Correlating Parenting Style and Sociodemographics with Child Behavior for Emergency Visits

THESIS

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By

Grace Ellen Gianneschi, D.M.D.

Graduate Program in Dentistry

The Ohio State University

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Master's Examination Committee:

Ashok Kumar, D.D.S., M.S., Advisor

Paul Casamassimo, D.D.S., M.S.

Dennis McTigue, D.D.S., M.S.

Daniel Coury, M.D.

Abstract

Purpose: This study assessed relationships between parenting style, sociodemographics, and child behavior during a first emergency dental visit.

Methods: Parents/legal guardians of patients three to six years old presenting to Nationwide Children's Hospital dental clinic for their first emergency visit completed the Parenting Styles and Dimensions Questionnaire (PSDQ), the Parent-Child Relationship Questionnaire (PCRQ), and a 23-question demographic survey. A calibrated dentist performed emergency treatment. One of two calibrated personnel assessed child behavior using the Frankl scale. Relationships between parenting style + behavior, parenting style + various sociodemographic variables, and behavior + various sociodemographic variables were assessed using Wilcoxon Rank Sum, chi-square, and Fisher's exact tests.

Results: The reliability of behavior ratings was assessed using Spearman's correlation coefficient; inter-rater reliability was 0.8; intra-rater reliability for each of the two personnel was 0.941 and 0.936. Forty-nine parent/child dyads participated. 11 (22%) children had poor behavior. 40 (82%) children presented with their mother. 35 (100%) of parents had the authoritative parenting style. Patients with good behavior had parents who scored higher on the warmth domain of the PCRQ than patients with poor behavior (P=0.041), though this is not clinically significant. White or African American children were more likely to cooperate (P=.0006). When analyzing treated patients only, patients

of parents who believe access to care includes braces were significantly more likely to have poor behavior than to have good behavior (P=.0361).

Conclusion: 100% of parents exhibited the authoritative parenting style. Patients who received treatment and whose parents believe access to care includes “braces” were more likely to have poor behavior. Patients who were not African American or white were more likely to have poor behavior.

Dedication

This document is dedicated to my family.

Acknowledgments

I would like to thank my committee for their time and support throughout the project. Without their wisdom and guidance, this project would not be possible in any way. I am forever grateful to have been able to learn from them. I would also like to thank Katie Seymour and Debbie Weatherby for the countless hours they dedicated to the project.

Vita

May 2007 .....Pickerington High School North

May 2011 .....B.S. Biology, The Ohio State University

May 2015 .....D.M.D., Harvard School of Dental Medicine

2015 to present .....Dental Resident, Division of Pediatric Dentistry, The Ohio State University

Publications

Lee S, Betenksy R, Gianneschi G, Galluci G. Accuracy of digital versus conventional implant impressions. *Clin Oral Implants Res,* 2015; 26(6): 715-720.

Fields of Study

Major Field: Dentistry

Table of Contents

Abstract ii

Dedication iv

Acknowledgments v

Vita vi

List of Tables viii

Chapter 1: Introduction 1

Chapter 2: Methods 8

Chapter 3: Results 16

Chapter 4: Discussion 35

Chapter 5: Conclusion 45

References 46

Appendix A: Parenting Styles and Dimensions Questionnaire 51

Appendix B: Parent-Child Relationship Questionnaire 53

Appendix C: Sociodemographic Survey 56

Appendix D: Appointment Documentation Sheet 60

Appendix E: Frankl Scale for Behaviors 62

List of Tables

Table 1. Patient Characteristics 18

Table 2. Caregiver Characteristics 19

Table 3. Environmental Characteristics 21

Table 4. Summary of Care-Seeking Behavior 22

Table 5. Meaning of Oral Health Access 23

Table 6. Summary of Parenting Style and Patient Age 24

Table 7. Parenting Style vs. Behavior 24

Table 8. Behavior by Patient Characteristics 26

Table 9. Behavior by Parent Characteristics 26

Table 10. Behavior by Environmental Characteristics 27

Table 11. Behavior by Meaning of Access to Oral Health Care 28

Table 12. Parenting Style vs. Behavior, Treated Patients 29

Table 13. Behavior vs. Patient Characteristics, Treated Patients 30

Table 14. Behavior vs. Parent Characteristics, Treated Patients 30

Table 15. Behavior vs. Environmental Characteristics, Treated Patients 31

Table 16. Behavior vs. Meaning of Access to Oral Health Care, Treated Patients 32

Table 17. Behavior vs. Treatment or No Treatment 33

Table 18. Behavior vs. Type of Treatment 33

Table 19. Behavior vs. Nitrous Oxide Use 33

Table 20. Behavior vs. Local Anesthetic Use..... 33

Table 21. Behavior vs. Patient Gender 34

Table 22. Behavior vs. Provider Gender..... 34

Chapter 1: Introduction

One of the major challenges that pediatric dentists face is patient behavior. The ability to accurately predict or anticipate patient behavior can help pediatric dentists provide high quality and safe dental treatment. There have been many studies that have attempted to elucidate patterns in child behavior in the dental setting.

It has been suggested that children with general emotional and behavioral problems may exhibit more dental anxiety and more behavioral management problems in the dental setting [1]. Specifically, children with oppositional defiant disorder (ODD) and attention-deficit/hyperactivity disorder (ADHD) have been shown to have more behavior management problems, dental anxiety, and higher decayed, missing, and filled teeth (DMFT/dmft) scores [2]. Eighteen percent of US children under the age of 18 in 1994 (12.6 million) had a developmental and/or behavioral disorder, and 2.4 million US children had problems controlling behavior at school [3]. According to the 2011/2012 National Survey of Children's Health, 7.9% of US children aged 2 through 17 have a diagnosis of ADHD. 7.6% of US children are on medications for ADHD, emotions, concentration, or behavioral issues. Current results from this survey can be accessed at http://www.childhealthdata.org/browse/survey/results?q=2482&r=1. This survey is supported by each state's Title V legislation and the federal Maternal and Child Health Bureau, the National Center for Health Statistics, and the Centers for Disease Control and

Prevention [4]. It is therefore reasonable to expect that many children seen by both general and pediatric dentists will present with behavioral challenges.

Dental fear and anxiety (DFA) and dental behavior management problems (DBMP) can both contribute to the outcome of the dental visit [5, 6]. The frequency of reported dental behavior management problems varies according to source but has been reported between 8 and 10.5% [7, 8]. According to Klingberg, Vannas Lofqvist et al 1994, Swedish children with behavior management problems had more carious and fewer filled tooth surfaces. The prevalence of parent-reported child dental fear and anxiety also varies between 5.7 and 6.7% [9, 10] whereas dental fear and anxiety as reported by children has been reported between 7.1 and 19.5% [11-13]. Higher incidence of dental fear and anxiety has been reported for children from low socioeconomic backgrounds [13].

The relationship of personality and dental behavior has been studied as well. Withdrawn, less approachable, or shy children are more likely to exhibit uncooperative behavior during a dental examination [14, 15], whereas an extraverted personality has been associated with better behavior [16]. Additionally, shyness has been shown to predict disruptive behavior before general anesthesia for dental surgery [17]. However, Arnrup et al 2002 assessed dental and general fear of both an uncooperative and cooperative group of Swedish children. They found higher levels of dental fear and impulsivity in the uncooperative group, but noted that these uncooperative patients showed heterogeneity as four different personality subgroups were evident. They concluded that there is not one personality that is related to uncooperative behavior, but

that uncooperative children represent a broad group with variation in level of dental anxiety, intelligence, temperament, and behavior [18].

Another factor that may play a role in patient behavior is the role of the parent. Parent behavior and parent anxiety have been related to patient dental behavior. An anxious parent or a parent with dental fear can negatively affect the child's behavior at the dental office [10, 19-21]. In 2010 a meta-analysis demonstrated a significant relationship between parental and child dental fear [22]. Further, Allen and colleagues, in addition to demonstrating that age can predict child behavior at a restorative visit, found that parents who do not set firm limits (and who are comfortable with this approach to parenting) were more likely to have children who were disruptive for operative treatment [23].

Psychological research qualifies and assesses parenting based on parenting behaviors and parenting styles. Diana Baumrind's groundbreaking research from the 1960s (which largely focused on preschool children from white, middle class American industrial society) described three parenting styles based on two axes of parental behavior, control and warmth. These three parenting styles have become the foundation to the science of studying parenting. Authoritative (high control, high warmth) parents are both demanding and responsive. They exhibit high control, and monitor and enforce clear standards for the child's behavior. They are also warm, rational, and receptive to the child, and their disciplinary methods are supportive rather than punitive. Children of these parents were the most self-reliant, self-controlled, and content with themselves in Baumrind's studies. Authoritarian (high control, low warmth) parents are demanding, but

not responsive. They are obedience-oriented and expect orders to be followed without explanation. They outline a clear set of expectations and monitor their children's activities carefully. Children of authoritarian parents were more withdrawn and distrustful than their peers in Baumrind's studies. Permissive (low control, high warmth) parents are more responsive than they are demanding. They exhibit little control and are lenient, do not require mature behavior, and avoid confrontation, but are warm and doting. In Baumrind's studies, children of permissive parents were the least self-reliant and least self-controlled [24, 25].

A fourth parenting style, neglectful, was later described by Maccoby and Martin [26]. Neglectful (low control, low warmth) parents are disengaged, do not structure or monitor their children, and are not supportive [25]. Neglectful parents do not volunteer to be studied and therefore very little is known about this parenting style. For these reasons we have not included neglectful parenting in this study.

Parents, as primary caregivers, have tremendous influence over the development of the child's personality, character, and competence [27]. Parents play integral roles in child wellbeing, social and cognitive development, and academic performance. Children with authoritative parents have been shown to exhibit less risky behavior, better academic achievement and grades, and better competence in general [25, 28-38]. A 2016 study has demonstrated a relationship between permissive parenting and poorer mental health and increased stress during college [31]. A child's behavior toward authority and toward adults in general varies according to different parenting styles. Children of permissive parents are more likely to be defiant of authority figures, whereas children of

authoritative parents are more likely to be respectful of authority; thus parenting styles can affect the way a child interacts with the dentist [39-41]. Parenting style is also an essential determinant of a child's coping mechanisms, which are utilized during a dental visit, particularly if a child feels stressed or anxious [6, 28, 42].

Due to the pervasive influence of parenting style on child development and competence, it is expected for parenting style to play a role in child dental behavior. Past studies by Aminabadi et al 2015 and by Howenstein et al 2014 have investigated the correlation between patient behavior and parenting style. These studies have documented a significant correlation between patient behavior and parenting style in routine operative visits and in hygiene visits, respectively [43, 44]. Howenstein et al found that children with authoritative parents show significantly more positive behavior and fewer caries compared to children with authoritarian and permissive parents during hygiene visits [44]. Aminabadi demonstrated a relationship between permissive parenting style and poor patient behavior, and a relationship between authoritative parenting style and both positive patient behavior and low levels of patient anxiety [43]. Carstens et al 2015 studied the relationship between parenting style, patient behavior, and BMI for patients presenting for operative visits in private practice. This study demonstrated that the more permissive the parent, the more likely that the child will exhibit negative behavior at some point during the a restorative visit [45].

No study to date has attempted to correlate parenting style and patient behavior in patients presenting for emergency dental visits. Emergency visits are interesting to study because of the unique circumstance of the emergency appointment. There has been some

evidence that many children with oral health problems do not receive routine dental care, and that pediatric patients from a lower SES and who use state-funded insurance are more likely to seek emergency services for dental problems [46-48]. Finally, it has been demonstrated that patients who are likely to have a lower SES and whose dental care is covered by Medicaid exhibit more negative behavior, a poor ability to cope with stress, more behavior management problems, and have less involved, more authoritarian parents [49, 50]. Conversely, a trend between higher SES and more positive patient behavior has been observed, though this result was not statistically significant [51]. Therefore, this study aimed to explore potential relationships between patient behavior, sociodemographics, and parenting style for those patients who present to emergency, rather than planned operative, visits.

Lastly, in the past several decades, parenting styles have changed [34, 52, 53] and parents increasingly prefer to be present in the dental operatory [54]. Furthermore, parental satisfaction with a dental visit is increased if their desire to remain present in operatory is met [55]. However, many pediatric dentists consider parent presence in the operatory to contribute to worsening patient behavior [52]. This means that now more than ever, pediatric dentists must manage relationships with the parent while operating, and they must manage the relationship the parent has with his or her child.

Knowing how parenting style and patient behavior are related, especially during emergency visits, may help clinicians better navigate more complicated lines of communication now that parents are more often present in the operatory.

This study has the potential to elicit greater understanding of the population presenting to the dental clinic for emergent visits. This study can help practitioners better anticipate behavior and more effectively and efficiently communicate with both parent and child to increase parental, child, and provider satisfaction with the dental visit.

The primary objectives in this study are to evaluate the relationships between 1) parenting style and patient behavior, 2) patient behavior and sociodemographics, and 3) parenting style and sociodemographics for patients presenting for emergency walk-in visits. Specifically, we aim to determine whether a difference in behavior at an emergency visit is related to different parenting styles and sociodemographic information.

Hypothesis: Children whose parents have a more authoritative parenting style will exhibit more positive behavior for emergency walk in visits. Children whose parents are either more authoritarian or permissive or demonstrate more power assertion will exhibit less positive behavior.

Chapter 2: Methods

This study was approved by the Human Subjects Committee of Nationwide Children's Hospital, Columbus, Ohio (IRB16-00096).

Sample

The sample was drawn from patients presenting to Nationwide Children's Hospital for their first emergency dental visit. Selection criteria for inclusion were: three- to six- year-old patients; English speaking; presenting for a first emergent visit; no known medical conditions limiting cognitive development; no diagnosed chronic medical conditions; and no diagnosed behavior disorders (other than ADHD). Additionally, to be included, patients must have presented with parent(s) or long-term caregivers.

Procedure

Patients were electronically screened for initial eligibility upon presentation to the dental clinic as an emergency purely on convenience of research assistant schedule availability. One of six second-year pediatric dental residents (two male, four female) managed each emergency walk-in patient and was blind to all study data, parent surveys, and patient behavior surveys. The operating dentist confirmed lack of medical conditions that would exclude the patient from eligibility. If parent(s) agreed to participate and inclusion criteria were confirmed, parent(s) were read the information sheet by one of

two trained, calibrated research assistants and given two anonymous, self-administered questionnaires, the Parenting Styles and Dimensions Questionnaire (PSDQ) and the Parent-Child Relationship Questionnaire (PCRQ) and an additional demographic survey to complete (Appendices A, B, C, respectively). Research assistants were required to not have interaction with the patient until after completion of the appointment. Normal procedure for an emergency visit was followed: the operating dentist gathered information regarding medical history, history of present illness, and chief complaint, completed examination and any necessary vitality tests. Radiographs, if necessary, were taken. Treatment, if necessary, was completed according to the standard procedures for operative and restorative dentistry. Referrals to general anesthesia, sedation, or a specialist, if necessary, were placed according to standard protocol. Patient behavior was monitored and scored by one of two trained, calibrated research assistants, who was present in the operatory throughout the entire visit but engaged in no verbal or nonverbal communication with the child. The research assistant recorded the child's behavior in the appointment documentation sheet (Appendix D) at specific intervals throughout the visit, and additionally gave a single overall behavior score. If one of the specific intervals on the sheet did not occur, that portion of the documentation sheet was left blank. The overall score was not a mathematical average, but rather was the research assistant's single impression of the behavior throughout the entire visit as a whole, and was guided by the behavior rating at each of the intervals. Treatment rendered was also documented on the appointment documentation sheet. Questionnaires were collected by the research assistant prior to the patient and parent leaving. No PHI was collected. Data from the

questionnaires and the behavior scores were transferred to a spreadsheet (Excel, Microsoft Corp., Redmond, Wash., USA).

Instruments

Parenting Styles and Dimensions Questionnaire (PSDQ) (Appendix A)

The PSDQ is a questionnaire containing 32 statements concerning different parenting practices [56]. This is a shortened, validated, and reliable version of the Primary Caregiver's Practice Report. The questionnaire takes approximately 15 minutes to complete and was used for time and convenience considerations. The questionnaire presents a series of statements, each representing one of Baumrind's parenting styles (authoritative, authoritarian, and permissive) [24]. For example, 'I emphasize the reasons for rules' represents the authoritative parenting style, and 'I spoil our child' represents the permissive parenting style. The parent is asked to rank each statement on a 5-point Likert scale (1:never, 2:once in a while, 3:half the time, 4:very often, and 5:always) regarding how often they and their partner (if applicable) exhibit each behavior. Both fathers and mothers of school-aged children can complete the PSDQ.

Scoring of the PSDQ classifies parents into one of the three parenting styles. Mean scores for each parenting style are determined, and the category with the highest mean score represents the parent's parenting style [56, 57]. Each scale can also be interpreted as a range of that parenting style, e.g. how strongly permissive or how strongly authoritative is the parent [58].

The PSDQ-shortened version parenting style categories and subcategories are the following (see Appendix A for specific questions):

1. Authoritative parenting style (15 questions): Subfactor 1: Connection Dimension- warmth and support- items #1, 7, 12, 14, 27. Subfactor 2: Regulation Dimension- reasoning and induction- items #5, 11, 25, 29, and 31. Subfactor 3: Autonomy Dimension- democratic participation- items #3, 9, 18, 21, 22. Sum all 15 scores and divide by 15 to obtain mean.

2. Authoritarian parenting style (12 questions): Subfactor 1: Physical Coercion- items #2, 6, 19, 32. Subfactor 2: Verbal Hostility- items #13, 16, 23, 30. Subfactor 3: Non-reasoning/Punitive Dimension- items #4, 10, 26, 28.

3. Permissive parenting style (5 questions): Factor 1: Indulgent Dimension- items #8, 15, 17, 20, 24.

Parent-Child Relationship Questionnaire (PCRQ) (Appendix B)

The PCRQ "brief version" is a questionnaire containing 40 statements assessing the quality of the parent-child relationship [59]. It assesses the five domains of the child-parent relationship: warmth (affection, admiration of parent, admiration by parent), disciplinary warmth (praise, shared decision making), power assertion (dominance, disagreement, punishment by deprivation of privilege), personal relationship (intimacy, nurturance, companionship), and possessiveness (protectiveness) [59, 60]. For example, 'How much do you tell this child what to do?' analyses the power assertion domain, and 'How much do you feel proud of this child?' represents the warmth domain. The parent is

asked to rank each statement on a 5-point Likert scale (1:hardly at all, 2:not too much, 3:somewhat, 4:very much, and 5:extremely much). The questionnaire takes about 10 minutes to complete and was chosen for time and convenience considerations.

See Appendix B for specific questions. Warmth is scored by 6 items (range of scores 0-30, questions #3, 11, 12, 22, 30, 31), disciplinary warmth by 6 items (range of scores 0-30, questions #7, 16, 19, 26, 35, 38), power assertion by 12 items (range of scores 0-60, questions #4, 8, 10, 13, 15, 18, 23, 27, 29, 32, 34, 37), personal relationship by 10 items (range of scores 0-50, questions #5, 6, 9, 14, 17, 24, 25, 28, 33, 36), and possessiveness by 6 items (range of scores 0-30, questions #1, 2, 20, 21, 39, 40) [61]. Mean scores for each domain are calculated. Scoring does not classify into one parenting domain but a higher mean score indicates higher strength of that domain.

The authors of this questionnaire, Furman and Giberson, reported that the domains of “warmth,” “personal relationship,” and “power assertion” have high levels of internal consistency (alpha >.85) [59]. Overall internal consistency for mothers on all five domains have been demonstrated to be between 0.71 and 0.83 [62].

Sociodemographic Survey (Appendix C)

The 23 question demographic survey gathered information regarding the child and the family: race/ethnicity, marital status, educational level, household income, number of children, daycare status, health information, oral health information (Appendix C). This demographic survey was included to determine whether relationships existed between any sociodemographic variables and other variables involved in the study.

No protected health information was collected for this study. The research assistant recorded patient age, gender, provider gender, chief complaint, and treatment rendered on the Appointment Documentation Sheet (Appendix D).

The Frankl Scale was used to determine patient behavior at up to 8 specific intervals during the visit and at the end of the visit to rate overall behavior as a whole (Appendix E). The intervals chosen represent those used in prior dental behavioral research conducted by Dr. Stephen Wilson [63]. This behavior rating scale is the most commonly used behavior rating scale in pediatric dentistry, and it has shown to be reliable and valid [23, 64]. There are four ratings with higher scores representing more cooperative and more positive behavior:

1 (-/-) Refusal of treatment, forceful crying, fearfulness, or any other event of extreme negativism.

2 (-) Reluctance to accept treatment, uncooperative, some evidence of negative attitude but not pronounced (sullen, withdrawal).

3 (+) Acceptance of treatment, cautious behavior at times, willingness to comply with the dentist, at times with reservation, but patient follows directions cooperatively.

4 (+/+) Definitely positive. Good rapport with the dentist, interest in the dental procedures, laughter and enjoyment.

Calibration Procedures

A previous study at Nationwide Children's Hospital by Howenstein et al 2014 validated a series of six videos showing different children's behavior during dental visits in demonstrating Frankl behavior scores: a panel of pediatric dental experts were trained and calibrated on the Frankl Scale; then they each reviewed the videos and independently scored the viewed behavior. The scores yielded an intra-class coefficient correlation of 1, thus validating the videos for use [44]. The same videos from Howenstein et al 2014 were used for calibration for this study.

The research assistants evaluating patient behavior in this study consisted of a fourth year dental student and a dental assistant. At no time was either member involved in any patient care or patient interaction. Each individual was calibrated to use the Frankl Scale to rate child behavior. Following calibration, each individual was shown the six validated videos and scored the behavior for each scenario using the Frankl Scale. This process was repeated for each individual 60 days later, and again at the completion of data collection to determine intra-rater and inter-rater reliability.

To further assess inter-rater reliability, approximately 75% through data collection, both research assistants simultaneously rated the behavior of 10 full patient visits at the dental clinic of Nationwide Children's Hospital. Consent was obtained from the parent for both assistants to observe the same patient for the length of the visit without interacting with parent, patient, or with each other in any regard. After completion of each appointment, a single Frankl Score was recorded independently by each research assistant. The procedures watched were as follows: four hygiene

appointments (average patient age: 6.5 years), three routine operative appointments (average patient age 7 years), and three emergency walk-in appointments (average patient age: 7 years).

Chapter 3: Results

All analyses were conducted using SAS 9.4 (SAS Institute, Cary, NC), with two-sided p-values <0.05 considered statistically significant. Group comparisons were assessed using Wilcoxon rank sum tests for continuous variables (parenting style vs. behavior, parenting style vs. sociodemographic data, age vs. behavior) and chi-square or Fisher's exact tests for categorical variables (behavior vs. sociodemographic data). The association between pairs of continuous variables was examined using Spearman correlation coefficients (parenting style vs. age).

For research assistant calibration, overall inter-rater reliability (scores from both videos and in-patient observation) was determined using Spearman's correlation coefficient to be 0.8 (0.408-0.945). Intra-rater reliability was determined to be 0.941 (0.811-0.988) for the dental student and 0.936 (0.799-0.988) for the dental assistant using Spearman's correlation coefficient. Both inter-rater reliability and intra-rater reliability were excellent.

49 patients were included in the analysis. The "Overall Behavior" Frankl scores were used for behavior analyses. 1 patient (2%) had a Frankl score of 1 (-/-), 10 patients (20%) had a score of 2 (-), 16 patients (33%) had a Frankl score of 3 (+), and 22 patients (45%) had a score of 4 (+/+). For the remainder of the analysis, behavior was classified as good (+ or +/+) vs. poor (- or -/-). Where data were incomplete, because some parents

only answered one parenting questionnaire, or omitted answers from the sociodemographic survey, those data were not included for the analysis of that portion only. Tables 1-6 summarize the characteristics of patients as well as those of their caregivers and their environment. Over half of patients (57%) were male and most were African American (41%) or white (43%). 79% of patients do not attend daycare, and 81% were on Medicaid. 8% of patients had a comorbidity; 100% of these comorbidities were ADHD and thus were included for analysis. The majority of patients (63%) watch 2 hours or less of TV per day.

Table 1: Patient Characteristics

Variable	N	%
Patient Gender		
Female	21	42.86
Male	28	57.14
Patient Race		
African American	20	40.82
White	21	42.86
Asian or Pacific Islander	2	4.08
Hispanic or Latino	3	6.12
Native American	1	2.04
Other	2	4.08
Daycare		
No	38	79.17
Yes	10	20.83
Medicaid		
No	9	18.75
Yes	39	81.25
Private Insurance		
No	36	75
Yes	12	25
No Insurance		
No	45	93.75
Yes	3	6.25
Comorbidity		
No	44	91.67
Yes	4	8.33
Hours of TV		
< 1hr	2	4.17
1-2 hrs	28	58.33
3-4 hrs	17	35.42
>4 hrs	1	2.08

Caregiver characteristics are illustrated in Tables 2a and 2b. Most of the respondents were the mother (82%), and mothers were listed as the primary caregiver in nearly all cases, either alone or in conjunction with the father. 43% of parents were

married, 39% of the parents were single, never married. 65% of parents were aged 18-34. 33% of parents were college educated, and 79% were employed (13% of those employed were self-employed). 73% of respondents had a yearly household income of less than $40,000.

Table 2: Caregiver Characteristics

Variable	N	%
Relationship to Patient		
Mother	40	81.63
Father	4	8.16
Grandparent	5	10.2
Marital Status		
Single, never married	19	38.78
Married or domestic partnership	21	42.86
Separated	2	4.08
Divorced	4	8.16
Widowed	1	2.04
Prefer not to state	2	4.08
Primary Caregiver		
Grandparent only	4	8.51
Mother and Father	22	46.81
Mother only	21	44.68
Parent age		
18-24	7	14.29
25-34	25	51.02
35-44	13	26.53
45-54	3	6.12
55-64	1	2.04

(Continued)

Table 2: Continued

Variable	N	%
Highest Education		
No schooling	2	4.17
Some HS	2	4.17
HS Graduate	16	33.33
Some College	11	22.92
Trade/Technical/Vocational training	1	2.08
College Degree	14	29.17
Graduate/Professional degree	2	4.17
Employment		
Employed for wages	32	66.67
Self-Employed	6	12.5
Out of work, looking	2	4.17
Out of work, not looking	2	4.17
Homemaker	3	6.25
Unable to work	1	2.08
Other	1	2.08
Prefer not to state	1	2.08
Income		
<$10,000	7	15.56
$10,000-19,999	11	24.44
$20,000-29,999	6	13.33
$30,000-39,999	9	20
$40,000-49,000	7	15.56
$50,000+	5	11.11

Table 3 illustrates environmental characteristics. Most respondents always feel safe in their neighborhood and live in an urban setting.

Table 3: Environmental Characteristics

Variable	N	%
# Children in HH		
1	9	18.37
2	18	36.73
3	10	20.41
4	9	18.37
5+	3	6.12
Neighborhood Safety		
Sometimes Safe	1	2.08
Usually Safe	18	37.5
Always Safe	29	60.42
Area		
City/Urban	37	77.08
Rural	11	22.92

Table 4 summarizes care-seeking behavior. Most respondents (67%) had not taken a child to the ED/UC recently. Nearly all (93%) take their children for routine well child checks. 42% of patients see a dentist “never” or “sometimes” (less than every 6-8 months).

Table 4: Summary of Care-Seeking Behavior

Variable		N	%
UC/ED visits			
	0	32	66.67
	1	11	22.92
	2	3	6.25
	3+	2	4.17
Other appointment			
No		46	
Yes		2	
Routine WCC			
No		3	6.25
Yes		45	93.75
	When young	3	6.67
	Yearly	42	93.33
See a Dentist			
No		11	22.92
Sometimes		9	18.75
Yes		28	58.33
Up to Date Vaccines			
No		2	4.26
Yes		45	95.74

The most common response for what oral health means to the caretaker is absence of cavities, followed by fixed cavities; the most common choice for access to care is availability of regular cleanings (Table 5).

Table 5: Meaning of Oral Health Access

Variable	N	%
Meaning of Oral Health:		
No Pain	16	33.33
White Teeth	23	47.92
Fixed Cavities	24	50
No Cavities	29	60.42
Meaning of Access to Care		
Regular cleanings	43	89.58
Dental fillings	25	52.08
Braces	20	41.67
Urgent care	25	52.08
Accept payment	24	50
Call with questions	22	45.83

Table 6 summarizes patient age and parenting style. Median patient age was 5.3 years. 100% of parents' means were highest for the authoritative parenting style for the PSDQ questionnaire, thus 100% of parents were determined to be of the authoritative parenting style. Therefore, the degree of each of the three parenting styles from the PSDQ was used for comparisons rather than the single categorical parenting style for each parent. 100% of parents scored highest on the warmth domain for the PCRQ questionnaire.

Table 6: Summary of Parenting Style and Patient Age

Variable	Median	IQR
Patient Age	5.3	(4.4,6.2)
PSDQ		
Authoritarian	1.6	(1.4,1.8)
Authoritative	4.3	(3.7,4.7)
Permissive	2	(1.6,2.6)
PCRQ		
Warmth	4.8	(4.5,5)
Disciplinary Warmth	4.2	(3.7,4.3)
Power Assertion	2	(1.7,2.3)
Possessiveness	3.5	(3,3.8)
Personal Relationship	4.2	(3.9,4.5)

Table 7: Parenting Style vs. Behavior

	Poor Behavior (N=11)		Good Behavior (N=38)			
Parenting Style	Median	IQR	Median	IQR	p-value	Cliff's D
PSDQ						
Authoritarian (n good=35)	1.5	(1.17,1.75)	1.58	(1.42,1.83)	0.187	0.255682
Authoritative (n good=35)	4.4	(3.67,4.73)	4.33	(3.73,4.67)	0.877	0.056818
Permissive (n good=35)	1.8	(1.6,2.8)	2	(1.8,2.6)	0.7076	0.090909
PCRQ						
Warmth	4.5	(4.17,4.83)	4.92	(4.67,5)	**0.041**	**0.4**
Disciplinary Warmth	3.83	(3.5,4.33)	4.17	(3.83,4.33)	0.1692	0.28052
Power Assertion	2	(1.67,2.5)	1.96	(1.58,2.25)	0.5247	0.158442
Possessiveness	3.5	(3.17,3.83)	3.42	(3,3.83)	0.8753	0.038961
Personal Relationship	4	(3.8,4.4)	4.3	(4,4.5)	0.2521	0.246753

Table 7 illustrates the results of the analysis between parenting style and behavior. Only the warmth domain on the PCRQ is statistically significantly different between patients with good vs. poor behavior. Patients with good behavior have parents who score higher on warmth than patients with poor behavior (p=0.041). This Cliff's Delta indicates that there is adequate power to detect a difference between the two groups.

There was no significant difference in patient age between patients with good behavior (median [IQR]=5.4 [4.4-6.2]) vs. poor behavior (median [IQR]=4.9 [4-6.7]) (p=0.6146) (Cliff's Delta=0.093). This Cliff's Delta indicates that there is not adequate power to detect a difference between the two groups, if there is one.

Table 8 summarizes patient behavior vs. patient characteristics. Patients in the "other" race category were significantly more likely than white or black patients to have poor behavior (p=0.0006). Behavior was not significantly associated with having Medicaid (p=0.5963).

Behavior was not significantly associated with caregiver gender, marital status, parent age, education, income, or employment status. Patients who present with mother exhibited a greater proportion of better behavior: 87% of patients who had good behavior presented with mom, vs. 64% percent who had poor behavior presented with mom. However, this does not reach statistical significance (Table 9).

Table 8: Behavior by Patient Characteristics

	Poor Behavior (N=11)		Good Behavior (N=38)		
Variable	N	%	N	%	p-value
Female	5	45	16	42	>0.9999
Patient Race					
African American	1	9	19	50	
White	4	36	17	45	
Other	6	55	2	5	**0.0006**
Daycare	3	27	7	19	0.6754
Medicaid	6	75	24	86	0.5963
Comorbidity	0	0	4	11	0.5607
Chronic condition	1	9	4	11	>0.9999
3+ Hours of TV	5	45	13	35	0.7243

Table 9: Behavior by Parent Characteristics

	Poor Behavior (N=11)		Good Behavior (N=38)		
Variable	N	%	N	%	p-value
Variable	N	%	N	%	
Mother	7	64	33	87	0.1786
Married or domestic partnership	5	45	16	42	>0.9999
Parent age 35+	4	36	13	34	>0.9999
Education					
HS or Less	5	45	15	41	
Some College/Trade	1	9	11	30	
College Degree	5	45	11	30	0.3451
Employed	10	91	28	76	0.4156
Income					
<$10,000-19,999	3	27	15	44	
$20,000-39,999	6	55	9	26	
$40,000+	2	18	10	29	0.2835

In general, patients from households with only one child were more likely to have poor behavior, and those from households with 4+ children were more likely to have good behavior (p=0.027) (Table 10). Behavior was not significantly associated with perceived neighborhood safety or care seeking behavior. Moreover, behavior was not significantly associated with how parents define oral health or access to care (Table 11).

Table 10: Behavior by Environmental Characteristics

		Poor Behavior (N=11)		Good Behavior (N=38)		
Variable		N	%	N	%	p-value
# Children in HH						**0.027**
	1	4	36	5	13	
	2	3	27	15	39	
	3	4	36	6	16	
	4+	0	0	12	32	
Do not always feel safe in neighborhood		2	18	17	46	0.1611
Rural		1	9	10	27	0.4153
Any UC/ED visits		3	27	13	35	0.7289
Other appointment		0	0	2	5	>0.9999
Routine WCC						
See a dentist						0.8962
No		3	27	8	22	
Sometimes		2	18	7	19	
Yes		6	55	22	59	

Table 11: Behavior by Meaning of Access to Oral Health Care

	Poor Behavior (N=11)		Good Behavior (N=38)		
Variable	N	%	N	%	p-value
Meaning of Oral Health:					
No Pain	5	45	11	30	0.4682
White Teeth	5	45	18	49	0.8523
Fixed Cavities	7	64	17	46	0.3029
No Cavities	9	82	20	54	0.1611
Meaning of Access to Care					
Regular cleanings	10	91	33	89	>0.9999
Dental fillings	7	64	18	49	0.3823
Braces	7	64	13	35	0.1622
Urgent care	7	64	18	49	0.3823
Accept payment	7	64	17	46	0.3029
Call with questions	4	36	18	49	0.4728

Patients who received any form of treatment (i.e. did not have examination and dental health education only or examination and referral) were analyzed separately. The following tables illustrate results from comparisons with treated patients only. Among only treated patients, none of the parenting style domains were significantly associated with behavior. Moreover, the effect size was negligible for all domains (Table 12).

Table 12: Parenting Style vs. Behavior, Treated Patients

Parenting Style	Poor Behavior (N=8) Median	IQR	Good Behavior (N=29) Median	IQR	p-value	Cliff's D
PSDQ						
Authoritarian (n good=26)	1.5	(1.29,1.67)	1.63	(1.42,1.83)	0.2286	0.28846
Authoritative (n good=26)	4.41	(3.73,4.77)	4.37	(3.8,4.67)	0.7604	0.07692
Permissive (n good=26)	2.1	(1.5,2.65)	2	(1.8,2.5)	0.6829	0.100962
PCRQ						
Warmth	4.75	(4.25,4.92)	4.83	(4.67,5)	0.2695	0.25
Disciplinary Warmth	4	(3.58,4.33)	4.17	(3.67,4.33)	0.7661	0.073276
Power Assertion	1.96	(1.75,2.38)	2	(1.58,2.25)	0.7533	0.077586
Possessiveness	3.5	(3.25,3.75)	3.5	(3,3.83)	0.7371	0.081897
Personal Relationship	4.2	(3.85,4.4)	4.3	(4,4.5)	0.6694	0.103448

There was no significant difference in patient age between treated patients with good behavior (median [IQR]=5.6 [4.7-6.2]) vs. poor behavior (median [IQR]=5.8 [4.5-6.7]) (p=0.5546) (Cliff's Delta=0.142). This Cliff's Delta indicates that there is not adequate power to detect a difference between the two groups, if there is one.

Among treated patients, patients in the "other" race category were significantly more likely than white or black patients to have poor behavior (p=0.0094) (Table 13). Behavior was not significantly associated with parent characteristics (Table 14) or environmental characteristics (Table 15).

Table 13: Behavior vs. Patient Characteristics, Treated Patients

Variable	Poor Behavior (N=8) N	%	Good Behavior (N=29) N	%	p-value
Female	4	50	13	45	>0.9999
Patient Race					**0.0094**
African American	1	13	16	55	
White	3	38	11	38	
Other	4	50	2	7	
Daycare	1	13	4	14	>0.9999
Medicaid	8	73	31	84	0.4091
Comorbidity	0	0	2	7	>0.9999
Chronic condition	1	13	2	7	0.5412
3+ Hours of TV	3	28	10	36	>0.9999

Table 14: Behavior vs. Parent Characteristics, Treated Patients

Variable	Poor Behavior (N=8) N	%	Good Behavior (N=29) N	%	p-value
Mother	6	75	25	86	0.5913
Married or domestic partnership	3	38	11	38	>0.9999
Parent age 35+	2	25	9	31	>0.9999
Education					0.1168
HS or Less	4	50	9	32	
Some College/Trade	0	0	10	36	
College Degree	4	50	9	32	
Employed	7	88	20	71	0.6478
Income					
<$10,000-19,999	3	38	13	50	
$20,000-39,999	3	38	7	27	
$40,000+	2	25	9	23	0.8737

Table 15: Behavior vs. Environmental Characteristics, Treated Patients

Variable		Poor Behavior (N=8) N	%	Good Behavior (N=29) N	%	p-value
# Children in HH						0.1821
	1	3	38	4	14	
	2	3	38	13	45	
	3	2	25	4	14	
	4+	0	0	8	28	
Do not always feel safe in neighborhood		1	13	11	39	0.1564
Rural		0	0	6	21	0.302
Any UC/ED visits		1	13	11	39	0.2236
Other appointment		0	0	1	4	>0.9999
See a dentist						0.8399
No		0	0	4	14	
Sometimes		2	25	7	25	
Yes		6	75	17	61	

Among treated patients, patients of parents who believe access to care includes braces were significantly more likely to have poor behavior than to have good behavior (p=0.0361) (Table 16).

Table 16: Behavior vs. Meaning/Access to Oral Health Care, Treated Patients

Variable Behavior vs. Meaning/Access to Oral Health Care, Treated Patients	Poor Behavior (N=8)		Good Behavior (N=29)		
	N	%	N	%	p-value
Meaning of Oral Health:					
No Pain	4	50	7	25	0.2137
White Teeth	4	50	11	39	0.694
Fixed Cavities	6	75	12	43	0.2285
No Cavities	6	75	15	54	0.4241
Meaning of Access to Care					
Regular cleanings	8	100	25	89	>0.9999
Dental fillings	6	75	13	46	0.2357
Braces	6	75	8	29	**0.0361**
Urgent care	6	75	13	46	0.2357
Accept payment	5	63	12	43	0.4338
Call with questions	3	38	12	43	>0.9999

Behavior was not significantly associated with having treatment versus having no treatment (Table 17). Behavior was not significantly associated with having extraction(s) (with or without restorative treatment) versus having restorative treatment without extraction(s) (Table 18). Additionally, behavior was not significantly associated with nitrous oxide use, local anesthetic use, patient gender, or provider gender (Tables 19-22, respectively).

Table 17: Behavior vs. Treatment or No Treatment

	Poor behavior		Good behavior		
	N	%	N	%	p-value
Treatment	8	73	31	78	0.7410
No tx, refer only	3	27	9	22	

Table 18: Behavior vs. Type of Treatment

	Poor behavior		Good behavior		
	N	%	N	%	p-value
Extraction +/- rest	5	56	18	67	0.6933
Restorative only	4	44	9	33	

Table 19: Behavior vs. Nitrous Oxide Use

	Poor behavior		Good behavior		
Nitrous Oxide use	N	%	N	%	p-value
Yes	7	64	31	78	0.3501
No	4	36	9	22	

Table 20: Behavior vs. Local Anesthetic Use

	Poor behavior		Good behavior		
Local Anesthetic use	N	%	N	%	p-value
Yes	7	64	31	78	0.3501
No	4	36	9	22	

Table 21: Behavior vs. Patient Gender

	Poor behavior		Good behavior		
Patient Gender	N	%	N	%	p-value
Female	5	45	17	43	0.8609
Male	6	55	23	57	

Table 22: Behavior vs. Provider Gender

	Poor behavior		Good behavior		
Provider Gender	N	%	N	%	p-value
Female	7	64	24	60	0.8268
Male	4	36	16	40	

Chapter 4: Discussion

The Parenting Styles and Dimensions Questionnaire has been used in several studies to compare parenting style to patient behavior for dental visits [43-45]. This study used the same questionnaire and found that 100% of parents were authoritative. It is remarkable that all parents were authoritative. We cannot draw conclusions about the likelihood of parenting style of parents of patients presenting to Nationwide Children's Hospital for an emergency walk-in because we have no other group for comparison. Carstens et al 2015 used the PSDQ to assess parenting style and patient behavior for patients presenting for routine operative visits in private practice [45]. His study found that 99% of parents were authoritative, 0.5% were authoritarian, and 0.5% were permissive. Howenstein et al in 2014 (published in 2015) used the PSDQ to compare parenting style and patient behavior for first hygiene visits at Nationwide Children's Hospital and found that 66% of parents were authoritative, 25% were permissive, 8% were authoritarian, and 1% were both authoritative and permissive [44]. When comparing Howenstein et al to our study, it is interesting to see such remarkably different proportions of parenting style for two studies both focusing on a very similar population: patients presenting to Nationwide Children's Hospital. Howenstein et al noted that 87% of patients had Medicaid. This is similar to the 81% of patients that had Medicaid for this study. He saw 55% males (this study 57%), 67% of patients were not in daycare (this

study 79%); both studies limited patients to those who were 3-6 years old, with similar inclusion criteria other than the reason for presentation (emergency vs. hygiene visit). Overall, there are many patient characteristics in common between the two populations. And yet, we see a remarkable difference in proportions of parenting style.

What might be the reason for this? Many studies have alluded to the possibility of response bias from the PSDQ and other parenting style questionnaires [45, 58]. Perhaps a parent may feel additional pressure to answer parenting style questions in a certain way when their child is present for an emergency because of a level of guilt or acknowledgement of less than ideal care for their child's oral health care, leading to the necessity of emergent treatment [65, 66]. There is no good way to know whether parents are answering questions without bias. One way to help reduce the risk of bias is to avoid collection of PHI and to reassure the parent of his/her confidentiality. However, if a parent could be assured that no one would be able to link him/her to his/her survey responses, perhaps less response bias would occur. REDCap [67] is a software program developed by Vanderbilt University in 2004. It allows for anonymous and confidential completion and submission of surveys. Responders can use iPads or a computer to submit surveys electronically rather than to a live person and with confidence that no one nearby can glance at their responses. REDCap can also assure that responders fill surveys completely by not allowing submission until all items have been completed.

Perhaps, though, the study by Carstens et al and this study indicate that the PSDQ (and for this study, the PCRQ as well) are not as valid in assessing today's parenting styles as they were when the surveys were originally created. Though there has been

extensive research supporting the PSDQ and Baumrind's parenting styles [28, 43, 68], there have been recent studies suggesting that parenting styles are changing. Parents now are more indulgent and are less willing to exert control over their children's behavior [34]. Parental shift toward increasing permissive parenting may lead to more defiant behavior in the dental setting [44]. Parents increasingly disapprove of corporal punishment and behavior management techniques involving physical elements such as hand over mouth [44, 45, 69]. Therefore, it is not unreasonable to expect that these parenting style questionnaires are less valid in determining parenting style today than when they were first established. The PSDQ was developed in 1995 and aimed to tap Baumrind's three parenting styles [56]. In recent years, use of this survey has exponentially increased. According to a 2013 review by Olivari et al, from 1995-2000, two articles were published using the PSDQ. From 2000-2009, 26 articles were published using the scale, and from 2010-2012, its use was published 25 times. However, most of these papers do not report their own reliability or validity data regarding the PSDQ, but instead cite the validities established when the survey was first developed over two decades ago [58]. The PCRQ and its accepted validities were established in the same era [59, 62]. How can we be certain these questions are valid today? With parents' and society's increasing disapproval of corporal punishment, is it reasonable to question if parents can answer PSDQ questions like, "I explode in anger towards our child," "I slap our child when the child misbehaves," and "I spank when our child disobeys" with honesty. With changes in parenting preference over time, changes in vernacular occur as well, and perhaps new wording of these questionnaires is necessary for them to be valid

today. We may even have entirely different parenting style(s) that are not tapped at all by the PSDQ and the PCRQ [70, 71].

This study has the potential to add to the knowledge of the current validity of the PSDQ and PCRQ. In analyzing the PSDQ and the PCRQ, we determined that our sample size had adequate power to detect statistically significant differences in parenting style, if they existed. To do this, we used Cliff's Delta, which conveys the effect size for non-parametric data. In general, effect sizes provide an estimate of the amount of "signal" (i.e. the difference between groups) in the data relative to the "noise" (i.e. the variability in scores). Therefore effect sizes can be small in two situations: when there is truly no difference between groups, or when there is too much variability in scores to be able to make a meaningful comparison. Lack of statistical significance in the context of a very small effect size is to be expected or even desired (because very small effect sizes are usually not clinically significant); lack of statistical significance in the context of a large effect size can indicate lack of statistical power due to inadequate sample size. For the warmth domain, it was found to be statistically significant ($p=0.041$) that patients with good behavior have parents who score higher on warmth than patients with poor behavior. The warmth domain from the PCRQ was also the only domain that had better than a negligible effect size. Since we have an adequate Cliff's Delta, and we have statistical significance, this suggests that the study is adequately powered to detect true differences on the behavior scales for all the behavior analyses, if they exist. Because of this, we can say that since all the effect sizes of the other behavior tests fall into the "negligible" category, those tests are not underpowered, rather the Cliff's Deltas are

small because there are no actual differences between the two groups. This indicates that for our population of emergency walk in patients, neither the PSDQ nor the PCRQ is an ideal instrument to assess parenting style.

Furthermore, though we found a statistically significant ($p=0.041$) relationship between behavior and degree of parental warmth, this result is unlikely to be clinically significant. The median warmth for parents whose children had good behavior was 4.92 out of 5, and for parents whose children had poor behavior it was 4.5 out of 5. This 0.42 difference in warmth on a scale from 1 to 5 is so small as to have a negligible effect on clinical decision-making on the part of the provider. In the pediatric dental literature, there is no established magnitude of difference in parenting domain score that impacts clinical decision making, but a difference of less than one point seems unlikely to affect the overall communication, behavior guidance, etc., for the appointment. A difference of at least one, perhaps two, points on a 5-point parenting style scale may be clinically significant. A future study, if using the PCRQ, may set a level of clinical significance to be at least a one point difference. Based on this study, however, it is unlikely that parents will answer differently enough to meet these criteria. This further supports that the PCRQ is not an ideal instrument for studying our population of emergency walk in patients and parents.

Additionally, the PSDQ, when analyzed by degree of each of the three parenting styles on a 5 point scale, was not useful for this study. Future studies should limit the use of the PSDQ to assigning parents into a single parenting style (permissive, authoritative, or authoritarian). The use of a new, more valid survey may be more appropriate.

Having a scale that can reliably predict parenting style would be invaluable to pediatric dental research and pediatric dentists. Parents increasingly prefer to be present in the operatory [52-54], while many pediatric dentists consider parent presence in the operatory to contribute to worsening patient behavior [52]. Now more than ever, pediatric dentists must manage relationships with the patient and the parent, and the relationship between the parent and his or her child [6, 43].

In this study, we did not find a relationship between patient age and behavior. This is a surprising result as many past studies have shown this relationship [23, 44, 45]. This study found a similar proportion of poor behavior (22%) to Howenstein et al (20%) and Carstens et al (26%), but in this study, behavior was not related to age. Allen et al studied 3 to 12 year olds and found that younger age predicts poor behavior [23]. However, the proportion of patients with good behavior in the 3 to 4 and 5 to 6 age groups (50% and 46% respectively) were nearly equal. In fact, the 5 to 6 year old group had slightly (though not significantly) less good behavior, and he found that the proportion of good behavior was higher only for ages 9 to 12. This study showed similar results in that there was no relationship to behavior in patients aged 3 to 6. Additionally, one reason for consistent poor behavior despite older age in this study may be related to the fact that patients were presenting for emergency visits. Because emergency patients often present with current or past pain, varying levels of past dental experience, and a wide variety of treatment indicated, a single variable such as age may not be able to predict behavior in the midst of other confounders.

This study found no statistically significant relationship between patient behavior and whether treatment was provided. Furthermore, no significant relationship between behavior and type of treatment was found. This is an interesting finding as previous studies have demonstrated greater proportions of poor patient behavior for restorative versus nonrestorative/hygiene visits [44]. As discussed later, the many confounding variables inherent to this study may have made it difficult to discern a relationship, if present. Additionally, many patients presenting for emergencies for this study were of a pre-cooperative age, and therefore were referred for more advanced behavior guidance techniques such as sedation or general anesthesia. This may have contributed to the number of patients with poor behavior who did not receive any treatment. Further studies with larger sample sizes would allow for analysis by age or by chief complaint. Additionally, no relationship between behavior and use of local anesthetic or nitrous oxide was found. Since there was no significant relationship between treatment and behavior, it is unsurprising that there is no relationship between local anesthetic or nitrous oxide use, since these are only utilized for a patient receiving treatment.

Finally, no statistically significant relationship between behavior and provider gender was found. No previous studies have demonstrated that patients exhibit better behavior with a provider of a particular gender. Rather, studies show that patients and parents are most satisfied with practitioners who demonstrate empathy, reassurance, and patient empowerment [72].

This study found that patients in the “other” race category were significantly more likely than white or black patients to have poor behavior ($p=0.0006$). The “other”

category includes: Hispanic/Latino, Native American, Asian, and other. This relationship remained true when analyzing only patients who had treatment ($p=0.0094$). It is interesting that the results show that patients from households with only one child were more likely to have poor behavior, and that patients from households with 4+ children were more likely to have good behavior ($p=0.027$). One should be cautious in interpreting these results, though, as it is not saying that the more children in the household, the better the behavior. In households with 2 children, 39% were well behaved and 27% were poorly behaved. In households with 3 children, only 16% were well behaved, and 36% were poorly behaved. Behavior was not significantly associated with having Medicaid or watching 3 or more hours of TV. This is interesting because previous studies have shown a relationship between having Medicaid and poorer behavior [49, 50], and Carstens et al demonstrated a relationship between watching 3 or more hours of TV and poor behavior [45].

For patients who received treatment, patients whose parents considered braces to mean “access to care” were significantly more likely to have patients with poor behavior. This is an interesting finding that may reflect parents with a different understanding of dental health and an overall lower dental IQ. How this relates to patient behavior does not seem direct, but one could postulate that a parent with a lower dental IQ may not bring their child to the dentist as frequently (though this was not found to be significant in our study), or may not educate or may improperly educate their child about dentistry which could potentially play a role in patient behavior. Additionally, these parents and patients may not have a regular dental home or be familiar with the concept of “access to care.”

Previous studies have shown that patients without a dental home and who rely on emergency department services for dental care are more likely to exhibit poor behavior [46-49]. These findings should be explored in greater detail to establish better understanding of the relationship between parent interpretation of dental access to care and patient behavior.

There are many limitations to this study. The first, as has been described in detail above, is the questionable reliability of the PSDQ and the PCRQ in determining parenting style in the midst of today's changing parenting styles. Secondly, patient collection was very difficult for this study. All clinical studies present challenges in terms of collecting patients that meet inclusion criteria, particularly within the time frame of a 24-month residency program. This is especially difficult for an emergency based study where there is no ability to control whether any qualifying patients would arrive on the days when eligible providers and research assistants were present. There were many confounding variables which were difficult to control for, many due to the nature of an emergency study: variability in past and current pain, chief complaint, past dental experience, time of day, anxiety, temperament, and treatment performed (if any), as some patients had an exam only, and others had crowns and extractions. The packet containing the PSDQ, the PCRQ, and the sociodemographic survey requires at least 30 minutes to complete, and may have resulted in some parents not answering completely. Also, there appears to be a selection bias in that 100% of parents for this study were authoritative. This may be due to lack of validity of questionnaires, or it may be because certain parenting types are indeed more likely to bring patients in for emergency walk in visits. We are unable to

draw conclusions regarding this. Finally, data was collected on a convenience basis and represents a small population of parents and children from central Ohio. Having many dental providers (six) working with numerous dental assistants to provide care introduces higher levels of bias. Observational bias may occur due to subjective differences of the two research assistants evaluating behavior.

Future research should focus on critically reassessing the validity and reliability of the PSDQ and PCRQ. A parenting style survey that can accurately determine parenting style for parents of patients presenting for emergency visits will be valuable in clarifying relationships between parenting style and behavior. Additionally, further research should assess the extent of a child's past dental experience and control for it. Many of the confounders of this study could have been removed or clarified with the use of a control group. Though it would add to the burden of data collection, the benefit of having the ability for comparison is immeasurable.

Chapter 5: Conclusions

100% of parents who present to NCH for emergency walk in visits had the authoritative parenting style, according to this study. Patients who received treatment and whose parents believe access to care includes “braces” are more likely to have poor behavior. Patients who are not African American or white are more likely to have poor behavior.

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Appendix A: Parenting Styles and Dimensions Questionnaire

Please make a rating for each item: How often you exhibit this behavior as parents, or as single parent.
"I" or "We" exhibit this behavior:
1=Never
2=Once in a While
3=About Half the Time
4=Very Often
5=Always

	Never	Once in a while	About half the time	Very often	Always
1. I am responsive to our child's feelings and needs	1	2	3	4	5
2. I use physical punishment as a way of disciplining our child	1	2	3	4	5
3. I take our child's desires into account before asking the child to do something	1	2	3	4	5
4. When our child asks why they must conform, I state: "because I said so," or "I am your parent and I want you to.	1	2	3	4	5
5. I explain to our child how we feel about the child's good and bad behavior	1	2	3	4	5
6. I spank when our child disobeys	1	2	3	4	5
7. I encourage our child to talk about his/her troubles	1	2	3	4	5
8. I find it difficult to discipline our child	1	2	3	4	5
9. I encourage our child to freely express himself/herself even when disagreeing with parents	1	2	3	4	5
10. I punish by taking privileges away from our child with little to no explanation	1	2	3	4	5
11. I emphasize the reasons for rules	1	2	3	4	5
12. I give comfort and understanding when our child is upset	1	2	3	4	5
13. I yell or shout when our child misbehaves	1	2	3	4	5
14. I give praise when our child is good	1	2	3	4	5

15. I give into our child when the child causes a commotion about something	1	2	3	4	5
16. I explode in anger towards our child	1	2	3	4	5
17. I threaten our child with punishment more often than actually giving it	1	2	3	4	5
18. I take into account our child's preferences in making plans for the family	1	2	3	4	5
19. I grab our child when being disobedient	1	2	3	4	5
20. I state punishments to our child and do not actually do them	1	2	3	4	5
21. I show respect for our child's opinions by encouraging our child to express them	1	2	3	4	5
22. I allow our child to give input into family rules	1	2	3	4	5
23. I scold and criticize to make our child improve	1	2	3	4	5
24. I spoil our child	1	2	3	4	5
25. I give our child reasons why rules should be obeyed	1	2	3	4	5
26. I use threats as punishment with little or no justifications	1	2	3	4	5
27. I have warm and intimate times together with our child	1	2	3	4	5
28. I punish by putting our child off somewhere alone with little if any explanations	1	2	3	4	5
29. I help our child to understand the impact of behavior by encouraging our child to talk about consequences of his/her own actions	1	2	3	4	5
30. I scold or criticize when our child's behavior does not meet our expectations	1	2	3	4	5
31. I explain the consequences of the child's behavior	1	2	3	4	5
32. I slap our child when the child misbehaves	1	2	3	4	5

Appendix B: Parent-Child Relationship Questionnaire

Please make a rating for each item:
"I" or "We" exhibit this behavior:
1= Hardly at all
2= Not too much
3= Somewhat
4= Very Much
5= EXTREMELY much

	Hardly at all	Not too much	Somewhat	Very much	EXTREMELY
1. Some parents want their children to spend most of their time with them, while other parents want their children to spend just some of the time with them. How much do you want this child to spend most of his/her time with you?	1	2	3	4	5
2. How much do you not let this child go places because you are afraid something will happen to him or her?	1	2	3	4	5
3. How much do you and this child care about each other?	1	2	3	4	5
4. How much do you and this child disagree and quarrel with each other?	1	2	3	4	5
5. How much do you and this child do nice things for each other?	1	2	3	4	5
6. How much do you and this child like the same things?	1	2	3	4	5
7. Some parents praise and compliment their children a lot, while other parents hardly ever praise and compliment their children. How much do you praise and compliment this child?	1	2	3	4	5
8. How much do you order this child around?	1	2	3	4	5
9. How much do you and this child tell each other everything?	1	2	3	4	5
10. How much do you spank this child when he or she misbehaves?	1	2	3	4	5
11. How much do you admire and respect this child?	1	2	3	4	5
12. How much does this child admire and respect you?	1	2	3	4	5
13. Some parents take away privileges a lot when their children misbehave, while other parents hardly ever take away privileges. How much do you take away this child's privileges when he/she misbehaves?	1	2	3	4	5
14. How much do you show this child how to do things that he or she doesn't know how to do?	1	2	3	4	5

15. How much do you yell at this child for being bad?	1	2	3	4	5
16. How much do you ask this child for his or her opinion on things?	1	2	3	4	5
17. How much do you and this child go places and do things together?	1	2	3	4	5
18. How much do you make this child feel ashamed or guilty for not doing what he or she is supposed to do?	1	2	3	4	5
19. Some parents talk to their children a lot about why they're being punished, while other parents do this a little. How much do you talk to this child about why he or she is being punished or not allowed to do something?	1	2	3	4	5
20. How much do you want this child to do things with you rather than with other people?	1	2	3	4	5
21. How much do you not let this child do something he or she wants to do because you are afraid he or she might get hurt?	1	2	3	4	5
22. How much do you and this child love each other?	1	2	3	4	5
23. How much do you and this child get mad at and get in arguments with each other?	1	2	3	4	5
24. How much do you and this child give each other a hand with things?	1	2	3	4	5
25. Some parents and children have a lot of things in common, while other parents and children have a little in common. How much do you and this child have things in common?	1	2	3	4	5
26. How much do you tell this child that he or she did a good job?	1	2	3	4	5
27. How much do you tell this child what to do?	1	2	3	4	5
28. How much do you and this child share secrets and private feelings with each other?	1	2	3	4	5
29. How much do you hit this child when he or she has been bad?	1	2	3	4	5
30. How much do you feel proud of this child?	1	2	3	4	5
31. Some children feel really proud of their parents, while other children don't feel very proud of their parents. How much does this child feel proud of you?	1	2	3	4	5
32. How much do you forbid this child to do something he or she really likes to do when he or she has been bad?	1	2	3	4	5
33. How much do you help this child with things he or she can't do by him- or herself?	1	2	3	4	5
34. How much do you nag or bug this child to do things?	1	2	3	4	5
35. How much do you listen to this child's ideas before making a decision?	1	2	3	4	5
36. How much do you play around and have fun with this child?	1	2	3	4	5
37. Some parents make their children feel bad about themselves a lot when they misbehave, while other parents do this a little. How much do you	1	2	3	4	5

make this child feel bad about himself or herself when he or she misbehaves?					
38. How much do you give this child reasons for rules you make for him or her to follow?	1	2	3	4	5
39. How much do you want this child to be around you all of the time?	1	2	3	4	5
40. How much do you worry about this child when he or she is not at home?	1	2	3	4	5

Appendix C: Sociodemographic Survey

Characterization of Patients Presenting for Dental Emergencies Survey

1. What is the patient's race/ethnicity?
    a. African-American
    b. White
    c. Asian or Pacific Islander
    d. Hispanic or Latino
    e. Native American or American Indian
    f. Somali
    g. Other: (please specify) _____

2. What is your relationship to the patient?
    a. Self (I am the patient)
    b. Mother
    c. Father
    d. Grandparent
    e. Sibling
    f. Aunt/Uncle
    g. Legal guardian
    h. Foster parent
    i. Other _____

3. What is your/the parent's marital status?
    a. Single, never married
    b. Married or domestic partnership
    c. Separated
    d. Divorced
    e. Widowed
    f. Prefer not to state

4. Who is the primary caretaker for this child (circle all that apply)?
    a. Mother
    b. Father
    c. Grandparent
    d. Foster Parent
    e. Legal guardian

5. What is your/the parent's age?
    a. 12-17
    b. 18-24
    c. 25-34
    d. 35-44
    e. 45-54
    f. 55-64
    g. >65

6. How many children are in the patient's household?
    a. 1
    b. 2
    c. 3
    d. 4
    e. 5 or more

7. Is the patient in daycare?
    a. No
    b. Yes, a family member takes care of him/her
    c. Yes, Head Start
    d. Yes, private daycare

8. What is the highest level of school that parent completed?
    a. No schooling completed
    b. Nursery school to 8th grade
    c. Some high school, no diploma
    d. High school graduate, diploma or equivalent (ex. GED)
    e. Some college credit, no degree
    f. Trade/technical/vocational training
    g. College degree
    h. Graduate or professional degree
    i. Prefer not to answer

9. Is the patient's guardian currently employed for wages?
    a. Employed for wages
    b. Self-employed
    c. Out of work, looking for work
    d. Out of work, but not currently looking for work
    e. Homemaker
    f. Student
    g. Military
    h. Unable to work
    i. Retired
    j. Other_____
    k. Prefer not to answer

10. What is your total household income?
    a. Less than $10,000
    b. $10,000-$19,999
    c. $20,000-$29,999
    d. $30,000-$39,999
    e. $40,000-$49,999
    f. $50,000-$59,999
    g. $60,000-$69,999
    h. $70,000-$79,999
    i. $80,000-$89,999
    j. $90,000-$99,999
    k. $100,000-$149,999
    l. More than $150,000

11. What type of area do you live in?
    a. City, Urban
    b. Rural

12. In your opinion, how safe is the neighborhood in which the patient currently lives?
    a. Never safe
    b. Sometimes safe
    c. Usually safe
    d. Always safe

13. Does the patient see a medical doctor for routine well-child checks?
    a. No
    b. Yes, when he/she were young but not anymore
    c. Yes, at least once a year

14. Does the patient see a dentist for regular cleanings and check-ups?
    a. No
    b. Sometimes
    c. Yes, seen here at Children's Hospital Dental Clinic every 6-8 months
    d. Yes, seen at outside dental office every 6-8 months

15. Is the patient up-to-date with vaccinations?
    a. Yes
    b. No, I have not had time
    c. No, I don't believe in vaccinations for my child
    d. I don't know

16. What type of Medical Insurance do you have?
    a. Medicare/Medicaid
    b. Private insurance
    c. No insurance- out of pocket

17. Has your child been diagnosed with any specific behavior problems/disorders?
    a. No
    b. Yes, please specify _____

18. Has your child been diagnosed with a chronic medical condition? Please write in conditions.

19. How much television does your child watch a day?
    a. Less than one hour
    b. 1-2 hours
    c. 3-4 hours
    d. More than four hours a day

20. Has the patient or a sibling been to any Urgent Care or the Emergency Room in the past year for any reason? (If yes, please specify ex. head injury, broken arm, rash, respiratory infection, etc.)
    a. No
    b. Yes, one time _____
    c. Yes, two times _____
    d. Yes, more than three times _____

21. Other than this appointment, do you have a child who has an appointment in the dental clinic or at a different department in the hospital today?
    a. No
    b. Yes, dental clinic
    c. Yes, other (please specify department)_____

22. What does the term “oral health” mean to you? (Circle all that apply)
    a. My child is not in pain
    b. My child’s teeth look white when he/she smiles
    c. My child’s cavities have been fixed with white fillings and silver caps
    d. My child does not have any cavities

23. What does the term “access to dental care” mean to you? (Check all that apply)
    a. My child can get regular cleanings and exams every 6 months
    b. My child can get dental fillings when they are needed
    c. My child can get braces to straighten their teeth
    d. My child can get urgent care when he/she needs it for tooth problems
    e. My child can get a dentist who will see my child and accept my payment/insurance
    f. I can call a dental office whenever I have a question

Appendix D: Appointment Documentation Sheet

Age: _____ years _____ months Provider: Assistant:

Male / Female

Patient chief complaint: _____

i. Caries related Trauma Other (specify)
ii. Patient/parent able to localize pain? Yes/No

Treatment rendered today:

i. Examination and dental health education only
ii. Examination and referral to _____ (hygiene, sedation, GA, trauma day, outside specialty care [specify])
iii. Oral prophylaxis and/or scaling and root planing
iv. Restorative treatment (ex. fillings, SSC, bandaids, etc.) Specify treatment _____
v. Nerve treatment (pulpotomy, pulpectomy, pulp cap, etc.) Specify treatment _____
vi. Dental extractions. Specify _____
vii. Incision and drain. Specify _____
viii. Other; specify _____

Local anesthetic injection: Block / Infiltration Maxillary / Mandibular N2O: Yes / No

Appointment time interval: Time Start: Time end procedure: Total time spent:	**Frankl Scale Rating**			
	4 = very cooperative ++	**3 =somewhat cooperative +**	**2 = somewhat uncooperative -**	**1 = definitely uncooperative - -**
1. Entry in room to seating in chair (willingness to enter)	**4 = very cooperative ++**	**3 =somewhat cooperative +**	**2 = somewhat uncooperative -**	**1 = definitely uncooperative - -**
2. Radiographs (if necessary)	**4 = very cooperative ++**	**3 =somewhat cooperative +**	**2 = somewhat uncooperative -**	**1 = definitely uncooperative - -**
3. Local injection (time needle enters mucosa)	**4 = very cooperative ++**	**3 =somewhat cooperative +**	**2 = somewhat uncooperative -**	**1 = definitely uncooperative - -**
4. Rubber dam or Isovac placement (if used)	**4 = very cooperative ++**	**3 =somewhat cooperative +**	**2 = somewhat uncooperative -**	**1 = definitely uncooperative - -**

5.	Initiation of operative procedure (first minute of procedure)	**4 = very cooperative ++**	**3 =somewhat cooperative +**	**2 = somewhat uncooperative -**	**1 = definitely uncooperative - -**
6.	5 minutes after initiation of treatment	**4 = very cooperative ++**	**3 =somewhat cooperative +**	**2 = somewhat uncooperative -**	**1 = definitely uncooperative - -**
7.	10 minutes after initiation of treatment	**4 = very cooperative ++**	**3 =somewhat cooperative +**	**2 = somewhat uncooperative -**	**1 = definitely uncooperative - -**
8.	End of treatment (rubber dam/isovac off, nitrous off and patient still in chair)	**4 = very cooperative ++**	**3 =somewhat cooperative +**	**2 = somewhat uncooperative -**	**1 = definitely uncooperative - -**
9.	**Overall behavior for visit as a whole**	**4 = very cooperative ++**	**3 =somewhat cooperative +**	**2 = somewhat uncooperative -**	**1 = definitely uncooperative - -**

Appendix E: Frankl Scale for Behaviors

Rating 1 - Definitely negative (-/-)

Refusal of treatment; crying forcefully, fearful, or any other evidence of extreme negativism

Example- Using restraint because scared/nervous/in pain to achieve treatment

Rating 2 - Negative (-)

Reluctance to accept treatment; uncooperative; some evidence of negative attitude but not pronounced, i.e., sudden withdrawal

Example- Tears without excess movement. Maybe an instance of "extreme" movement/jerk, but still able to complete treatment without restraint. Can calm enough to complete treatment

Rating 3 - Positive (+)

Acceptance of treatment; at times with caution; willingness to comply with the dentist, at time with reservation, but patient follows the dentist's directions cooperatively

Example- Could be slightly nervous, but still cooperative. May wiggle/move at times, but no tears of fear or pain. Parents present to help remind to stay still or help reposition

Rating 4 - Definitely positive (+/+)

Good rapport with dentist; interested in the dental procedures; laughing and enjoying the situation

Example- Little to no "extra" movement, may ask afew questions, interactive, not nervous. If young, may have inherent trouble positioning the patient and keeping biting on clamp or staying open. This is still +/+ because they are accepting treatment and just don't know any better. Once become excessively wiggly that it interferes with treatment, may move to a +