MASTEROPPGAVE

Clinical management of the adult patient with dental anxiety

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Juni 2012

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Abstract

Background: Dental anxiety is a prevalent issue which every dental practitioner will face. As dental anxiety involves personal consequences for the affected patients - as well as hampering the clinical performance of the dental profession – this matter should be taken seriously and dealt with accordingly. The treatment of dental anxiety thus should be within the competence of the general practitioner.

Aims: To systematically review the literature concerning treatment of adult fearful and anxious patients, in order to find strategies to empower both patient and dentist in the clinical situation. Our hypothesis is that there are measures a general dentist can take to ease the dental treatment of fearful patients. Our goal is to present the general dentist approaches regarding identification and care of these patients.

Material and methods: Systematic search of the literature was performed via Pubmed and using Google search engine. We used search terms such as: "dental anxiety", "fearful dental patients", "etiology of dental fear" and "adult fearful patients." The primary selection of articles, books and doctoral theses was based on their title abstract, and time of publication. The inclusion criteria were Scandinavian and English publications presenting knowledge about etiology, prevalence and clinical management of dental anxiety in adults. We also performed interviews with anxious patients at the TkNN (Tannhelsetjenestens kompetansesenter for Nord-Norge).

Conclusions: Identifying anxious dental patients can be achieved by the use of a semi-structured interview and/or through psychometric questionnaires, such as Dental Anxiety Scale (DAS), Dental Belief Survey (DBS) and Dental Fear Survey (DFS). There are both general and specific approaches to treating dental anxiety, as well as pharmacological aids. The method of choice should be adapted to the patient's prerequisites and individual needs. Even though much can be accomplished by the general dentist, some patients may have very complex and comprehensive problems and need care from a specialist.

Keywords: dental anxiety, adult anxious patients, identification, treating dental anxiety, behavioral and cognitive approaches

1.0 Introduction

1.1 Scope of the problem - fear versus anxiety and phobia

It is widely known that many people are uncomfortable visiting dental clinics. Up to 40 percent of the population admit being fearful of undergoing dental care (1). There are different degrees of dental fear –some have more trouble going to the dentist than others, and some are not capable of going there at all. One distinguishes between three categories of resent against dental treatment; dental fear, dental anxiety and dental phobia (2-4). These terms describe the same phenomenon, but the extent of the fear reaction is increasing from "fear" through "anxiety" to "phobia". There is no clear cut off point between the terms, and the definitions are used inconsistently in the literature, and also in this paper.

Dental fear: Fear is a natural, adaptive reaction and is supposed to protect us against danger. Our response to the feeling of fear consist of three parts; a physiologic, a cognitive and a behavioral component. These three responses are closely connected, and will activate each other, not depending of which response started first (2). The physiologic component consists of an activation of the sympathetic nerve system with an increased adrenalin-level, which can lead to sweating, increased heart beating and stomach problems. The cognitive component involves negative thinking, like "this is dangerous – I might die – I need to get away", while the behavioral part of the response will involve trying to fight the situation or getting away from it. Being afraid of pain is considered normal. Some expect dental treatment to be painful, and may therefore experience fear. It is also normal to be afraid of the unknown, like one can be when having an extraction or root canal treatment done for the first time. The fear is nevertheless controllable and the person is capable of coping and thinking rationally.

Dental anxiety: The anxiety response is almost identical to the fear response, both having a physiologic, a cognitive and a behavioral component. The main difference is the nature of the stimulus which will trigger the reaction, and how powerful the reaction is to the given threat. An anxious person might get a strong fear reaction already when he is notified of the dental appointment; just thinking about visiting a dental clinic may feel overwhelming. The anxious patient will still know that the anxiety is an irrational and greatly exaggerated reaction, and will often, despite of the anxiety, actually come to the dental clinic.

Dental phobia: Phobia is a well-defined illness, and there are very specific criteria of what is defined as odontophobia. Both the DSM-IV (Diagnostic and Statistical Manual of Mental Disorders) (2) and the ICD-10 (International Statistical Classification of Diseases and Related Health problems) (2) , place odontophobia under the diagnosis "Specific Phobias." The diagnosis is not set by the dental staff, but by a trained psychologist or psychiatrist. Odontophobic persons will usually not go to a dental clinic at all, or at the most only when they have an unbearable tooth ache. Often they cease brushing their teeth, because looking at the teeth is a constant reminder of not going to the dentist –a feeling which gives them great discomfort. Not going to the dentist often gives an increased treatment need, and hence their anxiety and shame increase even more. Often they evolve a social phobia as well, because of their bad tooth condition or –function, and their phobia affects their everyday life to a great degree.

1.2 Prevalence and incidence

There have been done many studies on the prevalence of dental fear, -anxiety and - phobia. It is however very difficult to estimate exact numbers of these patients, because of the great tendency to keep the problem to oneself and avoiding dental clinics. Most studies estimate the prevalence of dental anxiety to be between 4 – 20% (4, 5) ; some studies even claim that as much as 40% of the adult population are afraid of dental treatment (1). The group of phobic patients are in different studies estimated to be 2,1-2,4% (6), 3-5% (1), and 4,2-7,1% (7). One study (8) has even looked at the incidence of dental anxiety by following patients from birth until 26 years of age. They found that 16,5% of the participants developed dental anxiety between the age of 18 and 26.

1.3 The Etiology/Cause of Dental Anxiety

Negative experiences in the past seem to be the main reason why people fear the dentist and the dental treatment (2, 4, 5, 8, 9). Situations experienced (or maybe only observed or been told) (10), as really frightening from the patient's perspective, can later on result in reactions and behavioral patterns related to the happening, when the patient experiences stimuli that reminds him or her about the specific situation. This is called "Classical conditioning" (fig.1) or "Pavlovian reinforcement" and was first demonstrated by Ivan Pavlov in 1927. When you have experienced something negative in the dental context ("unconditioned stimuli"/US –drill

into tongue), there will be an automatic, emotional reaction to it ("unconditioned response"/UR –fear and pain). The negative stimuli (US) can be associated with another present stimuli ("Conditioned stimulus"/CS –the dentist, dental office). The next time you experience the conditioned stimulus you will faster recognize the situation and respond to it due to the expectation of the situation – a conditioned emotional response (CER), leading to fear and avoidance, will occur (11). The response will be strengthened for each time you have the same experience of the situation. Stimulus that can initiate the response can be as seemingly insignificant as smell, taste and sound, but the similarity to the experience can be enough to remind the patient of the situation, and he or she will respond to this with the conditioned emotional response. This is called stimulus generalization (2, 5). It is important to keep in mind that pain is a subjective feeling, and that the perception of treatment session can be very different from each patient, and each dentist´s view (5). Also, the mouth has the most pain-receptors per area in the whole body (3).

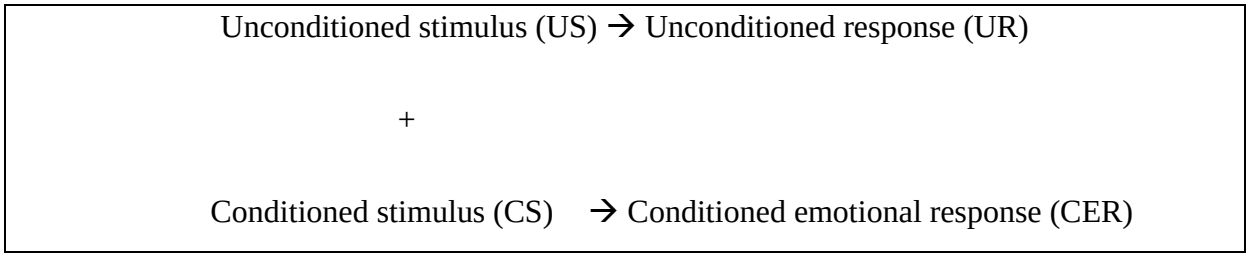

Fig.1: Classical conditioning

Apart from negative experiences, there are other factors that correlate with dental anxiety. Some studies suggest that these factors may have a greater impact on dental anxiety than negative experiences (10).These factors can be age, sex, psychological-, economic- and social factors, oral health and frequency of dental visits (4, 5, 8). Still, all of these factors are connected to each other. For instance; a low social status may cause a poor diet due to bad economy, which in turn will lead to a poor oral health.

Young adults are more often afraid of dental treatment than younger children, teenagers and middle-aged people. This may also have a correlation with psychological factors associated with becoming an adult (5).

Dental anxiety is more common among women than men; the ratio may be as much as 2:1. This may be due to different perception of feelings between men and women, but it can also be biased, due to the fact that women report anxiety more often than men. This can be a result of different cultural expectations to men and women, rather than an actual difference (3, 5).

Several studies point out the connection between a poor oral health and a low socio-economic status (5). Low socio-economic status is considered to be an important risk-factor to poor oral health. Individuals with low socio-economic status may not afford the dental treatment they need. They may also lack the motivation of good oral status due to their low social standards and environment. Some studies show a higher risk of dental anxiety amongst individuals with low education, others again did not find any difference between high and low educated individuals (5).

Dental fear is also affected by the patient's perception of the treatment situation as uncontrollable, unpredictable, dangerous and disgusting. Armfield et al suggests that these predictors of dental fear were superior compared to negative dental experiences (10). All of these factors can easily be reduced by the dentist if he or she is attentive to this, and adjust the treatment after the patient's needs.

It is very common that dental anxiety is connected to general anxiety and other psychological-, psychiatric- and character-disorders, as well as substance dependency (5, 8). The results presented by Locker et al indicated that both psychological and conditioning variables contributed to dental anxiety. Patients who have experienced torture, sexual abuse or other trauma related to the oral cavity often develop odontophobia (6). However, patients with such complex problems, are not dealt with in this review.

1.4 Four groups of patients – The Seattle system

Dental anxiety is usually a very complex problem, both when it comes to etiology and manifestations. It might sometimes be easy to see that a patient is anxious, but finding out exactly what the problem is and how to help the patient, is often more difficult. The Seattle-system, developed at the University of Washington, might be a useful tool when it comes to categorizing patients into groups with similar diagnoses (11). The system was developed by working with and treating anxious patients, and emphasizes to only "*provide a framework for*

understanding the differences between patients"(11). The University of Bergen has, among others, used the Seattle-system to categorize patient fears into four types (9).

Category 1: Anxiety of Specific Stimuli

The patients in this category usually know exactly what they are afraid of. They fear specific stimuli such as the needle, drilling, or having a tooth extracted. Usually they associate the stimuli they fear with pain, often because they have experienced it to be painful in the past (classical conditioning). People within this group often claim to be calm in other similar situations, and they are doing fine as long as the specific stimulus is avoided.

Category 2: Distrust of Dental Personnel

These patients are distrustful or afraid of the dental clinician as a person. Many in this group appear to be angry or cynical when they come to a dental clinic. Patients often tell about bad experiences with members of the dental staff. Some claim that the dentist was very impatient; not allowing anyone to ask questions, and that nothing was explained during treatment. Others feel that the dentist talked to them in a derogatory way, and that their self-esteem was put down when they were accused of having a bad oral hygiene. Some claim that the dentist was dominant and only concerned about money making, and hence always suggested the most expensive treatment.

Category 3: Generalized Anxiety

For this group of patients, dental anxiety is not the only problem they have to deal with. Many of them are afraid of flying, heights and closed spaces, and they often do not cope with everyday life very well. They usually answer "I don't know" when they are asked what they feel is frightening about dentistry, and they believe that their thoughts and fears are not controllable in any way. Often they know that other people easily can cope with going to the dentist, and that the dental anxiety is their own personal issue. It is not the dental staff they do not trust, it is themselves. Too much information is often overwhelming, and many of these patients gladly leave the control to someone they trust to be more competent in the particular situation. This is the most common type of dental fear patients.

Category 4: Anxiety of Catastrophe

Patients in this group fear that a medical emergency will occur during their dental treatment. Many claim to be allergic to anesthesia, or they are afraid that the numbness will never go away. Some fear that their heart will beat so fast that it will be life-threatening, or that the dentist will make a critical and dangerous mistake which leads to hospitalization or death.

1.5 Avoidance behavior

Anxious dental patients may, to different degrees, avoid seeking dental care. Milgrom et al (11) describes patients with different levels of avoidance tendencies (fig 2).

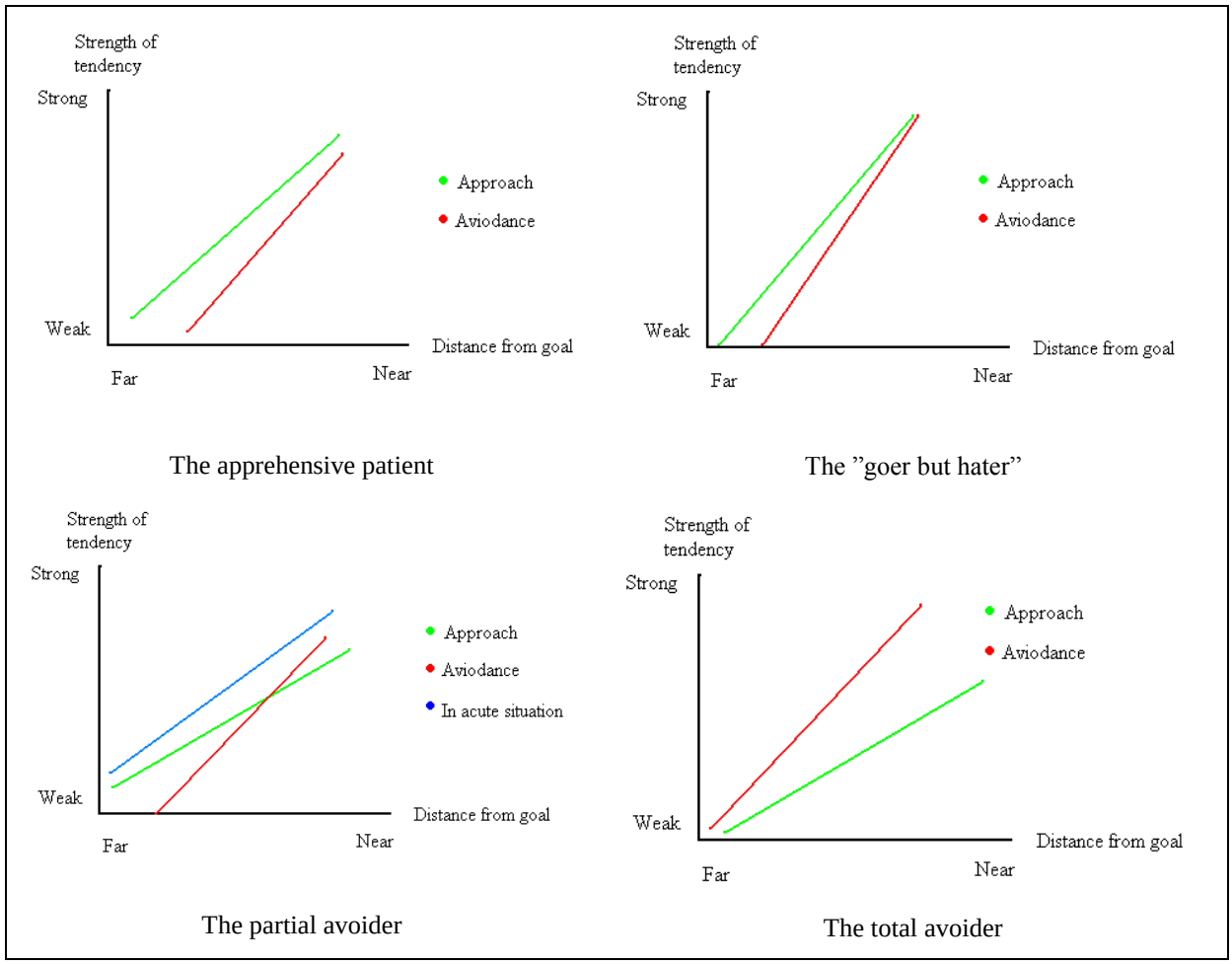

Fig 2: Approach-avoidance gradients (11)

An approach-avoidance conflict within the patient may exist, leading to partial or total avoidance. *Apprehensive patients* may experience some degree of dental anxiety, but tend to show up and follow through with treatment. These patients typically have an approach-tendency that is greater than the avoidance tendency, allowing the patient to show up and

complete treatment. *"Goers but haters"* have an increasing tendency of avoidance as the scheduled dental appointment approaches, but have a stronger tendency to approach than avoid the situation. Completing treatment may involve great personal costs. *Partial avoiders*, with a high level of dental anxiety, have an avoidance tendency that is considerably stronger than their approach-tendency. These patients may put off making appointments for years at a time, only seeking dental care in the presence of an acute dental condition – and may then require extensive treatment. Phobic patients tend to totally avoid seeking dental care, and such *total avoiders* are rarely seen in dental offices. Other studies (7) suggest that many dentally anxious patients seek out and undergo dental treatment despite high levels of fear, and therefore both apprehensive patients and "goers but haters" may be potential anxious patients.

1.6 Consequences of anxiety and avoidance –the patient

Longstanding avoidance of dental care and treatment may lead to deteriorated dental health. Studies have shown that anxious dental patients, avoiding dental care, have more missing teeth, caries and periodontitis (more marginal bone loss) compared with matched controls (12). In their retrospective study Hakeberg et al demonstrate that anxious patients ("AP") have a higher number of missing teeth, compared with ordinary dental patients ("OP"). Mean number of missing teeth was 4,4 (AP) and 2,5 (OP). The anxious patients had more decayed proximal surfaces than ordinary patients, with a mean value of 19,5 (AP) versus 7,9 (OP). The ordinary patients had on average 13,1 filled surfaces compared with the anxious patients, with an average of 8,1 surfaces. Anxious patients also had significantly more periradicular lesions and pronounced bone loss, compared with matched controls. The results suggest that anxious patients, in general, have a deteriorated dental health compared to ordinary dental patients, and may more often utilize extractions instead of restorations. The latter may be due to anxious patients avoiding dental care until the need for acute treatment arises, and extraction may be the only option.

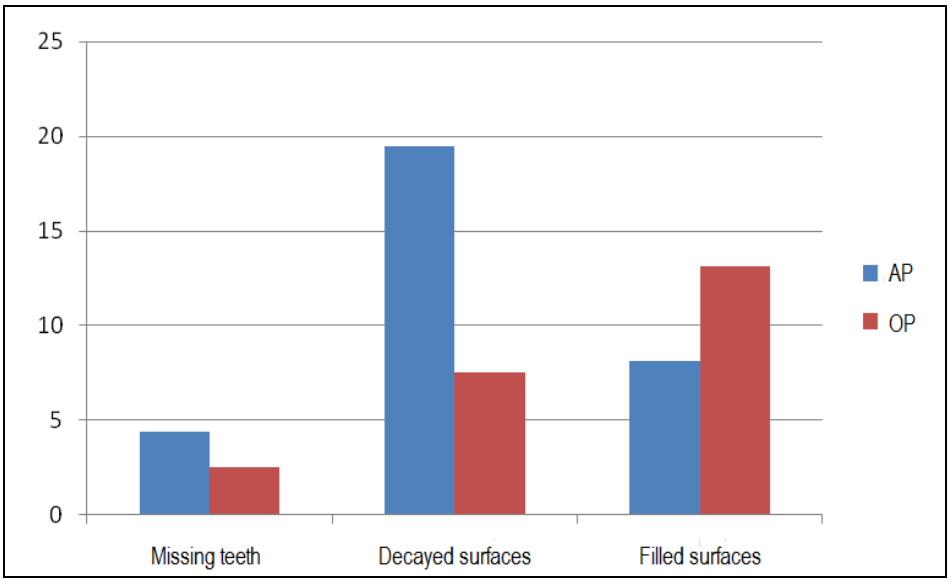

Fig 3: Conclusions from Hakeberg et al (12)

Anxious and phobic patients may also experience lower quality of life, represented by higher rates of unemployment, sick leave, psychosomatic symptoms and negative social effects (2, 4). Feelings of guilt and shame are common, and patients may avoid smiling or exposing their teeth. Patients report social isolation and avoidance of intimate situations (3). Sufferers of dental anxiety may be expected to subject themselves to regular and repeated exposure of the feared stimuli (dental treatment), in contrast to patients suffering from other fears or phobias. The patient will enter a vicious cycle where anxiety leads to avoidance, neglected dental care, increased awareness and feelings of shame. This will in turn lead to negative social effects (possibly development of social phobia) and increased anxiety. Anxious patients may not be able to take their children to the dental office (1, 2).

1.7 Consequences of anxiety and avoidance –the dentist

As previously mentioned, up to 40 percent of the adult population claim to be anxious of dental treatment, and fairly large proportions of anxious individuals attends to dental treatment on a regular basis (1, 7). This means that the dentist will definitely face such anxious patients in the clinical setting. Anxious patients have an increased incidence of cancelling appointments and dropping out during treatment, which is unfortunate for the dental clinic. Surveys have also shown that working with anxious and “difficult patients” is by dentists considered as having a negative effect on the performance of dental care, is frustrating and may give rise to occupational stress (1, 11).

2.0 Objectives and hypothesis

Our hypothesis is that there are measures a general dentist can take to ease the dental treatment of anxious patients. We wish to systematically review the literature concerning treatment of adult fearful and anxious patients, in order to find strategies to empower both patient and dentist in the clinical situation. Prevention of dental anxiety will not be dealt with in this review, as we want to focus our attention to the management of those already afraid. Our goal is to present the general dentist with specific approaches regarding identification and care of these patients.

3.0 Materials and methods

Systematic search of the literature was performed via Pubmed and using Google search engine. We used search terms such as: "dental anxiety", "fearful dental patients", "etiology of dental fear" and "adult fearful patients." Colleagues and supervisors also provided us with relevant material. In addition to this we used the references from interesting review articles in order to get more knowledge about the subject. The primary selection of articles, books and doctoral theses was based on their title and abstract. Relevance and time of publication was also considered. The inclusion criteria were Scandinavian and English publications presenting knowledge about etiology, prevalence and clinical management of dental anxiety in adults. Publications concerning treatment of complicated cases, such as odontophobia, or articles primary concerning children and adolescents were excluded.
We also performed interviews with anxious patients at the TkNN (Tannhelsetjenestens kompetansesenter for Nord-Norge), in order to get a deeper understanding of the problem from a patient's point of view.

4.0 Results

4.1 Identifying the fearful patient

Anxious patients who visit the dental clinic often have their focus on their dental problems, rather than acknowledging that their main problem is dental anxiety. From an odontological long-term perspective, the main goal with the treatment should be to overcome the anxiety. At the end of the treatment the patient should ideally be able to attend regular dental visits at any general practitioner (1, 9, 11). To be able to treat dental anxiety, one has to be able to identify

the fearful patients. An attentive and empathic dentist may notice that the patient is uncomfortable in the dental situation. There are also several diagnostic tools available to help determine the degree of dental anxiety, the main concern and its manifestations. These tools can help the clinician to classify the patients, and accordingly plan the treatment. Available options for the general practitioner are for instance psychometric questionnaires and/or semi-structured patient interviews.

4.1.1 Psychometric questionnaires

There are many questionnaires available for different diagnostic purposes (9). Commonly used questionnaires in Scandinavia are Dental Anxiety Scale (DAS) (13), Dental Fear Survey (DFS) (14) and Dental Belief Survey (DBS) (11).

DAS can be used in screening of all new patients over the age of 12, and gives an impression of the degree of anxiety. It contains four questions which the patient is supposed to grade on a score from 1-5. The questions are related to different aspects of the dental treatment, concerning the patient's subjective experiences (2, 9). The validity of the test has been tested and confirmed on adult Norwegians. In 85-90% it successfully differentiated between fearful individuals and subjects in the control group (15).

DFS can be used when the patient already has been identified as anxious. This test demonstrates the patient's avoidance behavior, the physiological reactions and the specific triggers to fear during dental treatment. Containing twenty questions rated with a score from 1-5, the sum score varies from 20-100, with a score of 60 or more indicating a high level of anxiety (2, 9).

DBS establishes the patient's perception of dentists (ethics, personality, communication, skills), and to which degree they have a possibility to influence the course of the treatment. The survey was developed as a tool to ensure a good patient –dentist relationship, and is especially useful in identifying distrustful and generally anxious patients. The 15 questions gives rise to a sum score of 15-75, where values above 48 are considered high (2, 9, 11). The validity of DFS and DBS has been tested in a Norwegian sample, and 81-95% of the fearful and regular patients were correctly assigned to their appropriate groups with both instruments (16) .

4.1.2 Semi-structured patient interview

In addition to questionnaires, like the ones mentioned above, it is very useful to have a calm, uninterrupted conversation with the patient. The dentist asks questions and listens to what the patient says, while the patient tries to tell and specify exactly what in the dental situation that gives rise to the anxiety. "Semi-structured" means that there are some specific questions that always should be a part of the interview, and which will help the dentist to guide the conversation in the right direction. It is, among other things, important for the dentist to identify why the patient is coming now, what previous experiences he or she has had with dental treatment, what the main fears and worries are, and what expectations the patient has to the treatment. The task is to reveal the problematic issues, and based on this make an individually adapted anxiety-hierarchy, from the least to the most feared situations (9).
It may be advisable to have this initial conversation with an anxious patient in a neutral room without trigger stimuli like sounds, smells and dental equipment distracting and interfering the conversation. The answers from the interview, together with the information from DAS, DBS and DFS, usually gives enough knowledge about the patient's degree and type of anxiety, and makes a good platform on which to decide the further treatment plan (9, 11).

Sometimes the interview may reveal that the dental anxiety is part of a wider psychological disorder. In these cases it is important that the dentist refers the patient to experts on the field of psychology, like a psychologist or psychiatrist. They can then make the correct psychological diagnosis, and decide what kind of further treatment the patient needs (2, 9). In some cases the psychologist and dentist work together, with the psychologist deciding the treatment plan concerning the anxiety.

4.2 Treatment modalities –eclectic approaches

The psychometric questionnaires and the semi-structured interview can be used both to identify the patients and to categorize them into groups e.g. using the Seattle-system. The DAS defines patients' degree of anxiety, while DFS and DBS give an impression about the features of the dental anxiety. The treatment will naturally vary depending on the patient's characteristics – an distrustful patient may have a need of information control, whilst the patient with general anxiety might need some kind of distraction (11). This is schematically demonstrated in the appendix below and will be discussed in more detail further in this paper.

There are several different psychological techniques available when it comes to treating anxious patients. Some of them are only meant to be used by professionals, like cognitive restructuring or hypnosis, while some techniques can and should also be used by general dentist. Some of the techniques presented here may seem self-evident and may already be practiced more or less unconsciously by the reader, while some might seem too complicated and demanding for the general practitioner. It might require some effort to learn the techniques, but the practitioner will greatly benefit from it throughout the professional life. Treatment of dental anxiety usually involves a combination of several different techniques (1).

4.3 General strategies

4.3.1 Iatrosedative technique

It is widely known that a good patient-dentist relationship is mandatory in order to treat an anxious patient. The importance of the dentist's ability to communicate well with the patient and to shift between a professional and a personal role according to the patient's need, cannot be emphasized enough (1, 17). In a doctoral thesis from 1999, Willumsen found behavioral aspects of dentists' communication with patients to be equally important to cognitive ones (18). In 1983 Friedman and colleagues described what they called an "iatrosedative technique," a systematic approach aimed at "making the patient calm by the dentist's behavior, attitude, and communicative stance". The measures a dentist can use to achieve this include making efforts to avoid pain, giving the patient full control and keeping the patient informed of what the dentist is planning to do, and what sensations the patient may experience (1, 17). The dentist should have some flexibility in the choice of language, speed and attitude in order to adapt the communication to the individual patient. Full clarity about the expectations and demands placed on the patient at any time, is also necessary and helpful for the patient (17).

4.3.2 Building a trustful relationship

In order to build a trustful relationship between the patient and the general practitioner, which is necessary to overcome the patient's anxiety, the patient needs to feel in control. This can be accomplished using different techniques, together with correct and adapted information. The dentist should keep in mind that distrust is a way of patients protecting themselves when

experiencing lack of control. The keys to building a trustful relationship are building an alliance, two-way communication, expressing concern and empathy, demonstrating competence and ethics, and the involvement of significant others (11).

Every practitioner should take time to build an alliance with each patient. This doesn't need to take more than a few minutes, and by letting the patient speak freely, one can at an early stage make the necessary measures in this specific situation. With a distrustful patient, the general practitioner must renew and reinforce the alliance at each visit. It is important to acknowledge the patient as a human being, and not only as an odontological casus. Some patients can be extremely sensitive, so being condescending, or interrupting the patient can ruin the trust completely. The dentist should stay positive and avoid taking it personally, even if the patient has trust issues.

Before, during and after the treatment, the patient should always have the possibility to communicate with the dental personnel, and feel in control. One can ask open questions, letting the patient be an active factor in his/her own treatment. Some patients need continuously information about what the dentist is doing at all times. Letting them intervene if they need to, and booking enough time is essential. A patient not feeling able to communicate with the dentist is more likely to be anxious about the treatment.

When expressing concern, the dental practitioner should make sure that his/her verbal and non-verbal communication are coinciding. This makes sure the patient perceives the dentist as interested and devoted, encouraging him/her to speak freely. Put-downs and criticism will damage the trust utterly. Humor must be used carefully as this sometimes can backfire, especially with distrustful patients.

Very often distrustful patients allocate their anxiety to negative experiences in the past. They often describe their former dentist as an incompetent and unethical person. With such patients, the general practitioner must be professional at all times. It is advisable to provide the patient with a comprehensive treatment-plan with different options and costs. Suggesting that the patient seeks a second opinion may enhance trust. This implies confidence in the diagnosis and suggested treatment, as well as the fact that the dentist is not too eager to proceed.

Another way to generate trust is to encourage patients to bring another person to the appointments and when discussing the treatment plan. Social support through a trusted friend or relative can bring the reassurance an anxious patient needs. The significant other can provide both social reinforcement and another set of ears and eyes to help the patient interpret the dental experiences.

4.3.3 Providing control

Providing the anxious patient with control is essential. There are different strategies to approach this. Control is provided through giving information, cognitive change, behavioral control and retrospective control (11).

Informational control

Specific information and explanations are useful for anxious patients. The general practitioner should also consider what, how much, when and how to tell the patient. The information given should not only concern the technical procedures, but also the patient's safety and comfort. Patients ask "will it hurt?" rather than "how will you do it?" Telling the patient what to expect, and what measures are taken to ensure their safety, will help make the treatment as comfortable as possible. Many patients are very concerned about smell and sound, as well as sensation. When giving the patient information, the general practitioner should include all senses.

Complex explanations should be avoided unless requested. The dentist should give appropriate basic information, and outline general treatment strategies as misunderstandings can lead to more fearful anticipation.

Time-structuring is also of importance, not only by booking enough time, but also by preparing the patient for how long a procedure will take. Dividing the procedure into shorter sequences, the patient can more easily feel in control by knowing a certain part of the treatment will soon be over. The general practitioner can count down during drilling, injection of anesthesia etc. This can help the patient realize that they can tolerate more than they initially thought, and the intervals can be progressively increased.

Behavioral control

This strategy involves giving the patient the opportunity to influence the treatment. The feeling of control can be reinforced by signaling. The patient can signal through raising his/her hand, making a sound etc. Then the dentist should stop the treatment, and not go on until the patient is ready. A start-signal can also be used with advantage (17). During the first visits a patient may stop the treatment often; this can be because of questions, need of breaks or discomfort. It is important that the general practitioner stays patient, and gives the patient time and reassurance during this initial part. Failing to respond to established signals will cause the patient to loose trust and the feeling of control, and the anxiety can be enhanced.

Retrospective control or debriefing

This type of control involves discussion of what has happened during the treatment. It is extremely useful, and the general practitioner can influence how the patients think about and interpret the dental experience. A patient should be reassured that he or she did well, and offered praise. If pain occurred during the treatment, the patient should be informed about why the pain occurred and why it felt like it did. The practitioner can also gain a lot from the debriefing by asking the patient if it was something the dentist could have done differently to make the experience more positive. This feedback can be very useful in the future (11).

4.4 Specific strategies

Specific psychological treatment techniques can be implemented by general practitioners. Using different strategies, the goal is to achieve anxiety reduction and to make sure that anxious dental patients are capable of receiving ordinary care (17). Studies have shown that treatment methods performed by specially trained dentists are successful in reducing anxiety**,** but there are limits as to what can be expected of ordinary dentists by means of competence in psychological diagnostics and treatment. Dental anxiety can be part of a complex condition, needing specialist attention. As mentioned earlier, the optimal treatment sometimes consist of a two-disciplinary cooperation between dentists and psychologists (1, 17).

A study by Haukebø et al (19) demonstrates the efficacy of exposure treatment, designed to alter the patients' cognitions and reduce avoidance behavior and anxiety. The randomized controlled trial concludes that both 1- and 5-session treatment was effective in long term reduction of dental phobia, allowing the patients to return to ordinary treatment after

longstanding avoidance. It also demonstrated that both treatments were better than waitlist control.

Cognitive methods aim to help the patients deal with negative feelings and thoughts, through learning coping strategies that will help them to manage receiving ordinary dental care. Anxious patients often have negative thoughts and expectations about dentistry and their own ability to cope (17). As most anxious dental patients have negative expectations and beliefs regarding dental treatment – the goals for such cognitive treatment strategies and cognitive aspects of behavioral therapies are twofold. They aim to alter and restructure the content of negative cognitions, and they aim to enhance the individual's control over such thoughts, as a mean of reducing anxiety (1).

Behavioral methods aim at changing behavior that is counterproductive in a given situation, through enhancing positive and beneficial behavior (17). Such behaviorally oriented approaches tries to modify symptoms in patients' behavior that interfere with their adaptive functioning, and is based on learning (through classical conditioning and social learning) (1). Most available treatments consist of a combination of cognitive and behavioral elements. Cognitive behavioral therapy (CBT) consists of methods that combine cognitive strategies aiming at changing the patients feelings about dentistry (cognitive methods) with strategies exercising and enhancing useful behaviors in the clinical setting (behavioral methods). The changes in cognitions and behaviors are happening simultaneously (17).

4.4.1 Relaxation

In a study by Thompson one found that relaxed patients felt significantly less mental or physical discomfort than those who were tense (20). A dentist might have the knowledge that the patient will cope better in a relaxed state, but *how* to get the patient to relax is perhaps more challenging. Some dentists tell their patients to "try and relax" - a request that in many cases is difficult for the patient to meet. Clum et al showed that teaching or encouraging the patient to do relaxation training is more effective than merely telling someone to relax (21). Milgrom suggested it might be useful to ask anxious patients how they cope with other stressful situations in their lives (11). Some patients already use different coping techniques, and to help the patient to discover these techniques and encouraging them to use them in the

dental situation as well, might help them a lot. We will in the following section present to the reader some possible techniques to help the patient become more physically relaxed.

Relaxation breathing is a technique which is heavily inspired by the teaching of Yoga from the Orient and India. The overall goal of Yoga is to enable a person to control the body and mind through self-discipline. In 1978 Spreads (11) showed that poorly oxygenated blood (due to insufficient fresh air reaching the lungs) contributes to anxiety states, depression and fatigue, and makes stressful situations such as dental treatment more difficult to cope with. The most important and fundamental way of helping patients to relax physically, is to teach them proper breathing techniques. A useful technique may be to ask the patient to take a deep breath to a slow count of five, hold for a second and then to exhale slowly. Some patients prefer to have their eyes closed in order to concentrate better, and for some patients it can be useful if the dentist counts also during the exhaling. Usually patients become noticeably more comfortable after breathing like this for two to four minutes. It is advisable to repeat the breathing technique before and during impressions, and in many cases during injections or after initial placement of the rubber dam (11).

Once the patient masters the breathing techniques, it might be useful to add muscle relaxation to the relaxation training. A well-recognized procedure called "progressive relaxation" was developed by the Chicago physician Edmund Jacobson, in 1938 (22). The technique is based on the premise that anxiety-provoking thoughts and events give rise to physical tension, whilst the physical tension, in turn, increases the person's perception of the anxiety. Muscle relaxation reduces physiological tension and is incompatible with anxiety; if a person is physically relaxed, it is impossible to be psychologically upset at the same time.
The basic procedure in the progressive relaxation involves tensing specific muscle groups for 5-7 seconds, followed by 20 seconds of relaxation. The technique can be demonstrated chair-side, and should be practiced and rehearsed by the patient at home. Four major muscle groups are commonly tensed and relaxed:

1. Feet, calves, thighs, buttocks
2. Hands, forearm, biceps
3. Chest, stomach, lower back
4. Head, face, throat, shoulders

It is recommended to use relaxation breathing and muscle relaxation simultaneously. The patient is supposed to tense a specific set of muscles during inhaling, and then to relax them during exhaling. The practitioner can encourage the patient to use the relaxation techniques in other stressful areas of life as well, and to emphasize that it takes training and practice to develop the skills of quickly relaxing the body.

4.4.2 Biofeedback

Biofeedback is another useful technique to help the patient relax physically. A physiological event (most commonly the heart rate) is measured electronically, and the electronic signal converted to visual or auditory feedback. This provides the patient and practitioner awareness of the physical state. An individual can actually learn to lower blood pressure with biofeedback training. Biofeedback has been used successfully in treatment of dental anxiety patients, among others demonstrated by Hirschman and colleagues (11). Oliver and Hirschman showed that highly anxious patients exposed to heart rate biofeedback reported less unpleasantness and showed lower heart rates than the control group, viewing videotapes of stressful dental procedures (11). Biofeedback can be particularly useful for patients in these three situations:

1) In combination with relaxation breathing and progressive relaxation, in order to ensure that the patient implements the relaxation strategies. It can also be used to monitor if the patient is ready to go to the next step of the dental treatment, e.g. injection or drilling.
2) Heart rate monitoring can also be useful for patients who do not recognize their own anxiety and whose heart is pounding madly.
3) Biofeedback can be especially helpful for patients who fear a medical catastrophe. Seeing that the heart rate is within a normal range and not completely out of control, is often reassuring for them.

4.4.3 Rehearsal

A rehearsal is an opportunity for the patient to practice coping while exposed to a simulated procedure, or only part of a procedure. Repeated exposure to the feared situation where nothing traumatic happens to the patient, is a proven anxiety-reducing method. A patient with anxiety of injections may e.g. benefit from practicing having a syringe in the mouth with the cover on the needle. Multiple exposures at each step are recommended (11).

4.4.4 Systematic Desensitization

For some patients rehearsals are not enough, and more rigorous procedures are needed. Systematic desensitization (SD) first came to attention when Joseph Wolpe presented his theory about reciprocal inhibition in 1958 (1, 11, 17). SD uses relaxation to counteract and weaken the connection between the feared stimulus and its anxiety-response during gradual exposure in a controlled environment. The treatment involves these four steps:

1) Encouraging the patient to continuously formulate and communicate the status of their anxiety, in order to let the dentist get information about all changes.
2) Constructing an individual hierarchy of feared situations, from the least to the most anxiety-provoking.
3) Teaching the patient relaxation techniques as an antagonist to tension and anxiety. The most commonly used techniques are breathing – and muscle relaxation, biofeedback and hypnosis. Formal hypnosis cannot be used by Norwegian dentists (1).
4) Gradually exposing the patient to the situations in the hierarchy, from the easiest to the most difficult. Letting the patient practice to stay relaxed through the whole hierarchy.

Sometimes one has, as in Wolpe's original method, asked the patient to *visualize* the different steps in the hierarchy. Clinicians have adjusted this by letting the patient watch video-scenes or exposing them to real stimuli in a structured, clinical setting (in-vivo desensitization). Berggren et al suggest to use a "general hierarchy" (fig 4) for visualization and desensitization, in combination with cognitive restructuring (17). Going through the general hierarchy together with the dentist, the patient is given the opportunity to ask questions and express his/her concerns for the different situations. The goal is to give the patient a more correct and realistic image of the various treatment modalities, in order to increase the feeling of control. The patient's "specific hierarchy" can also be initially visualized, but the therapy is more effective (according to Moore et al) with in-vivo desensitization (17).

General hierarchy:	Example of a specific hierarchy:
1. Call to get an appointment	1. The syringe (with coverage) on a distance
2. Go to the clinic	2. The syringe (with coverage) in front of the patient
3. Sit in the waiting area	3. The syringe (with coverage) close to the face
4. Sit in the chair	4. Syringe (with coverage) touching the lip
5. Examination	5. Syringe (with coverage) touching the gingiva
6. Anesthesia	6. Point 3-5 repeated without coverage on the syringe
7. Drilling	7. The syringe touching the gingiva without the cover
8. Extraction	8. Small amount of local anesthesia administered

Figure 4: Commonly used training-hierarchies in SD (17)

The rate of successful outcomes after treatment with SD varies from 70-90% (1, 17). The unsuccessful outcomes has been shown not to be related to the level of specific anxiety, but predicted by general psychological distress or psychopathology, and by low levels of motivation (1).

4.4.5 Modeling

Modeling aims at reinforcing and building new positive associations with dental care. The strategy is designed to help patients unlearn old, negative associations. This can be achieved through observation of a dental procedure, either by viewing a video-taped model who is demonstrating appropriate cooperative behavior in the dental setting, or through observation of an actual successful dental procedure. This demonstrates to the anxious patient what is considered appropriate behavior in the dental setting, and what can be expected in the upcoming treatment session (23).

4.4.6 Familiarization

Familiarization ("tell-show-do") is a method of unlearning negative associations with dental care. The procedure is explained, demonstrated and rehearsed prior to actually performing it. This way, the patient's expectations and anxiety is altered, and the patient's feeling of self-efficacy is enhanced. This approach is commonly used with children, but can also be adjusted to be used with adult patients (17, 23).

4.4.7 Cognitive restructuring

Cognitive restructuring is performed by exploring the patient's feelings and thoughts about feared situations, followed by specific correcting information. This information gives the patient a more realistic view of the feared situation, as well as increasing the feeling of control. The perception of the dental treatment is thus reattributed (17). It alters the content of the patient's internal dialogue through changing the underlying beliefs about dental treatment and the patient's ability to affect the treatment (i.e. exercise control) (1).

4.4.8 Distraction

Distraction involves music, television or some other engaging activity chosen by the patient in order to shift the attention away from the procedure. This may not be suitable for distrustful patients, as it can lower the perceived feeling of control. Focusing attention on some attention-demanding stimuli can function as a distraction and diminish pain perception for some patients (11).

4.4.9 Guided imagery

This technique for distraction is performed by agreeing on a particular mental image, and then deliberately leading the patient into a pleasant, engaging mental fantasy that shifts his attention away from the procedure. While talking in a slow, relaxed manner, the dentist tries to engage the patient in pleasant memories so that he can get through a particularly difficult procedure (11).

4.4.10 Thought stopping

The patients practice to stop the negative thoughts by identifying them, provoking them and then stopping them by interrupting the thought pattern. The disturbing thought pattern is then replaced with a positive self-statement. This is a skill that may require some practice, and it is essential that the patient becomes aware of what specific thoughts that initiate the anxiety, in order to recognize them and substitute them (11).

4.5 Pharmacological management

All though the treatment of dental anxiety should be performed using psychological techniques (for instance behavioral or cognitive therapy), pharmacological treatment may be useful in some circumstances. The use of sedative drugs can be utilized in order to complete certain parts of the treatment. While e.g. the use of general anesthesia is very effective by means of completing extensive dental treatment, little is gained by means of anxiety reduction. Studies show that phobic patients treated exclusively in general anesthesia had more difficulties attending general dental care in the future, compared with patients who were treated with anxiety-reducing psychological techniques. The long term effect of pharmacological treatment alone on anxiety reduction is considered low, but it can be used as a supplement to conventional psychological treatment (9, 11). Sedation can, to a certain degree, help patients achieve more progress in the dental treatment. It can be useful to resolve acute conditions, or aid in especially stressful treatments. The patient may be more susceptible to psychological techniques like distractions, and the possible amnesic effect may contribute to the treatment being remembered as less frightening (9).

Upon completing treatment based on the combined pharmacological and psychological approach, it is desirable to reach a point where no drugs are needed in the future. Berggren (1) identifies four specific circumstances where it can be especially useful to combine cognitive-behavioral therapies with pharmacological treatment:

1) When the patient has an immediate need for dental treatment because of acute dental pain. It is difficult to motivate the patient to work with his anxiety in painful conditions. Nitrous oxide sedation, or oral/intravenous sedation with benzodiazepines is typically the first choice, but general anesthesia can be needed.
2) When the patient has accumulated a massive need for treatment with significantly increased risk of acute dental pain. The patients are often so preoccupied by their need for dental treatment, that they cannot deal with their underlying fear reactions. This is often best solved by treatment under general anesthesia, later followed by anxiety-reducing approaches.
3) When the patient was referred to the clinic specifically for general anesthesia treatment, and categorically demands it. It is often possible to motivate the patient for anxiety treatment afterwards.

4) When it may be strategic for highly motivated patients to start exposure therapy aided by mild sedation.

Pharmacological treatment may not be suitable for all anxious patients. Care should be given to explore the patient's feelings about sedation, the patient's health and medical history. Any drug related problems should be excluded. Distrustful patients may not be comfortable with sedation, as it may decrease the self-perceived feeling of control. If the patient is uncomfortable with the concept of sedation, or has unrealistically high expectations of what could be achieved using sedation, the beneficial effect of the drug may not be satisfactory (11). According to the American Society of Anesthesiologists, the patients should fulfill the demands of being classified as category ASA I (mentally and physically healthy) or ASA II (only mild systemic disease, which do not result in any functional limitation), in order to be considered as a candidate for sedation (24).

Sedation can be considered as a continuum of depressed consciousness (depression of the central nervous system), ranging from only minimal sedation to deep sedation. *Minimal sedation* implies only a mild depression of consciousness. The patient retains the ability to independently and continuously maintain an airway and respond normally to tactile stimulation and verbal command. Cognitive function and coordination is only moderately impaired, ventilator and cardiovascular function is unaffected. *Moderate sedation* implies depression of consciousness where patients respond purposely to verbal commands, alone or combined with tactile stimulation. No interventions are needed to maintain the airways, spontaneous ventilation is adequate, and cardiovascular functions are unaffected. *Deep sedation* implies depression of consciousness where patients don't easily respond, but they may respond purposefully to repeated or painful stimulation. Ventilating function may be impaired, and patients may require assistance in maintaining an airway. Cardiovascular function is usually maintained (23).

The most preferred drugs of use by general dentists are benzodiazepines and nitrous oxide (9). Benzodiazepines can be administered orally, rectally or intravenously. They are most commonly administered orally for adult patients, providing minimal to moderate sedation. They can be used to provide anxious patients sleep prior to treatment or as anxiolytics during the treatment. Benzodiazepines are safe, as there is a wide margin between therapeutic and

toxic doses. The pharmacological mechanism is that they enhance the effect of the inhibitory neurotransmitter GABA by binding to the $GABA_A$-receptor. This facilitates chloride ion conductance, leading to hyperpolarization in the postsynaptic membrane and decreased neuronal excitability, mainly in the cerebral cortex. Clinical effects include anxiolytic/antipanic activity, induction of sleep, sedation, memory impairment (amnesia), hypnosis (in higher doses), psychomotor impairment and muscle relaxation. Different benzodiazepines have different potency and efficacy. Examples of benzodiazepines in dentistry are diazepam, triazolam and lorazepam (23).

Nitrous oxide (N_2O) is a safe and effective minimal sedative agent for inhalation. It is combined with oxygen and can easily be titrated to achieve wanted effect. Positive effects include relaxation, a state of comfort, less anxiety, some amnesia and compressing of time. It is considered useful when combined with behavioral and psychological techniques. Nitrous oxide initiates only minimal cardiovascular and respiratory effects, is easy to administer and monitor, and gives a rapid effect and recovery (23).

Intravenous sedation and general anesthesia (deep sedation) are not available for use by general dentists at their clinics in Scandinavia, but has to be administered by an anesthesiologist in a hospital setting. Nitrous oxide sedation can only be performed in Norway and Sweden by dentists who have completed post-graduate education (1).

5.0 Discussion

5.1 Executing the theoretical knowledge

This review has shown that there are several different methods available for treating anxious patients. The techniques are well documented and considered valid, and can also be used by general practitioners with good results. What earlier was used by many dentists "intuitively," has today got good evidential substantiation (17). It is however crucial that the available techniques are actually used. We will now present the reader some practical suggestions concerning how to execute the techniques in the daily clinical life.
Firstly the true anxious patient needs to be identified among all the patients a dentist sees through the day. The earlier the anxiety is detected, the greater is the probability of success in working with the patient (11). The best time to identify this patient is *before* a visit, during the

initial telephone contact or while still in the waiting area. Most clinics provide their new patients with a health form to be filled out in the waiting area. It would be a good idea to include DAS in this form (11). When the dentist, in non-acute situations, sees a high score on this form, the approach to the situation should be more tactile.

If the clinic chooses not to put the DAS on the health form, there are also other ways for the patient to be identified as anxious. Barash (11) and Kleinknecht & Bernstein (14) found that sitting in the waiting area the anxious patients statistically will move more often than other patients. In particular, anxious patients frequently display more arm and hand movements, rapidly thumbing through magazines and fidgeting with objects. Detecting these signs the receptionist could make a note to cue the dentist to explore the issue further before beginning the dental examination or treatment. Premature judgments should not be made based only on waiting room behavior. Patients may be active or anxious for other reasons than going to the dentist.

When greeting the patient, a moist palm, a nervous facial expression and/ or heavily sweating can tell the dentist a lot. Some patients, however, hide their anxiety well, because they are embarrassed and sensitive to appearing silly, or are afraid of being belittled (11). The dentist may not find out that the patient is extremely fearful before during the dental examination. It might then be necessary to stop the procedure, and to "start over" with the patient.
As previously mentioned, the first conversation with an anxious patient should preferably be situated in a quiet, neutral setting without distractions (9). Ideally the clinic should have a meeting room available for this; alternatively a lunch-room can be used. A last solution could be to offer the patient a normal chair instead of the dental chair, in order to be seated at the same level and to establish eye contact. If the dentist, after having asked some more questions, finds out that the patient really is anxious and has tremendous problems being at the dental clinic, the patient should be offered anxiety treatment prior to the odontological examination. In order to find out more about the level of fear, and precisely what in the dental situation the patient fears, the DFS, the DBS and the semi-structured interview can be used with advantage. The dentist may not have the time for all of this during the first session, but could ask the patient to fill out the DBS and the DFS at home, and schedule a new meeting where the semi-structured interview also can be performed. Most anxious patients will agree to take an OPG, a picture which might be very useful for the dentist in the initial treatment

planning. Having read the filled-out psychometric questionnaires and performed an interview, the dentist could at the second meeting make an individually adapted plan of progression. It is important to emphasize the need for making the anxiety-treatment a part of the general treatment-plan.

The presented techniques are not only useful for the most anxious patients, but can be used with great advantage in the treatment of all patients. Acting iatrosedatively, building a trustful relationship and providing the patient with control is essential, and can prevent nervous patients from developing dental anxiety in the future. Becoming aware of the issues concerning anxiety, a dentist could perform his/ her profession even better. Knowing the different characteristics of anxiety patients (like in the Seattle system) will ease the recognition of a special kind of patient. For instance; recognizing a disrespectful and demanding patient as "distrustful of dental personnel", will make it easier for the dentist not to be upset and to know how to communicate with the given patient.

5.2 Limitations in feasibility

As mentioned before, various general and specific strategies can be used. These techniques are relatively easy to learn and execute, and can be developed further or combined in different ways to meet the needs of the individual patients. Elements of the behavioral and cognitive approaches are commonly combined.
There are limits to what can be expected of a dentist in terms of psychological diagnostic and therapeutic competence. Dental phobia may constitute a complex psychological and odontological problem with far-reaching consequences for a relatively large proportion of fearful individuals. It therefore seems likely that optimal care for such patients can be best achieved by cross-disciplinary efforts involving both dentists and psychologist (1, 9, 17).

5.3 Motivation for the patient

Usually anxious patients visiting the dentist do this because of an acute problem, and not because of a wish to work on the dental anxiety. These patients often just want to get the most necessary treatment of their dental problem over and done with. However, if the patient wants to work on the anxiety, the motivating factors can be many.

The primary goal is to achieve a good oral health. This will not only affect the patient's general health positively, but also reduce the number of needed treatments in the future. In addition to that, the patient doesn't need to worry about an overwhelming accumulated treatment need at every examination. The possibility of achieving this is greater if the patient gets his/her anxiety under control. Frequent visits to the dentist or the dental hygienist increase the chance of detecting dental diseases and problems at an early stage, enabling the patient to get the required treatment, before it escalades to a bigger problem that needs comprehensive care.

Another motivating factor can be that the dental visits will be experienced as more pleasant and comfortable after the anxiety-reducing-treatment. The patient will hopefully not feel as anxious and worried before and during the appointment as previously. This will enhance the patient's self-esteem, and increase the feeling of control.
Being able to attend dental visits of any kind is an expectation of the society. Parents may have to take their children to the dentist, and care-takers may have to accompany their clients. Avoiding dental care may thus have social effects.

5.4 Motivation for the general practitioner

In Norway the Health Personnel Act (Helsepersonelloven) commits the dentist to help every patient in need, and if the general practitioner is not able to help, he/she is responsible of referring the patient to someone who can. This means dental health personnel need to care for all kinds of patients, including the anxious and demanding patients.
Assisting anxious patients reducing their fear can result in an improved working environment achieved through variation in the daily routine. Taking time to overcome these patients' problems will in turn result in grateful and less anxious patients. A general treatment session will also run its course more smoothly, due to a more relaxed patient. This will increase both the patient's and the dentist's comfort during the visit, and reduce the stress for both.
To gain confidence in treating such patients, the dentist could acquire necessary knowledge by attending courses concerning this issue, and reading relevant literature.

The economic aspect could also be a motivation. The anxious patient will often need extensive, profitable care. Satisfied patients will help establishing a good reputation on the dentist behalf by telling friends and family about the positive experience. This may increase

the amount of patients coming to the dental office. In a long-term perspective, this will also increase the income. Cancelled appointments and no-shows are not cost- and time-effective, thus spending time on fear reduction may limit this tendency.

5.5 Current development – odontology and odontophobia

Through our interviews with anxious dental patients, we experienced that they felt that dental anxiety and odontophobia was not a big concern among dentists. They had experienced that the dental professionals in general were not very attentive to their anxiety, and that little help was readily available. Treating anxious dental patients may be a time consuming activity, and this can be a challenge when it comes to cost efficacy. However, the patients we interviewed, mentioned that they would gladly compensate their dentist for the extra time spent, if necessary. They felt it was of outmost importance that the dentist made the time to adapt to their pace. It is thus possible to make an agreement with the patient on debiting, in order to release the extra time needed.

The Ministry of Health and Care Services (Helse- og Omsorgsdepartementet) has the overall responsibility for government policy on health and care services in Norway. In 2010, the Directorate of Health (Helsedirektoratet) issued a rapport (6) on demand from the Ministry of Health and Care Services. The directorate of Health suggest free of charge, adapted dental health services for victims of torture, sexual abuse or individuals with severe anxiety of dental treatment (odontophobia). The rapport contains information and recommendations on how the public can ensure that these patients are cared for, as well as definite procedures and related costs. The rapport is based upon an interdisciplinary cooperation. Accordingly, the government suggested granting 2,5 million NOK in the 2011 state budget in order to educate teams responsible for diagnosing and treating such patients.

At TkNN (Tannhelsetjenestens kompetansesenter for Nord-Norge), teams are currently being educated to be able to treat odontophobia. The aim is to educate and train decentralized teams consisting of dental personnel and psychologists. The dental personnel should prevent and treat dental anxiety and odontophobia, under guidance of competent specialists. The patients are supposed to participate in group therapy in the feared environment, led by dental personnel that are trained in diagnostics, communication techniques and specific treatments. The therapy consists of 6-7 treatment sessions.

Developments are also occurring providing anxious patients with some economic assistance through the National Insurance Scheme (Folketrygden). Currently, anxious patients have no special rights when it comes to receiving treatment for their dental anxiety or odontophobia, according to the National Insurance Scheme. In the rapport from the Directorate of Health, it is suggested to change the decisions regarding this manner, as well as making changes as to who are responsible for the caregiving of these patients (6).

The diagnosis of odontophobia will have to be set by psychologists or psychiatrists, in order to receive the above mentioned care. This means that the general practitioner has a responsibility of seeing to that their anxious patients receive the proper care - which in some cases means referring them to a professional for further evaluation.

Although patients exposed to torture, violence or sexual abuse may receive specialized care, they may never fully function as "normal" patients receiving dental care. Special considerations may be needed, although they are receiving professional, psychological help somewhere else. This should be kept in mind, and the patient's needs and prerequisites should be discussed and considered. Individualized measures can be taken, for instance by the use of a rubber dam during the treatment. This will avoid "invading" the patient's very sensitive oral cavity, and can be especially useful when treating victims of oral sexual abuse.

6.0 Conclusion

The literature demonstrates that there are several available techniques which can be used by the general dentist, in order to ease the treatment of patients with dental anxiety. These techniques will both make it easier for the patient to go through dental treatment, and also provide a better working environment for the dentist. As previously mentioned, dental anxiety may have far reaching consequences for the patient's health and wellbeing. Dental anxiety should thus be taken seriously, and it's treatment should be considered as a part of the general treatment plan.

The first step towards successful treatment of patients with dental anxiety is to identify them and their main concerns. The empathic and attentive dentist can accomplish this by the use of a semi-structured interview and/or through psychometric questionnaires (such as DAS, DBS and DFS). There are both general and specific approaches to treating dental anxiety. Iatrosedative technique, building a trustful relationship and providing control are general techniques which can be applied to all patients advantageously. The specific techniques are often directed towards a behavioral and cognitive approach. Examples of such techniques are relaxation, biofeedback, rehearsals, systematic desensitization, tell-show-do and modeling. Pharmacological approaches may be appropriate under certain circumstances. The method of choice should be adapted to the patient's prerequisites and individual needs.
Even though much can be accomplished by the general dentist, some patients may have very complex and comprehensive problems and need care from a specialist.

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Appendix – clinical management of the adult patient with dental anxiety

Identifying the anxious patient – diagnostic tools:

- Being attentive and empathic
- Psychometric questionnaires: DAS, DBS, DFS
- Semi-structured patient interview

Consequences of dental anxiety – patient:	**Consequences of dental anxiety – dentist:**
Reduced quality of life Deteriorated dental health - possible pain	Economical loss Time-consuming Occupational stress and frustration

Motivation for anxiety treatment – patient:	**Motivation for anxiety treatment –dentist:**
Achieving good oral health Economical aspect More comfortable visits Enhanced self-esteem Increased feeling of control Fewer future dental visits necessary Less accumulated need for treatment	Grateful and less anxious patients Variation in daily routine Improved working environment Reduced stress Gained confidence Improved reputation Economical aspect

Characteristics of anxious patients:

Seattle-system →	**Anxiety of Specific Stimuli**	**Distrust of Dental Personnel**	**Generalized Anxiety**	**Anxiety of Catastrophe**
Characteristics	Know exactly what they are afraid of (needle, sound etc) Often afraid due to a negative experience in the past Usually associate dental treatment with pain	Often appear angry, cynical, and suspicious Often negative to former dental personnel Seem skeptical	Unable to specify the anxiety-problem Often anxious of more than one thing Problems handling the everyday-life Experience lack of control over own life and behavior	Anxiety of medical catastrophe Often a lot of unspecific "allergies" Afraid of getting hospitalized and die due to dental treatment

Treatment modalities

General approaches	Specific approaches
Iatrosedative technique Building a trustful relationship Providing control: - Informational control - Behavioral control - Retrospective control or debriefing	Relaxation Biofeedback Rehearsal Systematic desensitization Modeling Familiarization Cognitive restructuring Distraction Guided imagery Thought stopping

The methods of choice should be individually selected and adapted for every patient. Keep in mind that most patients have characteristics of more than one group in the Seattle System. In addition to general and specific approaches, one can also use pharmacological management. Some suggestions on how to use the different techniques for the different patient groups follows:

Seattle-system →	**Anxiety of Specific Stimuli**	**Distrust of Dental Personnel**	**Generalized Anxiety**	**Anxiety of Catastrophe**
Treatment modalities	Iatrosedative technique Building a trustful relationship Behavioral control (start/stop signals) Familiarization Rehearsal Systematic desensitization Modeling	Building a trustful relationship Informational control	Iatrosedative technique Building a trustful relationship Relaxation Biofeedback Cognitive restructuring Distraction Thought stopping Guided imagery	Iatrosedative technique Building a trustful relationship Providing control - Informational control - Retrospective control or debriefing Biofeedback Relaxation