Treating highly anxious dental patients in a dental fear clinic
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Chapter 11

SUMMARY AND GENERAL DISCUSSION
In this chapter, the findings of the present thesis and their implications will be summarized and discussed, starting with the results of Part I and Part II. Subsequently, the results of Part III will be summarized, and conclusions, implications and recommendations will be given. This chapter is concluded with some final remarks.

**SUMMARY AND DISCUSSION OF PART I**

*Chapter 2* describes the state of affairs in the centers of special dental care before the Dutch Quality of Health Care Institutions Act became in effect in 1996. This chapter offers an insight into the various ideas within the institutions that provide care to highly anxious adult dental patients. The Quality of Health Care Institutions Act incorporates a number of criteria pertaining to good quality care, which should in any case be effective, efficient and patient-oriented and which should respond to the needs of the patient. Furthermore, care institutions must systematically verify, assure and, if appropriate, improve quality of their care by means of quality control systems. The results presented in Chapter 2 indicated that in all but one of the 12 centers the Dental Anxiety Scale was used to assess among other questionnaires whether patient’s dental anxiety level was high enough to meet the eligibility criterion for treatment in the center (DAS \( \geq 15 \)). It was found that the majority of these dental fear clinics, however, did not have the capacity to treat all patients seeking treatment, resulting in long waiting periods in most of the centers. With regard to treatment modes, treatment with a behavioral management approach and dental treatment supported by nitrous oxide sedation was possible in all centers. Most dentists working in these institutions attended courses in the administration of nitrous oxide. In two centers it was possible to treat patients by means of intravenous sedation, and for 10 out of 12 an arrangement was made with a hospital to provide dental treatment under general anaesthesia. Next, in eight centers a referral to a psychologist affiliated with the center was possible. Finally, a slight majority of the clinics indicated to carry out treatment until patients were able to receive dental treatment outside the institution, whereas others continued treatment until a stable oral health was obtained. However, in ten clinics a varying proportion of patients remained receiving care in the clinic. It was recommended that, since none of the centers followed their patients systematically in the long run, research should determine the efficacy of treatment provided in these clinics and should assess which treatment mode is most appropriate for which patient. The present
thesis was an attempt to assess this aspect of quality of care in one of the largest institutions (i.e., Center for Special Dental Care (SBT) in Amsterdam, The Netherlands).

The most noteworthy finding of this study was that, although dentists working in dental fear clinics in The Netherlands use a variety of treatment modes to treat highly anxious dental patients, the proportion of patients treated with each modality varies significantly from center to center. Since it not likely that different types of highly anxious dental patients are treated in each of these institutions, this seems to indicate that no consensus exists with regard to the allocation to treatment modes. In this respect, it may reflect the lack of a standardized training program for dentists who work in dental fear clinics in The Netherlands, which would, according to the present author, enhance the efficacy of care delivered in these centers.

In 1995, the SBT introduced a questionnaire to assess psychological characteristics based on the notion that this might be a helpful tool in the assessment of patients applying for treatment in the clinic (i.e., the Dutch version of the Symptom Checklist 90 (SCL-90)). This questionnaire already had proved to be reliable and valid in several populations, and the results of Chapter 3 confirmed the good reliability in a sample of highly anxious dental patients. The main aim of Chapter 3 was, however, to assess the severity of psychopathological complaints in highly anxious dental patients and to compare this with the severity of these complaints in the Dutch general population. It appeared that patients of the dental fear clinic were not just dentally anxious, but also scored higher on a wide range of other psychopathological dimensions than people in the Dutch general population. These results were in line with studies from other countries (e.g., Berggren, Carlsson, Hakeberg, Hägglin, & Samsonowitz, 1997; Moore, Brødsgaard, & Birn, 1991; Roy-Byrne, Milgrom, Tay, Weinstein, & Katon, 1994). To determine the influence of concomitant psychopathology on treatment mode and treatment outcome, the studies reported in Chapters 7, 8, and 10 were undertaken.

**SUMMARY AND DISCUSSION OF PART II**

Part II of the present thesis dealt with the psychometric properties of some of the questionnaires used in the dental fear clinic. Chapter 4 provided data on the psychometric properties (internal consistency and validity) of the S-DAI, a short
version of the Dental Anxiety Inventory (DAI; Stouthard, Mellenbergh, & Hoogstraten, 1993) in a population of highly anxious dental patients. The S-DAI measures dental anxiety and was designed to take into account three situations that may evoke dental anxiety, four time elements in which dental anxiety may be provoked, and three types of reactions. The reason for constructing the DAI was that none of the already extensively used questionnaires (e.g., the DAS) completely covers the concept of anxiety (Schuurs & Hoogstraten, 1993). The results indicated that although the reliability estimates were somewhat lower in this population than in the general population, the S-DAI is a well-constructed, psychometrically sound questionnaire suitable for assessing dental anxiety in both highly anxious and regular dental patients.

In Chapter 5 the results with regard to the validity and reliability of the recently translated Dutch version of the Social Attributes of Dental Anxiety Scale (SADAS; Kent, Rubin, Getz, & Humphris, 1996) were described. The results were compared with those found in Kent et al. (1996). The SADAS was developed in order to determine the extent to which severe levels of dental anxiety affect patients’ social well-being outside the dental setting; that is, how much does a patient’s anxiety interfere with normal social routines and activities. The scores of this questionnaire could enable us to discriminate highly anxious dental patients with regard to the severity in which the avoidance or distress related to the feared situations interfere with the person’s normal routine, occupational functioning, or social activities and relationships. This is one of the DSM-IV diagnostic criteria for a specific phobia (American Psychiatric Association, 1994). Beside the patients of the dental fear clinic, first-year psychology students filled out the SADAS. Factor analysis showed that one of the subscales, social inhibition, was present. However, the other scale, psychological reactions, seemed to consist of three constructs. It was concluded that until future studies are carried out with highly anxious dental patients in other countries to assess the factorial validity more thoroughly, it seems justified to use the social inhibition and psychological reactions scales. Furthermore, reliability, as well as construct and discriminant validity were good.

In the last chapter of Part II, Chapter 6, the reliability and the factorial and construct validity of the 52-item version of the Fear Survey Schedule III (FSS-III; Arrindell, Solyom, Ledwidge, Van der Ende, Hageman, Solyom, & Zaitman, 1990) were assessed. This questionnaire was used to determine the presence of fears besides dental
anxiety *per se*. In general, the results were in favour of the validity and reliability of this instrument. Arrindell, Emmelkamp, and Van der Ende (1984) already stated that "it is no longer acceptable to use this total score as a valid measure of fear *per se*; the scales within this measure provide far more reliable information than any other presently existing self-report measure of fear" (p.247). In this chapter it was confirmed that it is justified to use separate anxiety constructs instead of the less reliable total score of this questionnaire.

**SUMMARY AND DISCUSSION OF PART III**

*Preliminary remarks*

Before summarizing the results of the outcome studies in Chapter 7 to 10, some background information is provided regarding the choice for the used study design. In addition, some general information about quality of care and evidence-based dentistry will be given.

In order to provide good quality of care, it should be established whether the delivered care is effective. Therefore, the variety of treatment methods used to treat highly anxious dental patients in dental fear clinics should be evaluated. Ideally, the treatment modality applied should be the most optimal one for each patient. Initially, the main aim of the present research project was to establish which of the treatment modalities used at the SBT was most successful for which type of patient. In order to answer this question properly, patients should be randomly allocated to treatment modalities. Only a randomized clinical trial (RCT), the gold standard to deliver evidence in the most objective way (Bader, Ismail, & Clarkson, 1999), rules out the most important threat of the internal validity, that is, selection. Selection means that the treatment groups may be different before the treatment is applied, making it unclear whether a difference is caused by the way the groups were selected or by the treatment itself. Thus, from a methodological point of view conducting a RCT is the only way to assess the relative effectiveness of treatment modes in a dental fear clinic. However, the co-operation of dentists working in the clinical setting is needed to conduct such a study. Regretfully, they decided not to participate in this case, and, as we may add, not without reason. The clinicians were reluctant to expose a patient to a treatment mode he or she would not have been allocated to in the conventional situation; that is, on the basis of the clinical judgement of the dentist. In response to
this objection (i.e., against the random allocation of patients to the treatment conditions), several alternatives were proposed, such as designs in which patient preference was taken into account (e.g., Feine, Awad, & Lund, 1998; Silverman & Altman, 1996). However, for quite understandable reasons, none of these alternatives was considered acceptable.

Thus, instead of conducting a randomized clinical trial, a quasi-experimental design was used in the studies presented in Part III. Consequently, it is not possible to draw definite conclusions as to the question which treatment mode is most effective. Therefore, the results are mainly confined to the general assessment of treatment outcome in the dental fear clinic. It remained possible to investigate which variables were related to treatment success. It was felt that, despite the quasi-experimental design, the evaluation of treatment would provide relevant information as to what results are obtained in the clinic with regard to reduction of dental anxiety, dental attendance and satisfaction.

Nevertheless, working in accordance with the principles of good quality of care incorporates that the treatment delivered to patients is the currently best available approach. This means that dentists in dental fear clinics should base their care on evidence, instead of delivering tradition-based care (Niederman & Badovinac, 1999). Tradition-based dental care tends to place a high value on a clinician's personal knowledge and adherence to long-held standard practices. One of the problems with tradition-based care is that a dentist may become very experienced and qualified in applying a certain treatment which is not necessarily the most beneficial treatment for a patient, and, as a result, detracts from the quality of care patients would have received if their treatment with regard to their anxiety had been evidence-based (Niederman & Badovinac, 1999). In addition, dentists may have different opinions about what is the right or currently best available treatment for a particular patient. Moreover, it is widely acknowledged that, in a general sense, dentists judge differently in similar situations (Den Dekker, 1990; Groen, 1997). The variability in dental care that may result from tradition-based dental care (Bader & Shugars, 1995) asks for a turn to evidence-based dentistry (Niederman & Badovinac, 1999).

Evidence-based dentistry incorporates the use of current best evidence in making decisions about the care of individual patients (Bader et al., 1999). This should be based on a synthesis of available evidence in the most objective way possible, such as systematic reviews and meta-analyses. As Bader et al. (1999) stated: "The gold
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standard for evidence in a systematic review of effectiveness is the RCT. Other sources of evidence, such as longitudinal studies, case-control studies, and cross-sectional studies, may be included in a systematic review, although the conclusions will be subject to additional threats to internal validity.” (p. 1480). So far, there are relatively few randomized controlled trials and other outcome-oriented studies, including the present studies, that yield conclusive results as to which treatment mode (i.e., BM, NOS, IVS or GA) is most successful for the individual patient (see Chapter 1).

As a final remark it needs to be mentioned that those studies reported in Chapter 1 that did use an experimental study design, took place in clinics in which the tradition was to treat patients with a pharmacological adjunct, such as general anaesthesia (Berggren & Linde, 1984; Berggren, 1986; Goodall, Skelly, & File, 1994). In such a setting it may be easier to start treating patients without a pharmacological adjunct than in a setting in which the tradition is to treat patients with a BM approach, as is the case in The Netherlands.

Summary
The main aim of Chapter 7 was to assess the relation between psychological dysfunctioning in terms of reporting psychopathological complaints and the treatment mode intuitively considered most appropriate for the patient. It was hypothesized that the treatment of patients with concomitant psychopathology would be relatively more difficult and as a result, may need more often to be supported by IVS. An additional aim was to examine the impact of oral health variables on the allocation process (e.g., number of decayed teeth). That is, it was assessed whether or not there are any differences among treatment modes with respect to the oral health status of patients. The results indicated that the treatment modes (i.e., 47% BM approach, 28% NOS, 23% IVS, and 3% GA) did not differ with respect to the psychopathological dimensions and dental anxiety level. Thus, patients with concomitant psychopathological complaints were not treated more often by a pharmacological adjunct than patients with less complaints. Patients in the IVS group did, however, have a higher number of decayed teeth and more fillings were made in this group compared to patients in the BM group. This suggests that anticipated dental treatment had more impact on the decision to use IVS than anticipated difficulties in treatment due to psychopathological symptoms.
Next, in Chapter 8 the outcome of three treatment modes (BM, NOS, and IVS) was determined in terms of both dental anxiety reduction after treatment and dental anxiety reduction and dental attendance at follow-up. In addition, it was determined whether or not, and if so, to what extent psychopathological characteristics were related to treatment outcome. The results of both outcome measures suggest that patients generally benefited from treatment at a dental fear clinic and that the results seemed to be better in the group of patients treated with a BM approach than in the group of patients treated with IVS. However, a relatively high proportion of patients did not improve satisfactorily. Although it was found in Chapter 7 that the treatment modes differed with respect to number of decayed teeth and not with regard to dental anxiety level and psychopathology before treatment, it could not be excluded that there were other unknown differences between the modalities which might have influenced this result. Furthermore, one of the psychopathological dimensions, somatic complaints, was indeed related to dental anxiety after treatment, irrespective of treatment mode. However, the percentage of variance explained by this variable was not impressive. Thus, the need remained to look for factors that contribute to the differentiation between highly anxious dental patients who succeed in treatment and those who do not. Therefore, the studies of Chapter 9 and 10 were conducted.

The scope of these two chapters was a little broader than that of Chapter 7 and 8, but the main aims were the same. Chapters 7 and 8 initially served as pilot surveys before a randomized controlled trial was to be carried out. Since this RCT was cancelled, the aims resemble each other more than planned before. However, in Chapter 9 and 10 additional self-report measures were included that were believed to be helpful in discriminating among patients. The aim of Chapter 9 was to determine outcome of treatment in a dental fear clinic in terms of dental anxiety level after treatment, the patient being able to visit a general dental practitioner, satisfaction after treatment, and dental attendance after one year. Additional aims were to investigate with which treatment mode the best results could be obtained and to determine which treatment-dependent variables were related to dental anxiety after treatment. The results showed that with regard to treatment outcome in this dental fear clinic, dental anxiety level after treatment was lower for treated patients than for patients who abandoned to visit the dental fear clinic. In addition, about one third of the treated patients believed they were able to visit a dentist outside the clinic at that moment. It appeared that of the patients treated in the clinic, 67% visited a general dental
practitioner on a regular basis, that is, at least once a year. Also, there were some indications that the best results were obtained with the BM approach. However, it was difficult to compare treatment modes, since the vast majority of patients was, in this period, treated with a BM approach, and relatively few patients with NOS, IVS, and GA. Finally, treatment by the psychologist of the clinic was correlated more to dental anxiety after treatment than the other treatment-dependent variables. It was concluded that, although treatment at the dental fear clinic was successful in a number of respects, more effort should be made to achieve the main goal, that is, enabling patients to visit a general dental practitioner (GDP) on a regular basis.

In Chapter 10 the patients treated with a BM approach described in Chapter 9 were selected to investigate which (self-report) data available at admission were related to treatment outcome. The same outcome measures as in Chapter 9 were used. The strongest predictor of treatment outcome in terms of dental anxiety after treatment appeared to be the presence of agoraphobic fears. The more such fears were present, the higher patients’ dental anxiety level after treatment. In addition, it was found that the frequency of occurring negative thoughts about dental treatment was negatively related to satisfaction with the state of patients’ own teeth. Furthermore, the presence of blood-injury fears predicted satisfaction with the intake at the clinic. Number of missing teeth was not included in a regression analysis, but this variable correlated to dental anxiety after treatment as well. The more missing teeth, the higher dental anxiety was after treatment, thus the less patients benefited. Finally, avoidance of regular dental treatment before applying for treatment was related to dental attendance after treatment. It was concluded that the psychological dimensions incorporated in the FSS-III were more strongly related to treatment outcome than those of the SCL-90 were. However, the choice for the use of these or other questionnaires should be made in the first place on clinical grounds.

Conclusions and recommendations
In conclusion, the aim of the present thesis was to assess the outcome of treatment of highly anxious dental patients in a dental fear clinic and to determine for which type of patient treatment was most successful. In addition, it was explored which treatment modality was most successful. It is concluded that the measurement instruments used in the present study were of sufficient quality to use them in a population of highly anxious dental patients. Treatment in the dental fear clinic was successful in achieving
alleviated dental anxiety levels and higher dental attendance rates than before treatment. There were indications that patients with agoraphobic fears and somatic complaints benefited less from treatment. Finally, patients treated with a behavioral management approach, supported by a psychologist, seemed to be best off.

However, it appeared, both in Chapter 8 and in Chapter 9, that dental anxiety scores and avoidance of dental treatment were still higher than in the general Dutch population (Schuurs & Hoogstraten, 1993). In addition, 30% of the patients visited a dentist regularly in the year before applying for treatment at the clinic. After treatment, 62% of the patients described in Chapter 8 and 67% of the patients described in Chapter 9 indicated that they visited a dentist on a regular basis. As a comparison, 87% of the dentate Dutch persons with a sick fund insurance, visited a GDP at least once in 1997 (Den Dekker, 1999).

Berggren (1986) found that 82% of patients treated with either a BM approach or GA visited a GDP regularly at a two-year follow-up. This higher attendance rate may be explained by the fact that patients in the study of Berggren (1986) and Berggren and Linde (1984) were referred to a community dental clinic for the completion of dental treatment. Thus, there was a direct need to keep visiting the dentist. Moreover, there was direct contact between the GDP and the dental fear clinic, e.g., the dentists from the community clinics had to rate the behavior of the patient and report that to the clinic. This suggests that treatment can be more beneficial, i.e., effective in terms of dental attendance after treatment in the clinic, when oral rehabilitation has to be concluded outside the clinic. In the clinic of the present study, the tradition was to treat patients until they were orally rehabilitated and able to visit a GDP again. Taken together, it is suggested that when patients are directly referred to a GDP (i.e., the patient receives a name and address, and in the ideal situation an appointment too) better results may be obtained.

However, the reason that the SBT does not provide a list of dentists willing to treat anxious individuals to patients who are dismissed, is that they noticed that an increasing number of dentists indicated that they did not have enough time to admit more anxious patients. It may be that many dentists are not willing to invest a lot of time in this type of patients, which provides food for thought, considering that the number of dentists available for dentate patients will decrease in The Netherlands in the future (Bruers & Bronkhorst, 1997). Nowadays, at the dental school in Amsterdam, The Netherlands, much attention is paid to highly anxious dental patients in general.
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and to some of the methods available to treat these patients. It is hoped, by this means, that it will encourage students to treat these patients when they are working as general dental practitioners.

At the present time, fewer patients are orally rehabilitated at the SBT than a few years ago. Whenever it is felt that the patient is able to visit a GDP for dental treatment, the patient is urged to do so. On the one hand, this may be more effective, as suggested above. On the other hand, GDP's may be even more reluctant to accept new patients when they are not orally rehabilitated. It is recommended here that dental schools, the organization of dental professionals, and the health insurance companies stimulate dentists to treat (formerly) anxious patients in private practices. Future studies could indicate whether such investments indeed lead to higher attendance rates.

With regard to the correlates of success, in the present thesis results are reported that support the relation between the presence of multiple fears and treatment outcome (Chapter 10). Both the summed total score of the FSS-III and the FSS-agoraphobia scale contributed to the regression equation of dental anxiety measures after treatment. It was clear, though, that the significance of the total scale was totally due to the effect of the agoraphobia dimension. As was stated in Chapter 10, in a number of cases dental anxiety may result from the presence of agoraphobic fears and panic disorder (see also De Jongh, 1994). Since treatment in dental fear clinics is not directed at treating these disorders, it is conceivable that during patients' stay in the clinic those fears remain high, and dental anxiety level too. Therefore, it is recommended that patients with a relatively high score on this dimension be advised to seek help for their non-dental fears elsewhere first.

The studies reported in Chapter 1 and 10, concerning the relation between concomitant anxieties and dental anxiety after treatment, did not make a distinction between separate anxiety dimensions (Berggren & Carlsson, 1985; Makkes, Schuurs, Thoden van Velzen, Duivenvoorden, & Verhage, 1987; Moore, 1991; Moore, Berggren, & Carlsson, 1991a; Moore, Brødsgaard, Berggren, & Carlsson, 1991b). On the basis of the results of the present thesis, it is suggested that in order to assess concomitant anxieties in a useful way, a questionnaire such as the FSS-III should be used, since it incorporates an agoraphobia dimension as well as a blood, injury, illness and death dimension. This is recommended because, on the one hand, more specific conclusions can be drawn than by just using a general fear score, and, on the other
hand, the results pointed out that the total score is not as strongly related to outcome than one of its components. It is beyond dispute that this questionnaire should be one with good validity and reliability.

With regard to other psychopathological dimensions, the results of Chapter 8 and 10 revealed that the concept of somatization measured by the SCL-90 was also negatively related to treatment outcome, which is in line with the results of Kleinhaus, Eli, Baht, and Shamay (1992). Somatization can be defined as the tendency to report physical complaints that can not be explained by any physical condition (Rooijmans, 1994). It is assumed that psychological distress is translated into these physical symptoms (De Jongh, 1997). Although the SCL-90 somatization subscale does not assess whether or not a physical disease is present, the negative influence of this scale may be explained by the denial of some patients that they suffer from psychological instead of physical complaints. That is, this attitude may prevent them to seek help for their psychological problems, which may hamper the treatment of their dental anxiety. In Chapter 8, almost 5% of the variance in dental anxiety scores after treatment was explained by somatization. In Chapter 10, this scale correlated significantly with dental anxiety as well. However, the somatization scale did not explain additional variance after the agoraphobia dimension of the FSS-III was already included in the regression equation.

Too few patients filled out the SADAS to have enough power to detect small or even moderate effects with this questionnaire. Thus the future still has to show whether the SADAS is related to treatment outcome.

A note must be made as to the findings with the agoraphobia scale of the SCL-90. The different results obtained with the agoraphobia dimension of the FSS-III and the SCL-90 have already been discussed in Chapter 10. However, the relation of the SCL-90 subscale with the adjusted dental anxiety scores after treatment was much higher in Chapter 10 than in Chapter 8. The most likely explanation for this is that, beside differences due to sample variation, the composition of the samples was not the same. That is, in Chapter 10 patients treated with BM, NOS and IVS were included, whereas in Chapter 10 a more homogeneous sample was used (i.e., only patients treated with a BM approach).

Related to this, in Chapter 8, treatment mode was included as a possible predictor of dental anxiety after treatment. It was determined in this way, whether or not any of the other variables contributed to the regression equation when the relation between dental
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anxiety and treatment mode was already taken into account. Patients treated with IVS appeared to do worse than patients treated with a BM approach.

With regard to the treatment-related variables, the results of the studies described in Chapter 8 and 10 suggest that visiting the psychologist of the fear clinic contributes positively to treatment outcome in terms of dental anxiety after treatment. It was not possible to establish a relation with dental attendance after one year, duration of treatment or satisfaction with treatment. Visiting the psychologist of the clinic led to lower dental anxiety scores than not visiting her, but it remains to be assessed whether this has an effect on dental attendance too. In addition, it can not be ruled out that patients who were referred to the psychologist had characteristics that made it more likely that they would benefit from psychological treatment. Nevertheless, in order to provide the opportunity for all patients to have as much gain as possible, it is recommended that the psychologist of the clinic is involved in the treatment and/or assessment of all patients. It is felt that this investment in time and money is really worthwhile, until it is shown by the results of a randomized controlled trial otherwise.

In conclusion, the results of this thesis support the notion that treatment of patients with other psychopathological problems than dental anxiety alone lead to less dental anxiety reduction. However, with regard to dental attendance, the results were less evident. Duration of avoidance of regular dental care was found as a correlate in Chapter 10, and somatization in Chapter 8. The question remains whether the presence of agoraphobic fears will influence dental attendance in the long run.

FINAL REMARKS

Finally, to finish this thesis a few remarks are given. The first one pertains to the measurement of treatment outcome in the present study. Instead of assessing whether treatment enables highly anxious dental patients to undergo dental treatment by alleviating distress experienced during treatment (i.e., state dental anxiety), the purpose was to assess a more stable and longer lasting outcome of treatment. Dental anxiety after treatment, adjusted for the pre-test scores, was one of the two main outcome measures. One of the questionnaires used to assess dental anxiety, the DAS, mainly taps trait anxiety (i.e., a disposition to experience anxiety in dental situations as a relatively stable personality characteristic), but also has some features of a state
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anxiety measure (Schuurs & Hoogstraten, 1993). The other dental anxiety questionnaire, the S-DAI, is supposed to assess a situation-specific trait anxiety (Stouthard et al., 1993). The results presented in this thesis indicate that the DAS and S-DAI are useful as indicators of severity of dental trait anxiety after treatment and at follow-up. The recommendation to use more than one dental anxiety questionnaire by Schuurs and Hoogstraten (1993) and by Locker, Shapiro, and Liddell (1996) still holds.

Secondly, it is advocated that, beside the assessment of dental anxiety, a behavioral assessment of outcome should incorporated. Therefore, dental attendance was determined in the present studies. This may be a more important outcome measure than severity of dental anxiety per se. After all, although dental anxiety and dental attendance are associated, many individuals pay regular dental visits despite a high level of dental anxiety (Schuurs, Duivenvoorden, Thoden van Velzen, Verhage, Makkes, & Eijkman, 1985). However, a disadvantage of the assessment of dental attendance is that it can only be measured validly one year or more after treatment at the clinic is finished. Moreover, this variable may be influenced by factors irrelevant to treatment outcome (e.g., availability of dentists in the region). Therefore, a need is felt for a new outcome measure that incorporates patients’ habitual coping style with dental treatment and that excludes practical factors that would prevent patients to visit a general dental practitioner. One possibility is to extend the single question used in the studies reported in Chapters 9 and 10 (“Do you believe you are able to visit a dentist outside the clinic?”) to several questions that together assess the extent to which patients are able to cope with dental treatment. Another possibility is that the dentist to which the patient is referred is asked whether the patient visits him or her regularly. However, this is only feasible when the referral procedure in the dental fear clinics is changed. Future studies assessing which treatment mode is most successful should address the question of a more suitable outcome measure first.

Next, an unforeseen shift emerged in the number of patients treated with BM (from 47% to about 75%; see Chapter 9). Thus, a rather large change took place in the number of patients considered suitable for a BM approach by the dentists working in the clinic. Since there are no indications that the patient population changed drastically, it implies that a change took place in the dentists’ perceptions with regard to allocation to treatment modalities. It appeared not possible with the variables used in the present study to determine which factors, beside some oral health variables
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(Chapter 7 and 9), influenced the allocation process. In addition, the results of Chapter 2 indicated that this allocation process is not the same in every dental fear clinic. However, it is the opinion of the present author that after several years of experience in the treatment of highly anxious dental patients it no longer suffices to point to one's own clinical experience. Guidelines, most of them recently developed, already exist with respect to varying aspects of treatment in centers for special dental care, such as safety, environmental aspects, the outtake, the waiting list, nitrous oxide sedation, IVS and general anaesthesia. However, the experience with regard to the most suitable treatment mode must also be documented and verified, preferably according to the principles of evidence-based dentistry. Therefore, a study aimed at revealing this decision making process is needed when additional guidelines for treatment in dental fear clinics are to be developed.

At last, during the present study it appeared that it is not easy to conduct research in a setting where research activities may imply a disturbance of daily business. Needless to say, the concerns of the researcher and the clinicians working in the dental fear clinic are not the same. On the one hand, the first priority of clinicians and auxiliary in care institutions, such as dental fear clinics, is to deliver care. Moreover, the insurance companies do not reimburse time invested in research activities; that is, these investments are at the expense of the clinic. On the other hand, the researcher wants to have complete control over the situation in order to answer the research question without any possible alternative explanations.

Four years after the introduction of the Quality of Health Care Institutions Act, which requires that institutions such as dental fear clinics assess whether their care is efficient, it is getting time now to develop evidence-based guidelines with respect to the allocation of patients to treatment modes. Such guidelines would provide the clinicians more certainty in diagnosis and therapy. To be able to assess the quality of care and to enhance the effectiveness of treatment modalities in the most optimal way, participating in research activities and evidence-based dentistry should be stimulated, both by training dentists in research methodology and by creating the space and possibility for such activities.
References


