

**Behaviour Management and  
the Impact of Video Modelling  
on the Behaviour of Anxious  
Children Receiving Dental  
Treatment**

**Parallel Double Blinded  
RCTs-Hospital Based**

By

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## **INTRODUCTION**

Dental anxiety is a widespread phenomenon which ranks as the fifth among commonly feared situations for individuals (Ad de Jongh 1995b). It has been considered to be a significant barrier to seeking dental care; at the same time it is associated with negative expectations about future events, particularly pain (Ad de Jongh 1995b).

The issue of dental anxiety and the consequent disruptive effect on the delivery of dental care continues to be the challenge for clinicians providing treatment for children. There is a plethora of literature in this subject area (Arnrup et al. 2007;Klaassen, Veerkamp, & Hoogstraten 2007;Klingberg & Broberg 2007a).

Paediatric dentistry, as a specialty, is better informed about behaviour management techniques than any other field of dentistry. However, a shortcoming in this area is the lack of appropriately designed clinical trials to objectively assess the value of behaviour management techniques in the successful delivery of dental care to children (Mostofsky, Forgione, & Giddon 2006). Moreover, many general practitioners are not willing to provide care for preschool children with disruptive behaviours especially when more than simple treatment is required (Mostofsky, Forgione, & Giddon 2006).

As a result of these factors relating to dental anxiety, many children are unable/ unwilling to cope with simple dental treatment (Ad de Jongh 1995b). This treatment can range from polishing of teeth, scaling, and fissure sealants; local anaesthesia and dental conservation; local anaesthesia and extraction of primary teeth and permanent teeth.

Children and adolescents comprise a group of individuals representing a large variation in age, understanding, psychological and personality development, temperament and emotion, experience, oral health, family background, and culture. All these aspects influence the child's ability to cope with dental treatment. Some children are robust and tolerant in stressful situations and are not likely to present problems to the treating dentist, while others are vulnerable and may need more attention and time in order to feel at ease and to cooperate with dental treatment (Klingberg et al. 2006b).

The investigation of young children's responses to dental treatment is fraught with problems; most of which relate to the difficulties of assessing anxiety and un-co-operative behaviours. Moreover, most studies for anxiety assessment have been carried out retrospectively and based on subjective reports that may possibly lead to bias (Berge, Veerkamp, & Hoogstraten 2002).

## **ROLE OF MODELLING**

Modelling is the technique that based on the psychological principle that people learn about their environment by observing other's behaviour, using a model, either live or by video to exhibit appropriate behaviour in the dental environment. This may demonstrate appropriate behaviour via a third party, decrease anxiety by showing a positive outcome to a procedure a child requires themselves, and illustrate the rewards for performing appropriately (The Royal College of Surgeons of England 2002b).

Modelling could be used to reduce uncertainty and to alleviate anxiety (Kent & Croucher 1998). A study in 2003 has observed that the intervention of a video- tape to enhance child control and reduce the anxiety of the pain of dental injections resulted in a significant fear reduction. Furthermore, children with higher pre-existing levels of fear benefited more from the intervention than children with lower levels of fear (LeBlanc et al. 2003;Paterson & Arco 2007c;Weinstein et al. 2003a).

## **FORMS OF MODELLING**

Modelling can be used in different forms: films or video, live models, and participant modelling. However, virtual models are generally less effective than real models (Brand 1999), whereas Melamed found that bringing a peer or an older sister or brother whom you know is going to do well and letting a younger child watch is as efficient as showing this film modelling (Melamed 1986b).

Modelling is most effective if the model observed shares important characteristics with the target child, such as age or gender. Moreover, if the model is observed to enter, complete the treatment and leave without unpleasant consequences and if is rewarded for the good behaviour. This is more effective especially when the model is seen to be mildly anxious but copes well (Brand 1999).

## **OBJECTIVES OF THE STUDY**

The purpose of this study is to determine the effect of video modelling on the behaviour of anxious children receiving dental treatment facilitated by non-pharmacological behaviour management techniques, inhalation sedation, or intravenous sedation. Moreover, the effect of video modelling on the improvement of the effect of the treatment technique, and the patient's acceptance of local anaesthesia administration; nasal mask; and intravenous cannulation was also evaluated.

## **PATIENTS AND METHODS**

The research for this thesis comprises of three randomised double-blinded controlled trials, it will look at dental anxiety and its impact on the delivery of dental treatment on children, aged (6-16) years divided to three treatment method groups that relate to the common age of children in each treatment method group. This will enable a comparison of the effect of video modelling on dental anxiety level of these groups of children receiving dental treatment.

The first clinical study will assess the effect of video modelling on child dental anxiety level with dental treatment combined with non-pharmacological behaviour management techniques; and to investigate if video modelling will improve the effect of the techniques and the patient's acceptance of local anaesthesia administration. The age of the children in this group will be confined to (6-10) years to diminish the variable among the wide age group of (6-16) years.

The second clinical study will assess the effect of video modelling on child dental anxiety level for dental treatment combined with nitrous oxide/oxygen inhalation sedation, and to examine if video modelling will progress the patient's acceptance of nasal mask and local anaesthesia administration. The age of children for this group will be (10-14) years.

The third clinical study will assess the effect of video modelling on child dental anxiety level for dental treatment combined with intra-venous conscious sedation (Midazolam), and to explore if video modelling will develop the patient's acceptance of intravenous cannulation and local anaesthesia administration. The age of children for this group will be (13-16) years.

### ***Inclusion Criteria***

1. Children aged (6-16) years of age with relevant age specific for each group
2. Children with no previous dental experience
3. Healthy children with American Society of Anaesthesiologists **ASA** scale, class **I** and **II**
  - ASA class I = No organic, physiological, biochemical or psychiatric disturbance.
  - ASA class II = Mild to moderate systemic disturbance, e.g. mild diabetes, moderate anaemia, well-controlled asthma, not disabling (Hosey 2002).
4. Children from all ethnic backgrounds
5. Children from all socio-economic classes
6. Children who are assessed to be dentally anxious based on the score of  $\geq 19$  on MCDAS (Tunc, Firat, Onur, & Sar 2005).

### ***Exclusion Criteria***

1. Children who do not reach the inclusion criteria
2. Children who needed emergency dental treatment
3. Children with learning disability
4. Children with previous dental experience
5. Children who had general anaesthesia for dental treatment

### ***Dental Anxiety measure***

Dental anxiety was assessed using the Visual Analogue Scale (VAS) at eight clinical pathways. Each child scored “0” or “1” if he/she managed to reach a point on the eight items scale. So for example, a patient will score one point if he/she manages to sit in the waiting room, another point for entering the dental surgery and so on. The highest score considered as the result of the Behaviour Tolerance Test (BTT) for each patient.

### **Behaviour Tolerance Test (BTT)**

The eight clinical path-way will be as the following:

1. In the waiting room
2. Entering the dental surgery
3. Sitting on the dental chair
4. Dental examination with mirror [Before IS/IV administration]
5. Simple dental treatment (polishing)
6. Local anaesthesia injection
7. Tooth drilling
8. Tooth extraction (Primary / Permanent)

Each patient was asked to report the Visual Analogue Scale (VAS) associated with help from the observer (AA). They were asked to mark anywhere on the line point that represents their perception of their anxiety from “not afraid at all” to “very afraid”.

The operating dentist will also rate the patient's co-operation in the dental surgery using the previously published and validated Houpt scale.

### **INSTRUCTIONS FOR BOTH GROUPS**

Both groups were treated in the same way, they were asked to consider the following:

1. The child was asked to watch the DVD more than one time, and more importantly the night before the dental visit.
2. The accompanying adult was asked to record how many times the child had watched the DVD.
3. The accompanying adult was asked to record when was the last time the child had watched the DVD.
4. Both groups were asked to not tell any dental staff about which DVD they had watched.

These instructions were also mentioned in the information sheets.

### **PRIMARY OUTCOMES**

The primary outcomes based on the results of the following:

1. Behavioural Tolerance Test scores [0-8].
2. VAS scores at eight points in the clinical pathway.

### **SECONDARY OUTCOMES**

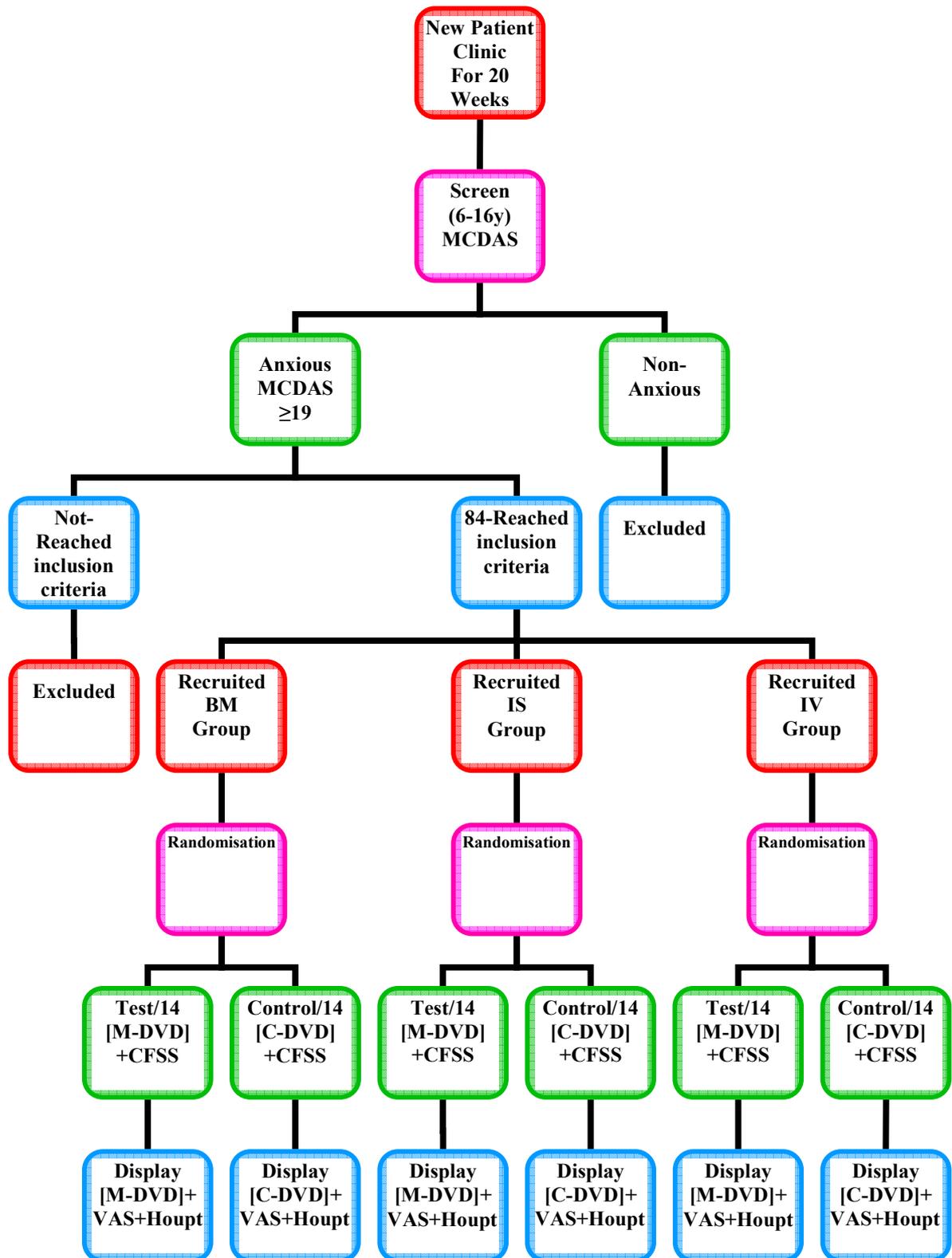
The secondary outcomes based on the result of the operating dentist’s score of the behaviour for each patient using Houpt scale.

### **DATA ANALYSIS**

The data will be recorded on Access data base, composed and analysed using SPSS version 15. The analysis will compare the levels of anxiety recorded for participants in the intervention and control groups.

The conduction of the study is still waiting for the approval of CRB.

## Steps of the study



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