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Correlation of parenting style and pediatric behavior guidance strategies in the dental setting: preliminary findings

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Abstract

Objective. The aim of this study was to investigate the influence of parenting style on the choice of proper behavior guidance strategies in pedodontics. ***Material and methods.*** Seventy-two children aged between 4 and 6 years (mean 5.12 years) with carious primary mandibular molars were selected. The Primary Caregivers' Practices Report (PCPR) was used to quantify authoritarian, permissive and authoritative aspects of the caregivers' parenting style. After inferior alveolar nerve block, carious lesions were removed and the teeth were restored using amalgam. The children's behavior during operation was assessed according to the sound, eye, and motor (SEM) scale. Communicative guidance, advance behavior guidance, parental separation, and deferred treatment were used for behavior management. ***Results.*** The dominant authoritative score was observed in 50% of parents, permissive in 37.5%, and authoritarian in 12.5%. The mean SEM score in children belonging to authoritative parents was significantly lower than in children of permissive and of authoritarian parents ($p < 0.05$). Communicative guidance was necessary for all patients regardless of parenting style. Advanced behavior guidance (protective stabilization) was applied in 16.7% of cases in the authoritative category and in 100% in the permissive and authoritarian categories. The use of restrictive devices (7.4%) and sedation (3.7%) was limited to the permissive category. Parental separation (40.7%) and deferred treatment (3.7%) were performed only in the permissive category. ***Conclusions.*** This study provides preliminary evidence that a child's reaction to restorative dental procedures is influenced by the nature of the caregiver's parenting style.

Key Words: *Behavior guidance, parenting style, pediatric dentistry*

Introduction

Behavior guidance is a constant challenge in contemporary pediatric dentistry. The patient–practitioner interrelationship in adult dentistry is transformed into the more complicated patient–parent–dentist interaction in pediatric dentistry. The adage that "children are not small adults" promotes the idea of special knowledge and behaviors that are important when caring for young dental patients [1]. Pediatric behavior guidance styles often have to be varied to accommodate the special needs of different children. While one method of behavior guidance may be effective when interacting with one group of children it may be inappropriate when dealing with another. A child's behavior towards adults varies according to different parenting styles, and continues in the dental office in interactions with the dentist. Moreover, while behavior guidance is vital for successful treatment, a parent's attitude toward behavior guidance strategies may compromise the techniques utilized and the eventual therapeutic outcome [2,3].

Parenting style may be considered an essential determinant of children's coping styles. It has been suggested that cognitive development in children correlates with parenting style [4]. The way a child has been brought up has great influence on its behavior in later years, particularly behavior and interactions in social contexts [5]. The dentist needs to develop ways of dealing with children by setting guidelines, i.e. indicating that behavior in the home environment is different from behavior in the dental office.

Various parenting styles have been studied previously [6–8]. Baumrind's authoritarian, permissive, and authoritative styles [9] are often investigated in studies of parenting styles in relation to such diverse

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child outcome variables as academic achievement, self-confidence, aggression, delinquent behavior, and substance abuse [10–14]. Authoritative parenting is defined as a style that utilizes warmth and nurturance, while at the same time maintaining firm control of the child's behavior. The authoritarian category is defined as a harsh parenting style in which power-assertive techniques are utilized, including physical punishment, commands and yelling, while lacking warmth and communication. Finally, permissive parents are characterized as having little control over their children while exhibiting great warmth toward them. A fourth parenting style, called neglectful, characterized by low warmth and low control [15–18], is sometimes referred to as indifferent–uninvolved and emphasizes the emotionally detached nature of these parents [19]. Indifferent–uninvolved, or neglectful, parents tend to keep their children at a distance, responding to child demands only to keep them quiet. Little is known about this parenting style, and research is lacking because these parents are typically neither very responsive nor are they involved in their children's lives and, therefore, do not volunteer to be studied. Because these parents, and consequently their children, are difficult to study, if not impossible, the current study ignored the neglectful parenting style.

The Primary Caregivers' Practices Report (PCPR) was used in the present study to assess the level of a parent's parenting style [20]. The PCPR comprises 62 items in which parents or guardians indicate how often the stated behavior is used when interacting with their children. The PCPR has been validated in the United States [20] and, more recently, in Russia [11].

Behavior guidance strategies are selected *in situ* and according to the reactions of the pediatric patient. However, in regard to the presence of parents in the dental surgery, the mutual interaction of patient and parent is inevitable. Parenting style is among factors to be considered when selecting a behavior guidance method. These management strategies may be modulated prior to initiation of operation to meet the special needs of a situation. The aim of the present study was to investigate the influence of parenting style on child behavior and choice of the proper behavior management technique during simple dental treatment.

Material and methods

Study population

Seventy-two children aged between 4 and 6 years were included in the present randomized clinical trial. The subjects presented to the Department of Pedodontics, Tabriz School of Dental Sciences, for treatment of carious mandibular primary 1st or 2nd molars. The selected subjects were in complete physical and mental health, with no confounding medical history.

The following criteria were considered for inclusion in the study:

- No history of post-traumatic stress disorders or specific phobia related to dental settings
- No history of unpleasant experiences in medical settings
- No previous experience of intraoral injections
- No history of pain secondary to pulpitis
- Aged between 4 and 6 years

After preliminary selection of subjects, final selection was from a table of random numbers.

The study procedure, as well as probable risks and discomfort, was explained to the parents and was approved by the research and ethics committees of the Tabriz University of Medical Sciences.

Parenting styles

Scores from the PCPR assess the level of a parent's style with respect to Baumrind's primary parenting styles typologies [20]: authoritarian (high control, low warmth), permissive (low control, high warmth), and authoritative (high control, high warmth). The authoritative scale (27 items) includes subscales for warmth and involvement (11 items), reasoning/induction (7 items), democratic participation (5 items), and good natured/easy going (4 items). The authoritarian scale (20 items) yields subscales for verbal hostility (4 items), corporal punishment (6 items), non-reasoning/punitive strategies (6 items), and directiveness (4 items). The permissive scale (15 items) yields subscales for lack of follow through (6 items), ignoring misbehavior (4 items), and self-confidence (5 items). Response choices ranged from "almost never" to "almost always" on a 5-point Likert-type scale.

Because parenting styles were conceptualized as contextual and not mutually exclusive typologies by the creators of the PCPR [20], a summed score was tabulated as directed for each parent or guardian on each of the three parenting styles, which means that the higher the score the more the caregiver exhibited that particular parenting style. Authoritarian parenting style was evaluated by responses to 20 items (potential range 0–85), permissive parenting by responses to 15 items (potential range 0–55), and authoritative parenting style by 27 items (range 0–120).

The main operator was blind to parenting style; determination of parenting style was performed by another dentist blind to the method of study.

Treatment procedure

After application of a topical anesthetic agent (Benzocaine®, Dentsply) over dried mucosa for 1 min using a cotton applicator, the standard inferior alveolar nerve block was applied using counter-stimulation and distraction. The counter-stimulation method involved use of the thumb to vibrate the soft tissue adjacent to the intraoral injection site with slight pressure and of the forefinger to vibrate the equivalent extraoral site. The technique for distraction involved asking subjects to raise their right and left legs in turn, through a monologous voice control approach. The injection technique involved gradual injection of 1 ml of anesthetic agent (Lidocaine 2%, Epinephrine 1/100000) using a short needle (length: 32 mm, gauge: 27) for 1 min and after aspiration.

Under rubber dam isolation, a class II cavity preparation was prepared using a high-speed handpiece and amalgam was placed and carved.

Assessment of children's behavior

A second dentist assessed the child's behavior during operation according to the sound, eye, and motor (SEM) scale designed by Wright et al. [21]. Classification of the SEM scale is presented in Table I. The subject's response was graded on a scale from 0 to 3, i.e. comfort, mild discomfort, moderately painful and painful, respectively. On a random basis, a third experimenter along with the second experimenter performed the SEM evaluation to allow for the assessment of inter-examiner agreement of data.

Behavior guidance strategies

Behavior guidance strategies were used in different time lines during the treatment course. Behavior shaping was used during the pre-appointment course and through oral examination of the patient using the tell–show–do technique. The various strategies for controlling the child's behavior fall within the following categories and subcategories based on the American Academy of Pediatric Dentistry guidelines [22]:

I. Communicative guidance
   - Tell–show–do
   - Distraction
   - Voice control
   - Positive reinforcement (tokens and toys) first and second appointments

II. Advanced behavior guidance
   - Protective stabilization by pedodontist
   - Protective stabilization by pedodontist + staff
   - Protective stabilization by pedodontist + staff + parent
   - Protective stabilization by restrictive devices (protective stabilization board)
   - Sedation (nitrous oxide sedation)

III. Parental separation

IV. Deferred treatment

Statistical analyses

All quantitative data are presented as means. The statistical analysis of data was performed based on the analysis of variance (ANOVA), and post-hoc analysis on Scheffe's test. Intra-examiner agreement of data was evaluated using Kappa statistics. $P < 0.05$ was considered to indicate statistical significance.

Results

The study population comprised 38 M and 34 F, with a mean age of 5.12 years. Each child presented with one parent during the study course.

Intra-examiner agreement of data

The Kappa value for intra-examiner agreement of data for the SEM scale was 0.82.

Parenting styles

The authoritarian scores ranged from 20 to 51; the permissive scores from 9 to 31; the authoritative scores from 20 to 91. The dominant authoritative score was observed in 50% of parents; 37.5% of parents (27 parents) were categorized as predominantly permissive and the rest as authoritarian (13 parents).

The results of parenting styles revealed by questionnaire were concordant with their behavior during treatment. The different reactions observed in authoritative parents included: no intervention/observation (69%), no intervention + reward (16%),

Table I. SEM scale for the assessment of children's behavior.

Parameter	Comfort	Mild discomfort	Moderate discomfort	Severe discomfort
Sound	No sound	Non-specific sound (probable pain)	Verbal complaint, louder sound	Verbal complaint, shouting, crying
Eye	No sign	Dilated eye without tear (anxiety sign)	Tear, sudden eye movement	Crying, tears all over the face
Motor	Relaxed body and hand status	Muscular contraction, contraction of hands	Sudden body and hand movement	Hand movements for defense, turning the head to the opposite side

verbal encouragement of the child (8%), and verbal explanations about the treatment (7%).

The different reactions observed in permissive parents ($n=27$) included: physical contact with the patient, which was mainly taking the patient's hand (74%), stopping the treatment (70%), questioning the pediatric dentist regarding the effectiveness of the anesthesia (50%), no reaction (7%). The children of these parents were uncooperative, exhibiting responses such as crying with gesticulating hand and foot movements.

The reaction of authoritarian parents ($n=13$) was physical control of the child patient with an essence of firmness and displeasure. The patients in this category exhibited uncooperative behavior, with most trying to escape, and severe body movements.

Sound, eye, and motor (SEM) scale

Table II presents the SEM data. The children of authoritative parents showed mild discomfort (19.4% of patients) or no discomfort (80.6%), corresponding to grades 1 and 2 on the SEM scale for all three modules (sound, eye, and motor). The children in the permissive parent category exhibited moderate (44.4%) or severe discomfort (55.6%), corresponding to grades 3 and 4 on the SEM scale. The children of authoritarian parents showed moderate (38.4%) or severe discomfort (61.6%).

The mean SEM score in children of authoritative parents (1.194) was significantly lower than that of children whose parents were permissive (3.556) ($p=0.04$) and authoritarian (3.616) ($p=0.015$). However, there was no statistically significant difference when comparing mean SEM scores of the children of permissive parents versus children of authoritarian parents ($p=0.34$)

Behavior guidance strategy

Communicative guidance was used in all children regardless of parenting style (Table III). The tell–show–do technique was initiated during a pre-appointment visit preceding the main treatment. Distraction and voice control was first applied during the injection. Positive reinforcement by the pedodontist was applied during the first and subsequent visits.

Table II. SEM values for various parenting styles.

	Comfort	Mild discomfort	Moderately painful	Painful	Mean value
Authoritative	29	7	–	–	1.52
Permissive	–	–	12	14	3.2
Authoritarian	–	–	5	8	3.7

The use of advanced behavior guidance techniques was substantially affected by the various parenting styles (Table III).

Parental separation was necessary in the case of children in the permissive category. In 40.7% of patients in this category, parental separation was efficiently applied where the aforementioned techniques were inefficient. This strategy was not necessary in the authoritative or authoritarian categories. Moreover, in the permissive category, the treatment was deferred to a later session in one patient.

Discussion

A child's personality, interests, and activities are not attributes of an isolated individual nor are they imposed by the environment; they are firmly located in the interactions between the child and the network or system of social relationships to which that child belongs [23,24]. Primarily, these relationships are focused in the immediate family environment, or microsystem, into which the parents bring their own background development.

Our findings indicate that communicative management may be used universally in children belonging to permissive, authoritative, or authoritarian parents. Nonetheless, although communicative management is efficient in controlling children with authoritative parents, additional techniques are necessary for children with permissive and authoritarian parents, i.e. emphasizing the impact of the parent–child (PC) axis on the success of adopted behavior management techniques.

The use of advanced behavior guidance techniques varied between groups. The children with permissive parents showed more negative behavior, so necessitating the use of advanced techniques. The children of authoritarian parents were also controlled by advanced techniques. However, there was an important difference between these two groups. Protective stabilization of the patients by permissive parents was necessary in more than half of cases. However, the same intervention was quite low in the authoritarian or authoritative category. This phenomenon seems to reflect the psychologically independent nature of patients in the authoritative category and psychological detachment of parent–child in the authoritarian category. Meanwhile, psychological dependence of parent–child in the permissive category was the main reason for this event. However, a more negative perception of the treatment procedure by children in the permissive category, as revealed by a high SEM score, resulting in uncooperative dangerous behavior, e.g. hand and foot movements, necessitated additional physical restriction delivered by the parents. The issue of parental separation has always been a subject of debate [25]. Our findings suggest that parental separation may be used only in the case of children

Table III. The use of advanced behavior guidance techniques by parenting styles.

	Authoritative	Permissive	Authoritarian
Protective stabilization by pedodontist	5 (13.9%)	3 (11.1%)	5 (38.5%)
Protective stabilization by pedodontist+staff	1 (2.8%)	8 (29.6%)	4 (30.8%)
Protective stabilization by pedodontist+staff+parent	0	14 (51.9%)	4 (30.8%)
Protective stabilization with restrictive devices	0	2 (7.4%)	0
Sedation	0	1 (3.7%)	0
Parental separation	0	11 (40.7%)	0
Deferred treatment	0	1 (3.7%)	0

of permissive parents. The mechanism underlying the impact of parenting style on pediatric negative behavior is interesting.

Fear, stress, emotional conditions, personality traits, parenting, and other factors influence children's behaviors at the dental visit. Interestingly, these factors exhibit mutual interactions. The interaction of anxiety, an important indicator of negative pediatric reactions, and parenting style seems to shed light on the issue. Parenting behavior has long been of interest as a possible anxiety disorder transmission mechanism. Rapee [26] suggested that parents of anxious children behave towards their children in a style characterized as controlling, rejecting, and overprotecting. More recent findings indicate that anxiety disordered adults are more likely than non-anxious controls to remember their parents as having employed a parenting style characterized by overprotection and, to a lesser degree, a lack of care or warmth [26,27]. Similar perceptions appear evident among children with anxiety; recent studies have shown significant associations between perceived parental psychological control and the presence of both anxiety symptoms [28,29] and clinical anxiety disorders [30] in children. Therefore, modulation of anxiety through affecting the central perceptive mechanisms may be one factor underlying correlation of parenting style and child's coping style in dental settings.

Admittedly, further studies with more subjects are needed to support our findings. The anxiety of subjects was not assessed in the present study. It is still unclear whether anxiety disordered children are any more likely to perceive their parents negatively if the parents also have anxiety disorders. Moreover, study of the gender-specific parent–child relationship and its interaction with behavior guidance techniques in dental settings is interesting. Future studies aimed at more in-depth investigation of the parent–dentist interrelationship are necessary. Moreover, further research may be directed at investigation of the parent–dentist axis with reference to the behavior guidance techniques.

This study provides preliminary evidence that a child's reaction to restorative dental procedures is influenced by the nature of the caregiver's parenting style. Pre-appointment appraisal of parenting style could aid the clinician in more efficient management of the pediatric patient through proper choice of the behavior guidance techniques.

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