dental experience, while the majority (79.7 %) of the participants had heard a negative story about the dentist. Approximately one-third (36.4 %) of the participants scored above the mean on dental anxiety. There were significant relationships between dental anxiety, negative dental experience and hearing negative stories.

**Conclusion:** Our study shows that people’s experiences at the dentist, as well as dental anxiety, have a direct effect on how they evaluate the personality characteristics of dentists. There is a relationship between negative stories about the dentist, dental anxiety and negative dental experiences.
1. Introduction

Literature reports that the most fundamental way we learn about the world around us is by forming stereotypes (Thibodeau & Mentasti, 2007). A stereotype consists of 3 components: First identifying a group of people by a specific characteristic, for instance an occupation such as dentists. A set of additional characteristics is then attributed to the group. These characteristics are often related to behaviour or personality, for example when we say that “dentists are nice” or “dentists are mean”. Thus, stereotypes are generalizations and do not reflect the individual differences within a group (Hinton, 2000). The last component is attributing the stereotypical characteristics to a single person in a group.

There have been a lot of research on occupational stereotypes. Occupations often have stereotypical characteristics associated with them. These associations are often created based on the impression that certain jobs require personality traits that are more likely to be found in one gender, and also the prevalence of the different sexes in the specific occupation (White & White, 2006). Some argue that there is a difference in stereotypical traits and temperaments between men and women. Some typical characteristics for women are sympathetic, kind and helpful. Whereas some typical characteristics for men are forceful, independent, decisive and aggressive (Heilman, 2001). It has been assumed that the two genders are suited for different kinds of occupations (White & White, 2006), because different occupations might require different characteristics and traits. For example, there is a strong association between the nurse profession and females. This association is so strong that there for many people are difficult to reconcile with a male nurse. Nurses are often seen as warm, compassioned and caring, which are characteristics often associated with females. Nurses are also often described as feminine and motherly. These feminine stereotypes may lead to the false impression that females are better nurses than males (Clow, 2014).

Dentistry has over a long time been a male dominated occupancy. Therefore, it is appropriate to think that this occupancy has stereotypes which are associated with typical male characteristics. Women may therefore be seen as less competent to carry out the tasks in this occupation, because they do not possess the right characteristics. Because of the increasing number of female dentist there have been a numerous of studies to see if the patients’ perception of dental care varies if it is offered by a male or a female dentist.
One study found that female dentists have empathy-related traits like taking the time to talk to the patient. They also possess skills that make them appear reassuring and calming, which makes the patient feel more relaxed. These traits are traits that patients do not expect to see from a male dentist. But male dentists are perceived as more confident, more likely to be in charge, more competent and more dedicated to their jobs compared to female dentists. Also, male dentists are more likely to expect the patient to endure some pain without complaining (M. K. Smith & Dundes, 2008).

Many of these findings are supported by another study, which also looked at the patients’ perception of dental care offered by male or female dentists. This study found that female dentists asked more personal questions compared to male dentists. Even though they asked the same questions, females extracted more personal information, and thereby establish a closer relationship with the patient, which in turn makes the situation less frightening, leaving the patient more relaxed. Female dentists also explain in more detail the patient’s treatment plan and diagnosis compared to males. This study also supported that male dentists are seen as more confident while working (Ibrahim & Awooda, 2015).

Another study found that patients feel that female dentists understand problems, have a sensitive and caring attitude and takes the time to listen to the patient. Patients are also more comfortable in explaining about their overall well-being and general health, sharing their doubts and dental anxiety with female dentists. Male dentists on the other hand are more devoted to their jobs versus family. They are therefore more focused on their work, and more updated with the latest advancements. This makes patients feel that they will receive better care from a male dentist (Puranik & Kumar, 2015). Male dentists also work longer hours, own more practices, and are more prominent in the specialties, academia and leadership roles, which makes them seem more dedicated to their work (McKay & Quinonez, 2012).

Every dentist is different, but we create stereotypes and expect that they are the same. This makes fearful patients afraid of going to the dentist, even if it is a dentist they have never met before.

Fear is a common emotional response to a situation that is perceived as threatening to an individual. Fear is most often seen among children, but also in adults and adolescents exposed to new situations. Anxiety reminds of fear when it comes to behaviour, but the triggering
stimuli or situation is not dangerous. In anxiety, the trigger lies in previous negative experience, which gives negative expectations to future events (Raadal & Skaret, 2013).

Studies show that between 4-30% of adults around the world are anxious to attend the dentist in some degree. Between 5.7-19.5% of children under 12 years old and 5.7-19% of adolescents are also anxious (Raadal & Skaret, 2013). The aetiology of dental fear, anxiety and phobia are multifactorial. Research shows that there are especially two antecedents for developing dental fear and anxiety. These are, the behaviour and characteristics of the dentists (Abrahamsson, Berggren, Hallberg, & Carlsson, 2002), and the direct or vicarious dental experiences (Thomson, Locker, & Poulton, 2000). The vicarious dental experiences are portrayed by mass media, family and friends (Bernstein, Kleinknecht, & Alexander, 1979).

The behaviour and characteristics of both the dentist and the patient depend a lot on their personality. The term personality is not easy to define, even though it is frequently used. We have used Raymond Cattell’s theory or definition of personality, which is a theory that is frequently used in research on personality. Cattell defines personality as “[…] that which permits a prediction of what a person will do in a given situation” (p. 284; Engler, 1999). He believed that the understanding of personality could be assisted through exploration of traits. Knowledge about the underlying traits may allow us to predict the behaviour of others and our own behaviour (Engler, 1999).

The other antecedent for dental fear and anxiety is the direct or vicarious dental experiences. Fear and anxiety can originate from a direct personal negative experience, which over time can develop into dental anxiety. A lot of dental treatment has the potential to be painful because the dental tissue is richly innervated with pain receptors. A Norwegian study from 1993 found that 20-30% had a moderately painful or worse experience at their last dental visit (Vassend, 1993). Also, 60% have experienced at least one very painful treatment session (Willumsen, Haukebø, & Raadal, 2013). A study about dental fear from traumatic dental experience found that people with previous traumatic dental treatment have two and a half times higher risk of developing dental fear (Humphris & King, 2011). Another study found that there is a significant relationship between the number of extractions a child has experienced and the degree of dental fear. Also, that the longer children have good experiences at the dentist before an invasive treatment, the lower chance they have of developing dental fear (Beaton, Freeman, & Humphris, 2014). But the personal experience of
a dental treatment can vary from person to person. In 1985 Kent looked at how the patients remembered pain after 3 months. He found that persons with dental fear who was expecting pain had a greater memory of the pain than those who was not expecting pain (Kent, 1985).

For many people, a dental visit is uncomfortable because it interferes with our intimate zone. A distance between one to one and a half meter is argued to be the optimal distance between people (Chambers & Abrams, 1986). When people are moving closer than this it might induce feelings of stress and discomfort, which in turn can lead to a defensive reaction. In a dental setting the patient also often feels loss of control in the situation with another person so close (Willumsen et al., 2013). The patient is in a submissive position relative to the dentist during dental treatment, with limited control and opportunities to speak. Information that gives patients an understanding of the plan for the treatment and what might happen during treatment might increase the experience of control. Also, the need for control varies a lot from person to person, depending on personality and previous experience. Those in need of control, might experience lack of control during a dental visit more negatively than someone with less need of control (Willumsen et al., 2013). Therefore, it is very important that a dentist is informative, so that a lack of information will not be a contributor to developing dental fear.

Thus, information is important and can contribute to development of trust between the dentist and the patient. Without trust between patient and dentist, the setting may be a source of stress for both parties and result in a bad experience. The personality of the dentist and the patient play a major part in developing trust. If they have completely different personalities, it can be uncomfortable. For some people, an informative and friendly dentist plays a big part in preventing dental fear. For these patients it is essential that they have a dentist with these kinds of qualities. Patients may have a personality or a previous experience so that the normal development of trust to other people are disturbed. Also, some specific personality traits will make a person feel negative stimuli as more threatening than normal, and then is in more risk of developing dental fear (Willumsen et al., 2013).

It is also proven that negative dental experience portrayed by friends, family and mass media play a part in the developing of dental fear, for instance by creating negative expectations to the dental visit. These stories may also contribute to creating negative stereotypes of the dentist. For example, if you have seen a menacing or sadistic dentist on the television or heard a story from a friend of a mean dentist, you might expect that every dentist behaves like this.
because of our tendency to form stereotypes. The influence of vicarious learning is supported by Locker when it comes to the importance in relation to child-onset dental anxiety. He found that a lot of those who develop dental fear as a child have parents or siblings with dental fear. It is proven that there is a significant relationship between dental fear among children and their parents. Children are influenced by those around them, they observe the behaviour of others, and learn from their stories (Locker, Liddell, Dempster, & Shapiro, 1999). Humphris and King found that those who have seen or heard scary stories about dental treatment in the mass media are two and a half times more likely to develop dental fear (Humphris & King, 2011). Especially children are influenced by stories, and there are many children’s movies and books like “who stole Nemo” and “demon dentist”, that illustrate the dentist in a bad way (Thibodeau & Mentasti, 2007). This is a concern because many of those who are dentally anxious report that their anxiety originated from their childhood (Locker et al., 1999). A study from 2007, which analysed the depiction of dentistry and dentists in over 100 movies, found that many of the movies depicted the dentist as incompetent, menacing, sadistic, immoral, unethical or corrupt (Thibodeau & Mentasti, 2007). It is conceivable that this can contribute to the formation, and the longevity of, negative occupational stereotypes related to dentistry.

Dental fear and anxiety is widespread and is a condition that should be taken seriously. Research shows that patients who experience dental anxiety go irregularly to the dentist or not at all. This is a concern because a consequence of avoiding dental treatment might be poorer oral health (Hakeberg & Lundgren, 2013). Oral health is important because it affects all aspects of human life. For instance, poor oral conditions might affect self-esteem, social relationships and enjoyment of life due to problems with speech, mastication, swallowing, and smile aesthetics. Therefore caries, periodontal disease and missing teeth has a direct influence on quality of life (Haag, Peres, Balasubramanian, & Brennan, 2017).

Poor oral health may also lead to severe medical conditions. For example, severe tooth decay may lead to Ludwig’s angina: A potential life-threatening condition that can cause oedema and asphyxiation (Candamourty, Venkatachalam, Babu, & Kumar, 2012). Also, there is a significant association between lesions of endodontic origin and the risk for coronary heart disease (Caplan et al., 2006). Many new epidemiological studies conclude that oral infections, for example marginal periodontitis, may contribute to systemic illness such as early birth, arteriosclerosis, strokes and diabetes. The American Academy of Periodontology stated in 1998 that patients with marginal periodontitis have from 1,5 to 2,0 times higher risk to
develop life threatening cardiovascular disease than people without periodontitis (Olsen, 2002).

Dental anxiety and fear is not a new term or condition. Dental treatment has always been associated with pain and anxiety. This is most likely, because the treatments traditionally were very unpleasant and painful (Raadal & Skaret, 2013). A study performed on 25-year-olds in Norway to map dental anxiety and dental attendance from 1997 to 2007, found that the participants were 1.4 times more likely to report dental anxiety in 1997 compared to 2007, which leads to the conclusion that dental fear has decreased during this time (Åstrøm, Skaret, & Haugejorden, 2011). However, another literature review from 2003 analysed 128 articles involving dental fear, from 1955, up to 2000. In this study, they found that over these 50 years there are no clear evidence that dental fear has either increased or decreased (T. A. Smith & Heaton, 2003). The Norwegian study only consisted of 736 (62%) participants in 1997, and 1509 (19%) participants in 2007. In the literature review from 2003 they examined studies which included over 10.000 adults over a much longer time, leaving the study from 2003 to involve a more various sample of age and people. In the 2003 study dental fear and anxiety is documented far back, and during this time we have continuously tried to make the dental visit a better experience. We now have more advanced equipment, anaesthetics to prevent an experience of pain, and dental health professionals focus more and more on improving the patients’ experience of the visit to the dentist. Even so, there is little evidence that levels of dental anxiety are reduced significantly as a result of the advances in modern dentistry over the last 50 years. This make us interested in which other factors play a part in the development of dental anxiety and fear.

We know that the personality traits of the dentist play a part in developing dental anxiety, as well as personal negative experiences and/or dental experience portrayed by friends, family and mass media. We know from studies that dentists are not portrayed in a particular good way in mass media, and that it is human nature to create stereotypes. Because of this we wanted to investigate if there is a relationship between dental anxiety and the perception of personal characteristics of the dentist. This study investigates how dental anxiety, personal negative experiences during dental treatment, and negative stories about dentist influence ratings of dentists’ personality characteristics. We propose that (A) participants who have had negative dental experiences will rate dentists more unfavourably on personality characteristics than participants without negative dental experiences, (B) participants who score high on
dental anxiety will rate dentists more unfavourably on personality characteristics than participants with low dental anxiety, and (C) participants who have been exposed to negative stories about the dentist or dental treatment are more likely to rate dentists more unfavourably on personality characteristics than participants who have not heard negative stories about the dentist.

*Figure 1. Proposed relationship between variables included in the study.*
2. Material and Methods

An electronic questionnaire was distributed to approximately 1400 students at UiT The Arctic University of Norway (UiT). The questionnaire was in Norwegian language and was hosted by Questback. It contained a total of 13 questions and took about 5 minutes to complete. In order to preserve participants’ anonymity, administrative personnel at UiT in charge of student e-mails sent out a link on e-mail to the students of their department/faculty. Data was analysed by using SPSS v24.

The study was approved by REK (Regional Committee for Medical and Health Research Ethics; ref.no 2017/832) and the NSD (Norwegian Centre for Research Data) NR 54216.

Demographics

The questionnaire asked for participants’ age and gender (female/male). Participants indicated their age on a four-point scale, with the following age groups: 18-25, 26-34, 35-40 and 40+.

Experiences with treatment and exposure to stories

The questionnaire asked participants to indicate by yes or no answers, if they have had a negative dental experience, and if they have heard any negative stories about the dentist.

Measurement of dental fear and anxiety

This study uses Index of Dental Anxiety and Fear (IDAF-4C) to measure levels of dental anxiety (Armfield, 2010). The IDAF-4C includes emotional, behavioural, cognitive and psychological components, which all most likely are very important components for developing dental anxiety (Armfield, 2010). The participants are asked to read 8 statements about dental treatment and to indicate to which extent they agree or disagree with the statement on a scale from 1 – disagree to 5 – strongly agree. Scoring can either be a sum of the total score (8-40) or an average score (1-5) (Armfield, 2011).

Rating of dentist’s personal characteristics

To map how the participants rated the personal characteristics of dentists, we chose to use a modified version of the Ten Item Personality Inventory (TIPI). TIPI is a simplified version of the Big Five personality theory and consists of 5 personality dimensions. These dimensions are Extraversion (one’s level of sociability and enthusiasm), Agreeableness (one’s level of...
friendliness and kindness), *Conscientiousness* (one’s level of organization and work ethic), *Emotional Stability* (one’s level of calmness and tranquillity), and *Openness to Experience* (one’s level of creativity and curiosity). These dimensions consist of two opposing traits, which are formulated as opposing adjectives. Participants’ responses to these traits tells where the participant lays between the two extremities (Gosling, Rentfrow, & Swann, 2003).

For the purpose of this study, we changed the instructions of the TIPI, and asked the participants to rate the dentists with the same personality traits, in the same way one would rate their own personality. We also wanted to add some more traits to the test, so it would consist of personality traits we feel are commonly used to describe for dentists. To make sure we included the most common traits we asked fellow students if they could relate to these traits, and whether we should include other traits or not. In addition, we read different articles about the perception and declaration of the dentist to find common traits, and values that the patients appreciate with the dentist (Mandel, 1998; Riley et al., 2012; Thibodeau & Mentasti, 2007). After this we ended up adding 4 more dimensions to the questionnaire by adding 8 adjectives (where two and two opposed each other): These dimensions were meant to reflected how well the dentist are perceived on key professional and interpersonal behaviours, related to being generous, compassionate, friendly, and providing information. These are called generosity adjectives, compassion adjectives, friendly adjectives and information adjectives in the analyses (also, see Appendix).

The participants had to choose how well they felt every trait characterized “most dentists”. They had 7 different ratings to choose from, and each rating was graded by a point from 1-7. For example, they could choose “strongly disagree” with 1 point or “strongly agree” with 7 points. TIPI consists of 10 antonym factors combined into 5 personality factors. The calculation of the different scores involve a calculation combining the factors in pairs. For example, when we are to score a respondent’s emotional stability we have to take the score from *calm, emotionally stable* + (8- the score from *anxious, easily upset*) and divide the answer in 2.
3. Results

A total of 118 students at the UiT The Arctic University of Norway answered the questionnaire, which gives a response rate of 8.4%. Of these 81 were women (68.6%) and 37 men (31.4%). 92 (78%) of the participants were in the age group of 18 - 25, while 20 (16.9%) were in the age group of 26 – 34. The remaining 6 participants (5.1%) were 35 years or older. Fifty-four (54) of the participants (45.8%) have had a negative experience at the dentist, while 64 (54.2%) have not had a negative experience. Ninety-four (94) participants (79.7%) have heard a negative story about the dentist, while 24 (20.3%) have never heard a negative story. When it comes to the annual attendance for a dental visit, 61 participants (51.7%) attend once a year, while 57 (48.3%) did not (see Table 1).

Table 1. Summary of results concerning negative stories, negative experience, yearly attendance, and dental anxiety.

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>“Yes” (%)</th>
<th>“No” (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative Stories</td>
<td>118</td>
<td>94 (79.7)</td>
<td>24 (20.3)</td>
</tr>
<tr>
<td>Negative Experiences</td>
<td>118</td>
<td>54 (45.8)</td>
<td>64 (54.2)</td>
</tr>
<tr>
<td>Yearly Attendance</td>
<td>118</td>
<td>61 (51.7)</td>
<td>57 (48.3)</td>
</tr>
</tbody>
</table>

|                      |  | $M$  | $SD$  |
|----------------------|  |------|-------|
| Dental Anxiety (IDAF-4C) | | 14.77| 7.73  |
| females              | 81 | 15.40| 7.77  |
| males                | 37 | 13.41| 7.51  |

|                      |  | “High” (%) | “Low” (%) |
|----------------------|  |------------|-----------|
| Dental Anxiety- categories | | 45 (38.1) | 73 (61.9) |

Dental Anxiety, Negative Experiences, and Negative Stories

The mean of the IDAF-4C sum scores were calculated, which enables us to divide the participants in two groups: These are called “low” (below mean) and “high” (above mean) dental anxiety groups. Seventy-five (75; 63.6%) participants ended up in the low dental anxiety group, while 43 participants (36.4%) ended up in the group with high dental anxiety.

The relationship between dental anxiety and negative experiences are shown in Figure 2. As can be seen, more participants with negative experiences report higher dental anxiety than
participants without negative experiences, and a Chi-square test of independence shows a significant interaction; $\chi^2 (1) = 30.24, p < .001$.

![Figure 2](image_url). The relationship between dental anxiety and negative personal experiences during dental treatment

The relationship between dental anxiety and hearing negative stories about the dentist are shown in Figure 3. As can be seen, more participants who have heard negative stories report high dental anxiety than participants who have not heard negative stories. Also, the proportion of participants reporting high dental anxiety is larger among those reporting to have heard negative stories. A Chi-square test of independence shows a significant interaction; $\chi^2 (1) = 7.465, p < .01$. 

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The relationship between dental anxiety and hearing negative stories about the dentist

The relationship between negative experiences and hearing negative stories are shown in Figure 4. As can be seen, the proportion of participants who have not heard a negative story is larger among those that do not report a negative dental experience, and a Chi-square test of independence shows a significant interaction; $\chi^2(1) = 5.23, p < .05$. 
Ratings of Personality Characteristics

From Table 2 we can see that there is a significant difference in ratings of personality characteristics based on negative dental experience (yes versus no), except for compassion adjectives. This means that those who have experienced a negative dental visit rate dentists less favourably on personality characteristics. This is in support of Hypothesis A. Also, there is a significant difference in ratings of personality characteristics based on level of dental anxiety (low versus high), except for emotional stability and compassion dimensions. This means that those who score low on dental anxiety also rate dentists more favourably on personality characteristics, which gives support to Hypothesis B. Hypothesis C was not supported however, as there were no significant differences with regards to negative stories about the dentist and ratings of personality characteristics.

Figure 4. The relation between hearing negative stories and negative experiences
Table 2. Median scores and interquartile range of TIPI personality traits and personality characteristics for dental anxiety, negative stories and negative experiences; significant differences in ratings of personality characteristics between variable alternatives are marked with asterisks (Mann-Whitney U-test).

<table>
<thead>
<tr>
<th>TIPI dimensions and personality characteristics</th>
<th>Dental anxiety</th>
<th>Hearing negative stories</th>
<th>Negative dental experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Mdn</td>
<td>IQR</td>
<td>Mdn</td>
</tr>
<tr>
<td>TIPI Extraversion</td>
<td>5.00*</td>
<td>1.50</td>
<td>4.00</td>
</tr>
<tr>
<td>TIPI Agreeableness</td>
<td>5.50***</td>
<td>1.50</td>
<td>4.50</td>
</tr>
<tr>
<td>TIPI Conscientiousness</td>
<td>6.00*</td>
<td>1.00</td>
<td>5.50</td>
</tr>
<tr>
<td>TIPI Emotional stability</td>
<td>6.00</td>
<td>1.00</td>
<td>5.50</td>
</tr>
<tr>
<td>TIPI Openness to experience</td>
<td>4.00</td>
<td>1.50</td>
<td>4.00</td>
</tr>
<tr>
<td>Generosity adjectives</td>
<td>5.00*</td>
<td>1.00</td>
<td>4.50</td>
</tr>
<tr>
<td>Compassion adjectives</td>
<td>4.00</td>
<td>.50</td>
<td>4.00</td>
</tr>
<tr>
<td>Friendly adjectives</td>
<td>6.00</td>
<td>1.50</td>
<td>5.50</td>
</tr>
<tr>
<td>Information adjectives</td>
<td>6.00*</td>
<td>2.00</td>
<td>5.00</td>
</tr>
</tbody>
</table>

Note: *p<.05; **p<.01; ***p<.001.
4. Discussion

The results are in support of Hypotheses A and B, but not Hypothesis C. There are significant differences in ratings of personality characteristics based on level of dental anxiety, and these findings show that persons with less dental anxiety regards dentists’ personality more favourably and positively than persons with higher dental anxiety. There are significant differences in ratings of personality characteristics based on negative dental experience for all the personality dimensions, except from compassion adjectives. These findings show that persons who have not experienced a negative dental visit regards dentists’ personality more favourably and positively than persons who have experienced a negative dental visit. There are no significant differences in ratings of personality characteristics based on hearing negative stories about the dentist. It may be thought that people who have had no negative experiences at the dentist to a lesser extent catch up or notice the negative stories than people who have had negative experiences with the dentist. But we can see that the prevalence of negative stories of the dentist is considerable, where 79,7 % of the participants have heard a negative story. Because there is a strong relation between stories, dental fear and experience, this high prevalence is a concern. It is known that negative stories about the dentist portrayed by friends, family or mass media plays a part in the development of dental fear (Bernstein et al., 1979), and that these stories may contribute to creating negative stereotypes of the dentist.

From our study, we found that both dental anxiety and negative experience influence the rating of different personality traits. Those who scored high on dental anxiety or have had a negative dental experience will score less favourably and positively on some of the different personality traits, for example they may not feel that the dentist is particularly open to new experiences and will therefore score lower on this trait. It may be expected that these participants will tell more negative stories about the dentist to other people, either it is to friends, family or mass media. In this way, negative stories about the dentist can be spread, and this may contribute to the formation of negative stereotypes. We can see that there is a significant relation between negative dental experience and the personality trait emotional stability. This implies that those who have had a negative dental experience rate the dentist less favorably when it comes to emotional stability, which may indicate that they perceive that the dentist is anxious and easily upset. The reason for this may be that the dentist actually was emotionally unstable which led to an uncomfortable situation, or it may be because the patient has had previously negative experiences and expect that the dentist will be
emotionally unstable. This shows that it may be important that the dentist appears calm and emotional stable in order to give the patient a good dental experience. We also found that there is a significant relation between the personality trait conscientiousness, dental anxiety and negative dental experience. This means that those who have dental anxiety or have had a negative dental experience will rate the dentist less favorably when it comes to conscientiousness, feeling perhaps that the dentist is disorganized and careless. This shows that it is important for the dentist to be dependable and self-disciplined in order to prevent dental anxiety and a negative dental experience, and also to keep in mind that anxious patients and those with previous negative dental experience might more easily notice this kind of behavior. The personality trait agreeableness was influenced significantly by both dental anxiety and negative dental experience. This shows that those with higher levels of dental anxiety or those who have had a negative dental experience rate the dentist less favorably when it comes to agreeableness, feeling perhaps that the dentist is critical and quarrelsome. Based on this we can see that it is important that the dentist is warm and sympathetic in order to prevent dental anxiety and a negative dental experience.

We also tested whether ratings of dentists on traits related to professional, interpersonal behaviour could be related to dental anxiety, previous negative experiences or hearing negative stories. There is a significant relation between the information-providing traits and dental anxiety, where those who score high on dental anxiety scores low on the information-providing traits. There is also significance between information adjectives and negative dental experience where those who have had negative dental experience scores lower on the information-providing traits. This correlates with findings from former research, showing that being an informative dentist plays an important role in preventing dental anxiety and negative dental experience (Willumsen et al., 2013).

If you are living in a small town and hear negative stories about the local dentist from someone with negative dental experience or dental anxiety, it may be thought that patients without these prerequisites will have a bad first impression or expectations prior to the dental treatment. For example, if an anxious friend with negative experiences at the local dentist shares stories about the dentist being not friendly or not informative, it will affect how I feel about this particular dentist. The corporation between patient and dentist may become more difficult, particularly trust building in the start phase of patient treatment. Good
communication and trust building one-to-one are important for the evaluation of the dentist personality, not only for this particular patient, but also for patients to come.

From the results we can see that the proportion of participants who have not heard a negative story is larger among those that do not report having a negative dental experience. It is possible that those who have never heard a negative story will have less negative expectations before the dental visit, and that this increases the likelihood of having a positive experience. Also, those who only have had positive experiences at the dentist might pay less attention to negative stories, or it might be that they do not interpret ambiguous stories in a negative way. The results also show that the proportion of participants reporting high dental anxiety is larger among those reporting to have had a negative personal experience during dental treatment. This shows that personal experience is very relevant for development and maintenance of dental anxiety, and supports the idea of direct learning experiences as a key mechanism in this process (Thomson et al., 2000). It may be thought that people who have had negative experiences at the dentist associates the dental visit with these negative experiences. And as Kent found, those with dental fear who was expecting pain had a greater memory of the pain than those who was not expecting pain (Kent, 1985). This shows that reducing negative experiences will reduce dental anxiety and the memory of pain.

There is a relationship between dental anxiety and hearing negative stories about the dentist. Also, the proportion of participants reporting high dental anxiety is larger among those reporting to have heard negative stories. The explanation to this might be that participants reporting high dental anxiety more frequently catch up negative stories about the dentist or interpret stories about the dentist in a negative way. Maybe because they have had negative experience at the dentist themselves and can relate to these stories.

These findings from the results indicate a relationship between dental fear, negative experiences and hearing negative stories about the dentist. As one can see in Figure 5, there appears to be a relationship between all the variables except hearing negative stories about the dentist and personality traits of the dentist.
Figure 5. The relationship between dental anxiety, negative dental experience, hearing negative stories about the dentist and personality traits for the dentist as found in our study.

**Limitations**

Despite trying to include all the faculties at UiT only the Faculty of Humanities, Social Sciences and Education (HSL-faculty) responded positively to our request about sending the questionnaire link on e-mail to the students of their faculty. As mentioned in the results, our response rate was only 8.4%, which is low. The chances for the results to not represent the population increases when the response rate is low. It might be, that only people with meanings about the subject responded on the questionnaire, or only people finding the subject interesting. There is no way to tell if the approximated 1400 receiving the e-mail with the link to our questionnaire read the e-mail. The low response rate might be due to a short deadline, bad timing or using the student e-mail. A short deadline gives the respondents short time to answer the questionnaire. The questionnaire was distributed shortly after the summer, a time where students are busy trying to get new friends and learn about the University as an institution. So, the timing might not have been the best. The student e-mail might not be frequently used by all students, so many of those receiving the link, may not even have read the e-mail. Besides we did not have any chance to send a follow up mail to try to increase the response rate.
We chose to use TIPI, because a short questionnaire might get a higher response rate than a long questionnaire. A study about questionnaire length states that questionnaires with a word count fewer than 1000 words had a participant rate at 59.4%, while questionnaires with a word count above 1000 had a participant rate of 38%. The study does not suggest a threshold of 1000 words, but the findings suggest that the response rate may be sensitive to differences in survey length (Jepson, Asch, Hershey, & Ubel, 2005).
5. Conclusion

This study showed that dental anxiety and negative experiences with dental treatment influences the ratings of personality characteristics of dentists. Despite trying to make the dental visit a better experience, sometimes people still have bad experiences at the dentist. Even though we cannot find a connection between hearing negative stories about the dentist and how participants rate the personality of the dentist, we found that there is a relationship between hearing negative stories, dental anxiety and having negative experiences at the dentist. Therefore, it should be in the interest of the dental associations around the world to work on reputation management to get rid of negative stereotypes. This can primarily be achieved by reducing the likelihood that people experience dental treatment as negative or traumatic. Although most dentists cannot directly affect the prevalence of dental anxiety in society, or the negative stories or myths surrounding the profession, all dentists can strive to give the best possible dental experience that in time might reduce the other factors.
6. References


Appendix

Din oppfatning av tannleger

Vi er 3 tannlegestudenter ved UiT som holder på å skrive vår masteroppgave om hva slags oppfatning befolkningen har av tannleger, samt kartlegging av redsel for å dra til tannlegen.

Dette er et område som det ikke er forsket alt for mye på, så vi setter stor pris på alle svarene vi får, slik at vi kan få et så godt grunnlag som mulig på dette feltet.

Undersøkelsen vil ta ca. 5 minutter å svare på. Dine svar vil være anonyme.

1) *Kjønn
   - Kvinne
   - Mann

2) *Alder
   - 18-25
   - 26-34
   - 35-40
   - 40+

3) *Har du hatt noen negative erfaringer hos tannlegen?
   - Ja
   - Nei

4) *Har du hørt noen negative historier om tannlegen?
   - Ja
   - Nei

5) *Går du årlig til tannlegen?
   - Ja
   - Nei
6) Her er et utvalg av personlige egenskaper og trekk som kan beskrive tannleger. Du vil se at noen av disse beskriver tannleger godt, mens andre ikke gjør det. Vennligst angi hvor godt hvert utsagn passer for tannleger, og bruk skalaen som er oppgitt for å avgjøre svar.

<table>
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<tr>
<th>Personal characteristics of dentists</th>
<th>Passer veldig dårlig</th>
<th>Passer litt dårlig</th>
<th>Hverken eller</th>
<th>Passer litt</th>
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Til slutt ønsker vi at du besvarer hvor enig/uenig du er i disse påstandene.

7) * Jeg blir engstelig rett før jeg skal til tannlegen
   - uenig  - litt enig  - noe enig  - ganske enig  - veldig enig

8) * Jeg unngår generelt sett å gå til tannlegen fordi jeg finner opplevelsen for ubehagelig og foruroligende
   - uenig  - litt enig  - noe enig  - ganske enig  - veldig enig

9) * Jeg blir nervøs eller urolig i forkant av tannlegebesøk
   - uenig  - litt enig  - noe enig  - ganske enig  - veldig enig

10) * Jeg tror noe fælt ville skje meg om jeg gikk til tannlegen
    - uenig  - litt enig  - noe enig  - ganske enig  - veldig enig

11) * Jeg blir redd eller engstelig når jeg er i tannlegesituasjon
    - uenig  - litt enig  - noe enig  - ganske enig  - veldig enig

12) * Hjertet mitt slår forttere når jeg er hos tannlegen
    - uenig  - litt enig  - noe enig  - ganske enig  - veldig enig

13) * Jeg utsetter å avtale time hos tannlegen
    - uenig  - litt enig  - noe enig  - ganske enig  - veldig enig