

Parental Cooperation Scale in the Pediatric Dentistry Setting: Reliability and Criteria

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Objective: The purpose of this study was to provide reliability and criteria data on a newly defined parental cooperation scale (PCS) and in addition correlate between parent scores and their child's behavior in the dental setting. **Study design:** 244 parents accompanying their child to a dental visit were evaluated by two independent pediatric dentist evaluators. 150 parents were designated to be reevaluated at least two weeks following the initial evaluation by the same examiner. Children's dental behavior was previously evaluated using the Frankl rating scale. **Results:** A majority of the parents were found to be highly positive and positive (40% of the parents were evaluated as being PCS rating 4, 26% were rated 3). 35% of the parents were rated as being negative or extremely negative (27%, 8% respectively). 139 parents were re-evaluated at least two weeks following their initial assessment. 64% were rated as highly cooperative and cooperative; 36% were negative or extremely negative. 244 children participated in the study (mean age \pm SD, 6.8 years \pm 2.86). 67% were rated as Frankl scale extremely cooperative and cooperative (31%, 35.5% respectively). 33% were negative or extremely negative (26.1%, 7.3% respectively). When comparing the Frankl behavior of each child to their parent's PCS a significant association was found (McNemar test value 17.668, $p=0.007$). **Conclusion:** The PCS was evaluated and found to be a reliable tool to evaluate parental dental behavior. Parents with negative behavior were more likely to present with children who also exhibit negative dental behavior and vice versa.

Keywords: Dental behavior, parenting, pediatric dental practice

INTRODUCTION

Traditionally, pediatric dentists have been trained to manage a child's behavior during dental treatment. Managing the behavior of pediatric patients has been the focus of many studies; however, paying attention to the parents and their individual circumstances may be just as important to achieve treatment goals. Parents today expect to be involved in treatment decisions and often have distinct expectations regarding their children's experiences.¹ Clinical decision-making has become a social process that includes the dentist, parent, and occasionally other family members.² Parental attitudes and emotions can adversely affect the tone of the appointment and negatively influence the child's perception of the event. Managing the behavior of a challenging child is difficult, but combining that with the challenging behavior of a parent can be exhausting.^{1,3} A survey of pediatric dentists reported that changes

in parenting styles have adversely influenced child behavior in the dental office⁴. The pediatric dentist in-training needs to be given the tools to manage the parent in addition to managing the patient. Studies have been conducted examining parenting styles and their children's behavior in the dental setting.⁵⁻⁷ Research has consistently shown that parents who were more lax, critical, and disengaged from their child's everyday experiences had children who were more disruptive and oppositional.⁸ Parents have been examined for parameters such as dental anxiety and stress. These studies have categorized parents accordingly, using scales measuring anxiety, fear and parenting style.^{5-7, 9-10} However, a general scale incorporating all these parameters has not been studied nor suggested in the dental literature. The new era of pediatric dentistry must train dentists to deal not only with patients through the development of patient management skills but rather dentists must also be trained to deal with their patients' parents. Therefore, a practical scale used as a parent evaluation tool is needed.

The Frankl score¹¹ is universally taught and used by both clinicians and researchers involved with the dental treatment of children. Many pediatric dentists are trained in the use of this tool as a regular part of their residency training program. Frankl *et al.* classified child behavior into four groups according to the child's attitude and cooperation or lack of cooperation during dental treatment.¹¹ The simplicity of this praxiological scale makes it a useful tool for transferring care from dentist to dentist or even more so for the same clinician from appointment to appointment giving him/her a summation of the patient's behavior in one quick glance at the medical chart. This allows the clinician to plan in advance the length

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of session time needed for restorative treatment as determined by the expected patient compliance, the need for parental separation, use of nitrous oxide and other patient management techniques. It follows that its application for the assessment of parental cooperation would be easily applied and be of benefit to the practicing dentist. A table of criterion was developed and studied for its reliability and ability to categorize parents' cooperation. The definitions and criterion are listed in table 1. Essentially, the Frankl scale was used and criteria were developed to define each category.

The purpose of this study was to provide reliability and criterion data on a newly defined parental cooperation scale (PCS) and in addition correlate between parent scores and their child's behavior in the dental setting.

MATERIALS AND METHOD

The PCS was used to evaluate 244 parents accompanying their child to a dental visit. Inclusion criteria for participants were: 1) children whose dental behavior was previously evaluated and recorded in their dental record and 2) parents' consent to the study. A convenience sample of 250 consecutive child patients visiting two private dental practices was invited to take part in the study along with the accompanying adult. In both practices the evaluation and written notation of every patient's behavior using the Frankl scale was routinely recorded at every dental visit. Informed consent was obtained from the parent. The Institutional Review Board of Mercy Hospital, Iowa City, IA approved the study design. Two pediatric dentist (inter-rater reliability) examiners independently evaluated the parents during a routine dental visit to one of the two private dental offices. A calibration period preceded the study trial in which the two examiners rated parents and when in disagreement reevaluated and assigned a score in consensus. For test-retest purposes, 150 of the parents were also designated for re-evaluation at least two weeks following the initial evaluation by the same examiner (intra-rater liability). 139 parents were reevaluated. Children's dental behavior scores were retrieved from previous dental records and compared to their parent's PCS score.

The Kappa Score measurement of agreement beyond chance was used to assess inter and intra rater test, re-test reliability. The association between child behavior and parental PCS scores was assessed using the Chi Square and McNemar statistical tests.

RESULTS

244 parents consented and participated in the study. A majority of the parents was found to be highly positive and positive (40% of the parents were evaluated as being PCS scale 4, 26% were scale 3). 35% of the parents were rated as being negative or extremely negative (27%, 8% respectively). The Kappa score between independent raters was 0.514 indicating moderate inter-rater agreement. 139 parents were re-evaluated at least two weeks following their initial assessment. 64% were rated as highly cooperative and cooperative; 36% were negative or extremely negative. The Kappa score for intra-rater reliability was 0.725 indicating "good" intra-rater, test/ retest agreement.

Of the 244 children who participated in the study (mean age ± SD, 6.8 years ± 2.86), 67% were rated as Frankl scale extremely cooperative and cooperative (31%, 35.5% respectively). The remaining 33% were negative or extremely negative (26.1%, 7.3% respectively, figure 1).

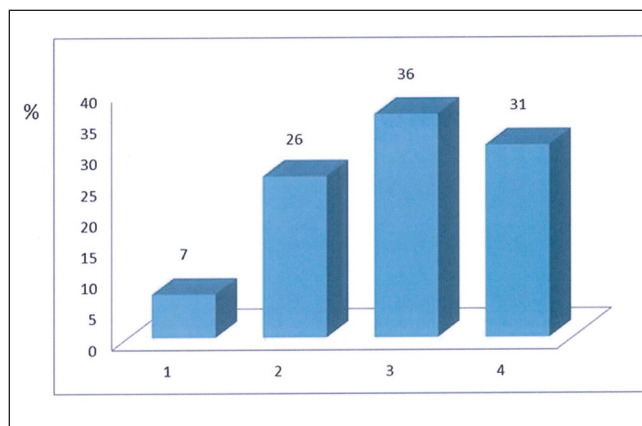


Figure 1. Distribution of childrens' behavior using the Frankl scale. N=244

A significant association was found when comparing the Frankl behavior of each child to his/her parent's PCS. The Pearson Chi-Square values were 90.668 (evaluator 1) and 102.596 (evaluator 2), which were both statistically significant ($p < 0.0001$, figures 2-3). In addition, the McNemar test value of 17.668, $p = 0.007$ reflected the strong association between parental and child behavior. That is, parents with negative behavior were more likely to present with children who also exhibited negative dental behavior and vice versa.

DISCUSSION

The results of this pilot study indicate that the PCS scale may be used as a reliable evaluation of parental behavior and cooperation in the pediatric dental setting. An assessment such as this one can better prepare the clinician during the initial treatment planning session with the parent and child. In the same manner as pediatric dentists have traditionally been trained to predict in advance a child's behavior and thus prepare beforehand for the use of suitable patient management techniques, it is critical to recognize different parent dental behaviors and utilize specific communication techniques for proper communication and parental consent.

Despite increasing evidence of the importance of effective parent-provider communication, a number of studies suggest that parent-provider communication within primary medical care often may not be optimal. For example, parents' and physicians' attitudes, perceptions, and expectations regarding the medical visit and management of illness are discrepant.^{12, 13} The doctor-patient relationship is one of the most complex interpersonal relationships in society.¹⁴ Not only is it centered on issues of great importance (i.e., physical health and emotional well-being), but the participants (i.e. physician and patient) often have different knowledge and perspectives on the issue at hand. In dentistry, these differences are even more apparent. Prior dental trauma and negative family attitudes toward the dentist can contribute to the complexity of the parent, child, dentist triad. For the young child, the dental experience is a novel situation. It appears highly likely that the emotional attitudes of family members, especially the parent, toward the dental situation will be communicated to the child. Pediatric dentists have reported increasing concerns with the changes occurring in modern parents and the resulting management difficulties when attempting to deliver proper dental care to their children. A survey of 577

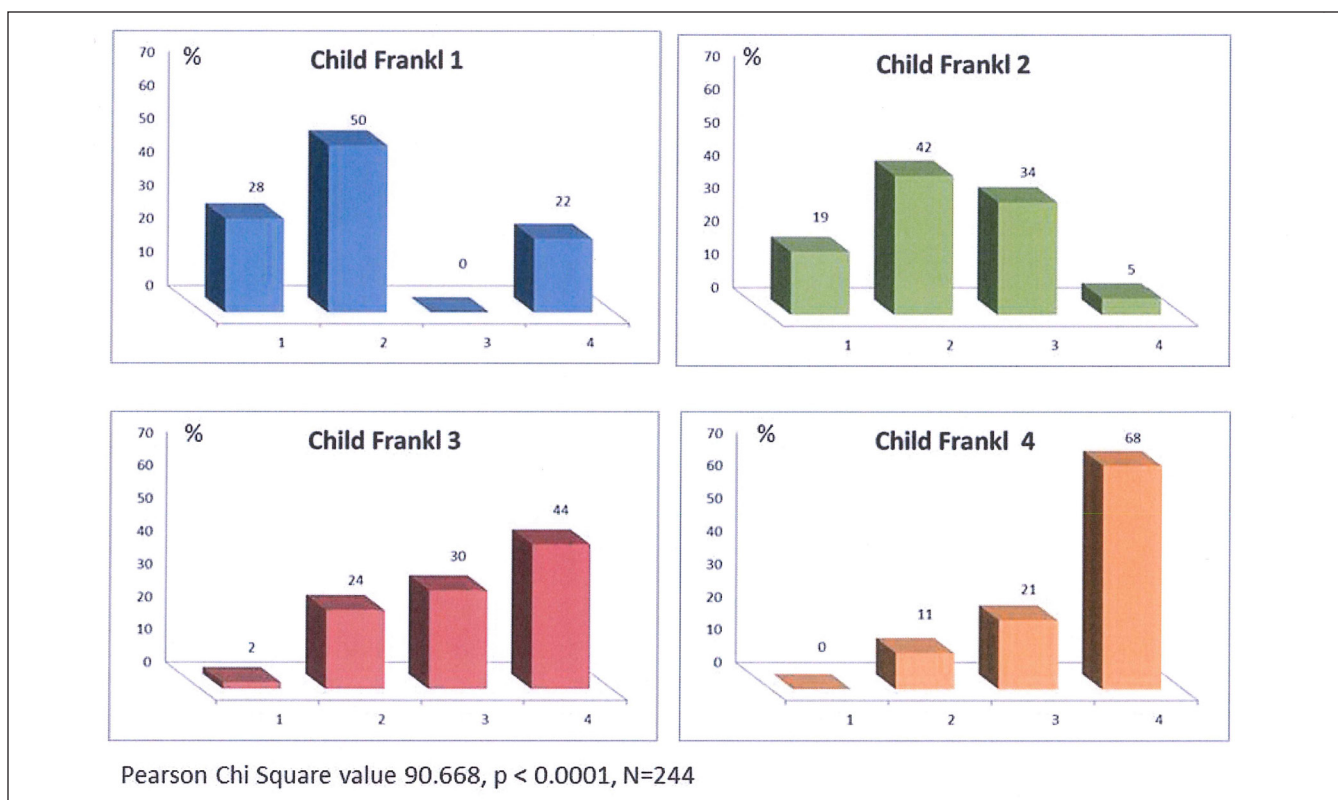


Figure 2. Distribution of parents' PCS scores within Frankl behavior groups. Examiner 1

board-certified pediatric dentists found the vast majority (88%) of respondents believe parenting styles have “absolutely or probably changed” during their lifetime. More specifically, the dentists reported that, based on observations in their practices, parents today are much less likely to use physical discipline and set limits on their child’s behavior. Factors believed to be associated with parenting changes include: societal changes toward liberalism and breakdown of norms; divorce; both parents working; hectic lifestyles; loss of extended families; increased stress of maintaining lifestyles; and frequent relocation.¹⁵ Eighty-five percent of the dentists believed these perceived shifts in parenting styles had resulted in “somewhat or much worse” patient behavior. Evaluating the parent as well as the patient may assist the dentist in coping with these new developments and challenges.

The relationship between parent and child dental behavior was also examined in this study. The most frequent classification of child behavior based on the Frankl behavior rating scale was level 3, followed by levels 4, 2 and 1. This result is very similar to other studies^{8,16-17} examining preschool and school age dental behavior; indicating that the study sample was typical for a pediatric dental setting.

The results of this study confirm the hypothesis that the behavior of young children in the dental situation would be related to the level of cooperation manifest in their parent. However, it is important to remember that, in addition to parenting, children are impacted by various influences occurring at the individual, family, community, and societal level. 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. Primarily, these relationships are focused in the immediate family environment, or microsystem, into which the parents bring their own background development.^{6, 18}

Fear, stress, emotional conditions, personality traits, parenting, and other factors influence children’s behaviors at the dental visit. Not every child of an uncooperative parent will exhibit poor dental behavior and vice versa. However, these factors exhibit mutual interactions.⁶ For example, parenting behavior has been suggested as a possible anxiety disorder transmission mechanism. Rapee¹⁹ suggested that parents of anxious children behave towards their children in a style characterized as controlling, rejecting, and overprotecting. An overprotective parent will be more likely to appear at the dental office with an anxious child. Future studies will be needed to explore possible parent/patient management techniques that will facilitate the delivery of proper dental care in these situations.

The PCS scale was evaluated and found to be reliable, short in length allowing minimal time for its application, includes items which are already familiar to the dental practitioner and is simple to score and interpret. Further research with more subjects is needed to support the findings of this pilot study.

CONCLUSION

The parental cooperation scale was evaluated and found to be a reliable tool to assess parental dental behavior. Parents with negative behavior were more likely to present with children who also exhibit negative dental behavior and vice versa.

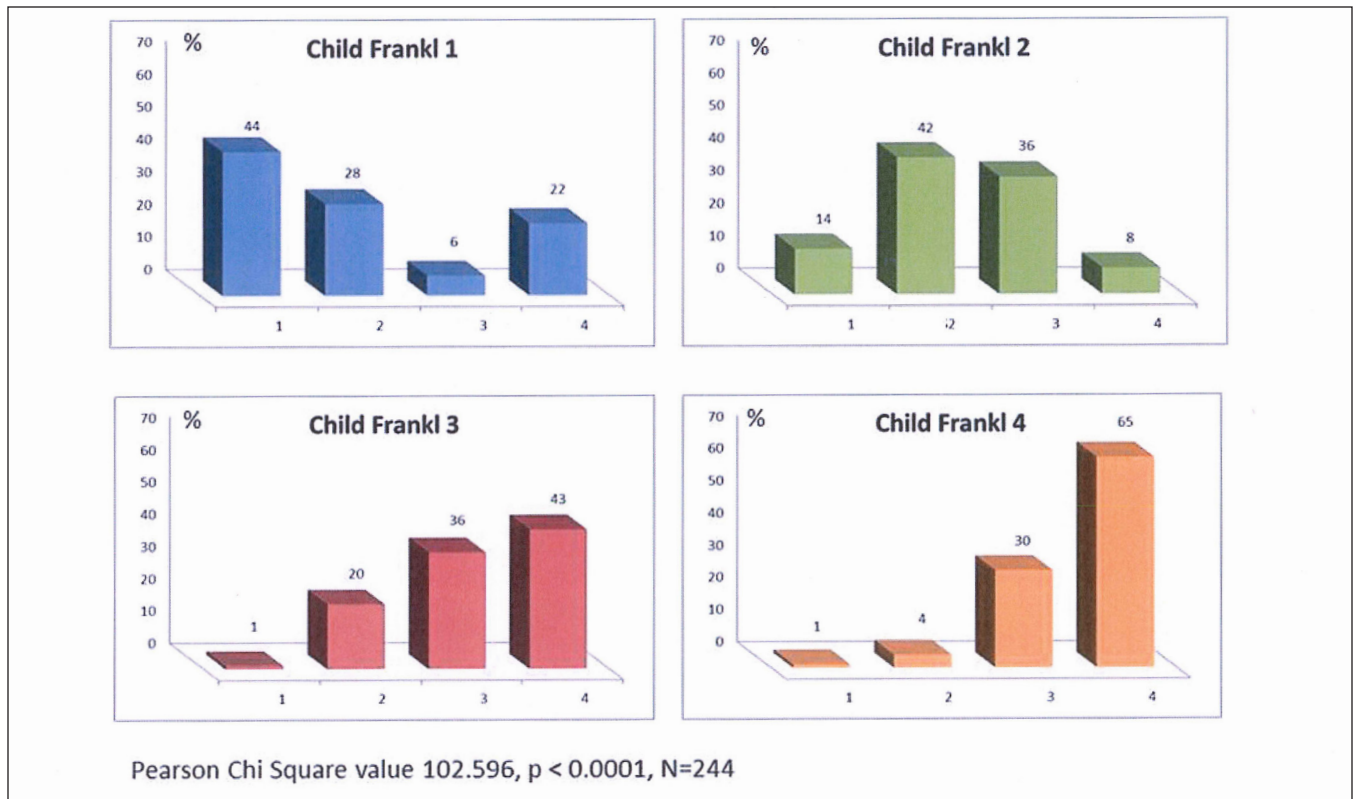


Figure 3. Distribution of parents' PCS scores within Frankl behavior groups. Examiner 2

Table 1. PCS - Parental cooperation scale

Category	Clinical example of exhibited behavior
I. Definitely negative	Refusal of treatment plan, suspicious of dentist, overprotective of child, distrustful of dentistry, repeats doubts of need for treatment, fearful, will not allow dentist or staff to be with child alone. Needs to know every detail of treatment. Repeatedly cancels appointments.
II. Negative	Reluctance to accept complete treatment plan, some evidence of negative attitude but not pronounced. Needs to see caries on radiograph. Frequently acts as liaison between patient and dentist.
III. Positive	Acceptance of treatment plan, cautious behavior at times, compliance with the dentist, at times with reservation, but follows the dentist's directions cooperatively. Reluctantly, will allow child to be alone with dentist. May question dentist about treatment plan but not in a hostile manner.
IV. Definitely positive	Good rapport with the dentist, trustful, has full confidence in dentist's decision. Allows patient to be alone with dental staff. Shows interest in the dental procedures, expresses satisfaction with dentist and staff, will share compliments with dentist.

REFERENCES

1. Soxman J: Parenting the parents of pediatric patients. *Compend Contin Educ Dent*. 27: 630-4, 2006
2. Grembowski D, Milgrom P, Fiset L. Factor's influencing dental decision-making. *J Public Health Dent* 48:159-167, 1988
3. Sheller B.: Challenges of managing child behavior in the 21st century dental setting. *Pediatr Dent* 26:111-113, 2004
4. Casamassimo PS, Wilson S, Gross L. Effects of changing US parenting styles on dental practice: Perceptions of diplomates of the American Board of Pediatric Dentistry. *Pediatr Dent* 24:18-22, 2002.
5. Krikken JB, Veerkamp JS. Child rearing styles, dental anxiety and disruptive behaviour; an exploratory study. *Eur Arch Paediatr Dent Suppl* 1:23-8, 2008
6. Aminabadi NA, Farahani RM. Correlation of parenting style and pediatric behavior guidance strategies in the dental setting: preliminary findings. *Acta Odontol Scand* 66:99-104, 2008
7. Venham LL, Murray, P, Gaulin-Kremer, E. Child-rearing variables affecting the preschool child's response to dental stress. *J Dent Res* 58:2042-2045, 1979
8. Allen KD, Hutfless S, Larzelere R. Evaluation of two predictors of child disruptive behavior during restorative dental treatment. *J Dent Child* 70:221-5, 2003
9. Themessl-Huber M, Freeman R, Humphris G, MacGillivray S, Terzi N. Empirical evidence of the relationship between parental and child dental fear: a structured review and meta-analysis. *Int J Paediatr Dent* 20:83-101, 2010
10. Kyritsi MA, Dimou G, Lygidakis NA. Parental attitudes and perceptions affecting children's dental behaviour in Greek population. A clinical study. *Eur Arch Paediatr Dent* 10:29-32, 2009
11. Frankl S, Shiere FR, Fogels HR. Should the parent remain with the child in the dental operator? *J Dent Child* 29:150-163, 1962
12. Cheng TL, Savageau JA, DeWitt TG, Bigelow C, Charney E. Expectations, goals, and perceived effectiveness of child health supervision: a study of mothers in a pediatric practice. *Clin Pediatr* 35:129-37, 1996
13. Hart CN, Drotar D, Gori A, Lewin L. Patient Educ Couns. Enhancing parent-provider communication in ambulatory pediatric practice 63: 38-46., 2006
14. Noblie, C, Drotar D. Research on the Quality of Parent-Provider Communication in Pediatric Care: Implications and Recommendations. *J Dev Behav Pediatr* 24:279-290, 2003
15. Long N. The changing nature of parenting in America. *Pediatr Dent* 26:121-124, 2004
16. Colares V, Richman L. Factors associated with uncooperative behavior by Brazilian preschool children in the dental office. *J Dent Child* 69, 87-91, 2002
17. Shinohara S, et al. Structural relationship of child behavior and its evaluation during dental treatment. *J. Oral Sci.* 47: 91-96, 2005
18. Capps L, Sigman M, Sena R, Henker B, Whalen C. Fear, anxiety, and perceived control in children of agoraphobic parents. *J Child Psycho Psychiatry* 37:445- 52, 1996.
19. Rapee RM. Potential role of childrearing practices in the development of anxiety and depression. *Clin Psychol Rev* 17: 47-67, 1997.

