Dental anxiety and behaviour management problems: The role of parents

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Chapter 7a

Influence of Parental Presence on the Child's Perception of, and Behaviour during, Dental Treatment

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Abstract

Aim

To analyse the influence of the presence of the parent in the dental operatory on their child's behaviour during dental treatment.

Methods

This study was a randomised controlled trial performed in a secondary paediatric dental care clinic. The child's perception of the dental treatment and its behaviour during treatment according to the parent and dentist were compared with parental presence in the operatory as independent variable. Age and dental anxiety were also calculated as co-variable. The child's perception of the treatment was assessed using the Wong-Baker Faces Rating Scale. The behaviour of the child according to parent and dentist was measured using Venham`s (modified) clinical rating of anxiety and cooperative behaviour. Statistical analysis was performed using Mann Whitney U tests and Independent Samples T Test.

Results

90 children participated (50% girls, mean age 6,21 years old, sd=1.56). During the habituation session child's behaviour was better according to the dentist when the parents were not present in the operatory during treatment ($p<0.01$). There were no significant differences in a child's perception of the treatment in relation to parental presence or absence. Dentally anxious children behaved better according to the parent (treatment session 2) and the dentist (habituation session and treatment session 2) when the parent was not present in the operatory ($p<0.05$).

Conclusion

Relying on a child's perception of dental treatment, a made no difference whether the child was treated with or without the parent(s) in the dental operatory. For anxious children it was mainly the dentist who was aware of the disadvantages of the parental presence.

Introduction

A controversy exists in the literature regarding parental presence during their child's dental treatment. Though parental presence is customary in medical situations [Blount et al., 1991; Piira et al., 2005], the dental situation is reported to be different, because of its repetitive aversive nature [Venham et al., 1977]. Reported reasons for excluding the parents are an increase of a child management problems due to the parent`s presence, disruptive behaviour during dental procedures and providing an opportunity for parents to project their own anxiety on their child [Venham et al., 1978; Fenlon et al., 1993; Gerull & Rapee, 2002]. On the other hand a beneficial effect of the presence of the mother on the security and coping behaviour of young children in an unfamiliar situation has been reported [Fenlon et al., 1993; Freeman, 1999]. Since the early 1950's several studies have been performed on children's behaviour during dental treatment, with parental presence as the main independent variable and the behaviour of the child as main dependent variable, hypothesising that a child's behaviour mirrors the final balance between its anxiety and coping behaviour. Though in medical procedures support is found for the assumption that children seem to benefit from a positive approach by their parent during invasive medical procedures [Blount et al., 1991], most of the dental studies have shown no difference in child behaviour [Frankl et al., 1962; Fenlon et al., 1993]. These results can be explained in two ways: either the outcome variable (child behaviour) was easily biased by additional variables not included in the trials or the actual research question (parental presence during their child's dental treatment) has in fact a non-issue. In this case possible child-parent interactions that occur during treatment were automatically compensated by the behaviour of the dentist. Reported factors influencing the possible results are a child's internal factors (coping behaviour, personality characteristics), mother's anxiety and the approach of the dentist [Klaassen et al., 2007]. When given a choice though, most of the parents expressed a wish to be present in the operatory/ surgery during treatment [Kamp, 1992; Peretz & Zadik, 1998]. The behaviour of the three people (child, parent and dentist) involves in a complex communicative interaction pattern in which they blame themselves for possibly causing the child's disruptiveness or dental anxiety [Klaassen et al., 2007].

Generally speaking a child's behaviour is mainly used as an outcome variable account should be taken on a very important aspect of dental treatment is not only actual behaviour, but also individual perception of young children to the treatment, related to their anticipation. Arntz et al.[1994] reported in their study the important nature of anticipation in the process of development of dental anxiety. More recently Versloot et al. [2008a] duplicated these results in a study on fear of dental injections in children. As dental anxiety and treatment problems are closely related [Klingberg et al., 1995] and few prospective clinical studies on the issue have been performed, it is important to conduct a clinical study on the effect of the presence or absence of the parent on a child's perception of the dental treatment and include the child's perception of the event.

This study therefore aims at finding the relationship between the presence of the parent on the child's behaviour, assessed by the dentist, the parent and the child, hypothesising a positive relation exists between parental presence and the child's behaviour.

Materials and methods

Participants

In a 4 month period 175 new patients attended a secondary paediatric dental care clinic in Utrecht, the Netherlands. They were all placed on a randomisation list. All children were referred by a family dentist to the paediatric dental practice. The reasons for referral were heterogeneous: most of the group were referred because of extensive caries or behaviour management problems. Other reasons were young age or a dentist being uncomfortable treating children. The selection criteria included: need for treatment requiring at least 2 consecutive treatment sessions, aged between 4-12 years old, no siblings, child and parent spoke and understood the Dutch language and the child had no developmental level requiring special education. Furthermore children with sudden pain complaints interfering with the graduate exposure of the treatment were excluded. Parental informed consent was obligatory and the study was approved by the MEC of the VUMC (protocol 2008/017).

Measurement

To assess the level of dental anxiety parents were asked to complete the dental subscale of the children`s fear survey schedule (CFSS-DS) on behalf of their child. As younger children were unable to complete the CFSS-DS on their own and to enable comparisons between the different age groups, it was decided to use the parent's version of the questionnaire. The CFSS-DS has been extensively validated and consists of 15 items, related to various aspects associated with dental treatment. Each item can be scored on a 5 point scale (1-not afraid at all, 5-very afraid). Total scores range from 15-75. Previous research has indicated scores below 32 as non-clinical: these children are generally not or only little fearful. Of the Dutch child population 14% suffer from some degree of dental fear, as indicated by CFSS-DS scores above 32 [ten Berge et al., 2002]. There was also one item on the list asking the parents to rate their own dental anxiety on a 5 point-scale.

Course of treatment

The course of the treatment was measured by asking both the dentist and the parent to rate the child`s behaviour, measured using Venham`s (modified) clinical rating of anxiety and cooperative behaviour. The scale consists of 6 points ranging from 0 (relaxed) to 5 (out of contact) [Venham et al., 1980]. The Venham scale is used frequently in comparable studies and has good properties when compared to video registrations [Veerkamp et al., 1995]. The dentists were trained with video tapes not taking part in the study. After the treatment each child was asked to give his/her opinion on the course of treatment by pointing out one of the

faces on the Wong-Baker Faces Rating Scale (FPRS) [Wong & Baker, 1988] (Fig. 1). The FPRS is a scale of six hand drawn faces, ranging from smiling to crying: the faces were developed based on analyses of children`s drawings of faces representing different degrees of hurt/discomfort [Chambers et al., 1999]. The instruction to the child was standardised (written) to avoid individual variation.

Figure 1. Wong-Baker Faces Rating Scale

Procedure

All new patients in the four month period were given a number on a previously prepared random allocation list, dividing them into two groups: in the first group the parents were present in the operatory during treatment sessions, in the second group the parents remained in the waiting area. During the assessment procedure all parents were present. At the end of that session, before parents made appointments for the consecutive treatment sessions, they were informed about and asked to participate in the study. After consent, they were informed as to which of the two groups they were assigned to. They then filled out a form asking them how much confidence they had in the upcoming treatment. Parents were informed that withdrawal from the study or refusal to participate would not have any influence on the actual treatment. Two paediatric dentists participated in the study. The consecutive sessions were a habituation session and at least two treatment sessions (see Fig. 2). After each session the parent, dentist and child were asked to report on the child's behaviour.

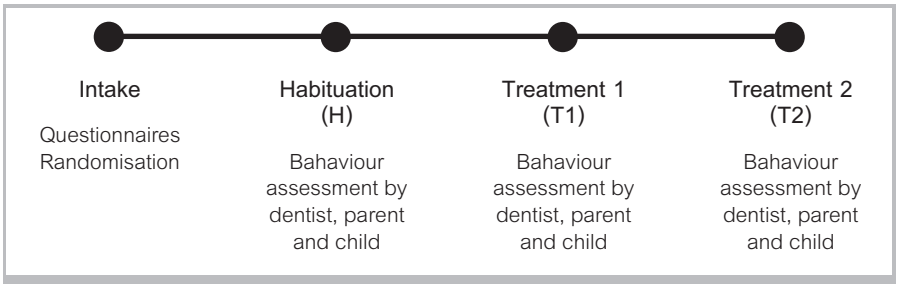

Figure 2. Time line: the sequential treatment phases and the data recorded.

Statistical analysis

To exclude all differences between the research groups (parent present versus parent absent) independent samples T tests were used. For differences in behaviour between the two groups Mann Whitney U Tests were used. All measurements were analysed using SPSS 16.0 for Windows.

Results

Of the 175 selected patients 90 children in the age of 4-12 years old (45 girls, mean age 6.21 years, sd=1.56) were included in the study. Reasons for withdrawls were: treatment under general anaesthesia (25), parents did not attend for the consecutive treatment (24), developmental disorder (10), parent unwilling to participate (9), and various other reasons (17). The mean CFSS-DS scores of the total group of 90 children was 32.37 (sd=10.48). Of those children 47 were treated with the parent present in the operatory and 43 with the parent in the waiting room. The patients were equally divided between the two dentists (47/43). No differences in behaviour scores between the two dentists existed.

The behaviour of a child only differed significantly between the two groups (parent present versus parent absent) in the habituation session according to the dentist (p=0.007). The dentists scored each child's behaviour more negatively when the parents were in the operatory during the habituation session (Table 1). The self-report by the child did not differ between the research conditions, though there was an increasing trend of child discomfort during

Table 1. Mean scores and standard deviations of the course of treatment according to the child (FPRS), parent and dentist (Venham scores) with parental presence/ absence during treatment as independent variable.

	parent present		parent absent		
	mean	*SD*	mean	*SD*	p
CFSS-DS	31.36	10.12	33.46	10.87	n.s.**
Age	6.13	1.52	6.30	1.61	n.s.**
FPRS Habituation (child)	1.60	1.16	1.56	0.80	n.s.***
FPRS Treatment 1 (child)	1.94	1.48	1.65	0.95	n.s.***
FPRS Treatment 2 (child)	2.17	1.43	2.26	1.48	n.s.***
Venham Habituation (parent)	0.60	1.01	0.74*	0.93	n.s.***
Venham Treatment 1 (parent)	0.79	1.06	0.77*	1.00	n.s.***
Venham Treatment 2 (parent)	1.19	1.23	0.81*	0.93	n.s.***
Venham Habituation (dentist)	1.13	1.04	0.58	0.73	<0.01
Venham Treatment 1 (dentist)	1.06	1.05	0.91	1.07	n.s.***
Venham Treatment 2 (dentist)	1.49	1.27	1.19	1.18	n.s.***

* Based on parent's estimate. ** Independent samples t-test, $p < 0.05$. *** Mann Whitney U Test, $p < 0.05$.

sequential sessions for both groups.

In the group of low-anxious children there was a significant difference in the child's perception of the second treatment (Table 2). the children in the parent-absent group reported significantly more discomfort than the children in the parent present group (p=0.04). There was also a (non-significant) trend for increasing dental anxiety during consecutive sessions

Table 2. Mean scores and standard deviations of the behaviour of children according to the child, parent and dentist for children with CFSS-DS scores (low versus high) as independent variable.

CFSS-DS	15-32					32+				
	present (N=25)		absent (N=20)			present (N=22)		absent (N=23)		
	mean	*SD*	mean	*SD*	p	mean	*SD*	mean	*SD*	p
Habituation (child)	1.52	1.26	1.30	0.66	0.75	1.68	1.04	1.78	0.85	0.48
Treatment 1 (child)	1.88	1.36	1.55	1.00	0.54	2.00	1.63	1.74	0.92	0.88
Treatment 2 (child)	1.72	1.06	2.60	1.54	0.04**	2.68	1.64	1.96	1.40	0.09
Habituation (parent)	0.76	1.17	0.55*	0.95	0.60	0.41	0.80	0.91*	0.90	0.04**
Treatment 1 (parent)	0.60	1.12	0.60*	0.82	0.58	1.00	0.98	0.91*	1.13	0.61
Treatment 2 (parent)	1.00	1.32	0.85*	0.75	0.75	1.41	1.10	0.78*	1.09	0.03**
Habituation (dentist)	0.96	1.10	0.40	0.50	0.09	1.32	0.95	0.74	0.86	0.03**
Treatment 1 (dentist)	0.68	0.85	0.60	0.88	0.66	1.50	1.10	0.17	1.15	0.34
Treatment 2 (dentist)	1.04	1.14	1.35	1.27	0.40	2.00	1.23	1.04	1.11	0.01**

* Based on parent's estimate. ** Mann-Whitney U test $p < 0.05$.

in the parent absent group.

In the high-anxious group there was no significant difference in the child's perception of their discomfort depending on their parent's presence or absence. However, the parents who were absent in this group of high-anxious children reported significantly higher discomfort of their child in the habituation session (p=0.04), but significantly lower during the second treatment (p=0.03). The dentists rated that the behaviour of the children in this 32+ group was significantly better when the parent was absent during the habituation session (p=0.03) and the second treatment (p=0.009).

Although not-significant there was a fairly large difference in the younger children for self-reported discomfort during the second treatment session (parent present: 2.53 *SD* 1.84 vs parent absent 3.36 *SD* 1.87).

The children were also divided into young (4-5 years old) and older (6+ years old). Only the Venham score of the dentists during the habituation session in the young group differed significantly. The dentists reported significantly more disruptive behaviour in the group of young children (Venham 1.21 vs 0.57, p=0.049) when the parent was present in the operatory during this session. The reported dental anxiety of the parent was not related to any of the variables.

Discussion

The results of the present study showed that there appeared to be no difference of the child responses whether the parent was present or absent during treatment. Only low-anxious children during their second treatment session reported significantly more discomfort when the parent was not in the operatory. Although not-significant, high-anxious children had a tendency to report less discomfort during their treatment sessions when the parents were in the waiting area during treatment.

As can be expected from earlier studies the self-reported discomfort of the child increased during the course of treatment. Though not significant, the increase was greater in young children than in older children, regardless of the presence or absence of the parents. Remarkably in young children was the difference in the course of treatment when parents were present or absent. When accompanied by their parents the children reported a greater increase in discomfort between the habituation session and the first treatment session. With the parents in the waiting area the greatest increase in discomfort was between the first and second treatment session. It appeared that these young children, when accompanied by their parents, immediately tried to turn away from an adverse situation. Being in the operatory by themselves they were more likely to undergo the treatment, but they showed increasing reluctance during the second treatment session. When the parents were in the waiting area during treatment they did not notice any difference. It was obvious that parents had difficulty estimating the behaviour of their child when they could not see their child's reaction to the treatment. When present the parents might suffer severely from observer bias: a tendency to accept a child's behaviour based on the trust in the capabilities of the dentist. This might also explain the absence of any relation between the self-reported dental anxiety of the parent and their child's behaviour or anxiety.

According to the dentist the behaviour of the child started well, but then deteriorated during the course of treatment when the parent was not in the dental operatory. When the parent was present the behaviour first improved, but during the second treatment session it deteriorated ending at the same level as the control group. An interesting aspect is the relationship with a child's dental anxiety. Anxious (CFSS 32+) children were more likely to receive a higher behaviour score by the dentist, independent of their own rated dental anxiety.

Earlier studies on this subject have been most often performed using video-film of a treatment session, scored by independent observers. Veerkamp [1995] and Versloot [2008b] reported a substantial correlation between the self reported discomfort of a child and the discomfort as assessed by an independent observer. Furthermore Aartman et al. [1998] stated that in young children at least two methods of measurements are required for a valid outcome. Based on these results the decision was made herein to measure a child`s discomfort based on the opinion of the child, parent and dentist. No additional validation of the dentist ratings was performed but when compared both dentists awarded similar scores in children with a comparable anxiety level.

The mean age of the group was 6.21 years old. The number of 4-5 year-olds was only one third of the total group. Usually in a secondary paediatric dental care clinic the percentage of young children is higher. In this research population there was a high percentage of dropouts among the younger children because they were more often treated under general anaesthesia and the parent's of younger children were unwilling to participate in the study. This was also the case for the CFSS-DS.

The use of the Wong-Baker Faces Pain Rating Scale has been frequently questioned because of the use of a smiling face at the beginning of the scale. However in the context of this study we used the scale to ask the children which face best suited their feeling of the course of treatment.

Conclusions

According to the children in this study there appeared to be no difference whether their dental treatment was conducted with or without their parent's presence. The dentist reported difficulties with increasing anxiety of the child during the presence of parents. For an individual child it is the task of the dentist to assess whether to treat the child/parent dyad together or to separate the two. As the benefit for the dentist is limited, the child's or parent's opinion might be the deciding factor in favour of parental presence.

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