Parent Satisfaction With Emergency Dental Treatment at a Children's Hospital

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ABSTRACT

Purpose: This study evaluated parental satisfaction with emergency dental treatment.
Methods: One hundred twenty-two parents of children requiring emergency extraction of 1 or more primary teeth completed a survey designed to test the effect of provider, treatment, and demographic variables on parental satisfaction.
Results: Most parents (>80%) indicated satisfaction with the treatment provided. Parents were most satisfied with treatment during clinic hours, treatment provided by an attending pediatric dentist, and treatment provided by male dentists. Satisfaction was correlated with the clarity of the provider explanation. Explanations by male dentists were perceived most positively. Parents of children receiving molar extraction(s) were more satisfied than parents of children with incisor extraction(s). Satisfaction did not correlate with ethnicity of the parent or patient, parent education level, funding sources, or use of an immobilization device. Parents preferred sedation for behavior management of the emergency patient.
Conclusions: To address the expectations and concerns of parents, dental professionals need to be attentive to the quality of dentist-parent communication and parental expectations during emergency services. (*J Dent Child.* 2004;71:17-23)

KEYWORDS: DENTAL EMERGENCIES, HOSPITAL DENTISTRY, PARENT SATISFACTION

Dental emergencies in the pediatric population have been the subject of numerous investigations.[1-8] Dental problems have been reported to account for 4% of pediatric emergency room visits[1] and nearly 7% of all visits in private dental practices.[9] Trauma and dental caries with or without soft tissue infections are reasons for the majority of pediatric dental emergencies.[1-8,10-12]

Given the frequency of pediatric dental emergencies and current interest in outcome assessments by patients, providers, educators and regulators, parental perceptions of treatment and reported satisfaction with care are areas of interest. Perception has been defined as feelings regarding quality of care,[13] while satisfaction has been defined as an assessment of the extent to which perceptions and expectations regarding health care have been met.[14] Satisfaction is important in enhancing the continuity of routine care, increasing patient compliance with follow-up recommendations, and decreasing the chance of legal action.[14-19]

Several investigators have examined factors influencing patient satisfaction with medical care. Significant physician-related factors include: uncertainty conveyed by the physician,[17] perceived intelligence of the physician,[15] physician accessibility, communication and affective skills,[15,20,21] courtesy and information giving.[16,22] Socioeconomic variables,[14] waiting time for emergency care,[23] and speed of service[19] also impact satisfaction.

Demographic factors, including patient gender and provider gender and age, have been examined.[22,24-27] Males responded positively to interactions consisting of few interruptions and minimal discussion of psychosocial issues. Female patient/female physician pairs were more satisfied with interactions that included greater psychosocial conversation and more interruptions by both parties. Patients of both genders reported more satisfaction with older appearing physicians.[27]

Few studies have examined variables impacting satisfaction with dentists and dental treatment. Douglas reported that patients had no preference between female and male dentists although patients felt that female dentists were more

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accessible and had lower fees.[28] Stokes et al found only 2% of 425 adults who sought emergency dental services were dissatisfied. Patients of record were more concerned with clinical ability and personality than gender when assessing satisfaction. Patients seeking treatment on an irregular basis and those seeking treatment in a hospital dental setting were more satisfied with male dentists; this was thought to be due to unfamiliarity with female dentists.[29] A Swedish survey of adult dental patients found differences in satisfaction correlated with patient socioeconomic status with blue-collar workers less satisfied.[30]

This study examined the relationship between parental satisfaction with emergency dental care provided for their children and patient characteristics, parent characteristics, and treatment events.

METHODS

All patients in this institutionally approved study presented for emergency dental treatment to Children's Hospital & Regional Medical Center, a tertiary care pediatric teaching hospital in Seattle, Wash. Patients were new to the hospital dental service; emergency services provided to patients of record were not included in this study. Patients were treated by an attending pediatric dentist (APD), general practice resident, or pediatric dental resident. Patients were treated during clinic (59) and after hours (63). Gender of the dentists was: 2 males and 1 female APD, 1 male and 4 female pediatric dental residents, and 20 male and 20 female general practice residents. General practice residents provided the majority of the emergency treatment categorized as 'resident'. The pediatric dental residency program began during the study period and only a few patients were treated by pediatric dental residents; meaningful comparisons between resident groups were not possible. An APD or resident provided clinic hours emergency treatment. After-hours patients were triaged by the emergency room staff and treated by a resident with an APD on call and available when needed. Most emergency care was provided with parents present in the treatment area.

To eliminate bias resulting from treatment type, only parents of patients requiring emergent extraction of 1 or more primary teeth were eligible for this project. An additional criterion was the ability to read and write English. Potential subjects were identified by a review of all emergency records from the years 1992 through 1997. Surveys were completed as soon as a few months to up to 5 years after the emergency treatment.

A 41-question survey containing the standardized satisfaction questionnaires of Davies and Ware (*Dental Satisfaction Questionnaire [DSQ]*),[31] Corah's *Dental Anxiety Survey*,[32] *Dental Visit Satisfaction Scale (DVSS)*,[33] and questions regarding treatment events were developed. Information was collected about parent demographics, dental attitudes, and the child's previous dental experience. Written comments were encouraged. The instrument survey was refined after a pretest of 6 parents; these results were not included in this report.

Based on the mail survey protocol of Salant and Dillman,[34] parents received an advance notice postcard before receiving the questionnaire. Reminder cards and replacement questionnaire were sent to nonresponders.

All information taken from the medical records and questionnaires was numerically coded and entered into a table format using SPSS/PC (Statistical Package for the Social Sciences). Written comments were coded and sorted into 3 categories by the investigators.

Descriptive statistics were calculated. In some cases, percentages totaled greater than 100 because parents selected more than 1 answer. For the identification of factors associated with parental satisfaction, nonparametric statistical tests were used. When scoring the *DSQ*, mean scores were calculated so scores of all participants could be compared, regardless of the number of items answered. Respondents with scores greater than 50% were designated as satisfied, below 50% were not satisfied. Those with scores of 50% were considered to be neutral.

RESULTS

One hundred twenty-two of 243 (50%) questionnaires were completed, returned with written consent, and analyzed.

PARENT AND PATIENT CHARACTERISTICS

Parents completed 97% of the questionnaires (118/122) and guardians completed 3% (3/122). One respondent did not indicate the relationship to the child. Females completed 100 surveys (82%). The mean age of the respondents at survey time was 35.3 years (range 21 to 50 years). Ninety-seven percent of respondents had a high school diploma, 77% at least some college. A slight majority of respondents provided information regarding treatment received after hours (52%, 63/122). The reason for the emergency visit was weighted minimally in favor of trauma (53%, 64/122) in contrast to caries/infection (48%, 58/122).

Patient gender was predominately male, 64% (78/122) with the mean age of all patients being 4.3 years (range 1.10 to 11.64 years). The ethnicity of the patients was 75% white, 6% African American, 5% Asian, 2% Hispanic, 1% Native American, and 11% other/unknown.

The mean age for trauma patients was 3.7 years (range 0.8 to 14.6 years). The mean age of caries/infection patients was 5.1 years (range 0.9 to 17.1 years). The emergency visit was the first dental experience for 49% of children in this study (60/122). The mean age of first visit trauma patients was 2.4 years and mean age of first visit caries/infection patients was 2.7 years. Sixty-seven percent (41/60) of parents of first visit children felt their child was too young for regular dental care (Table 1). The parents who believed their child was too young indicated that an appropriate age for a child's first dental visit was a mean of 4.7 years (Table 2).

The reasons parents chose hospital emergency dental services differed for caries and trauma patients. The primary reasons for caries patients were: referred by medical doctor (35%); private dentist unavailable (24%); no regular dentist (21%); and finances (17%). Trauma patient reasons were: private dentist unavailable (27%); felt medical attention was needed (22%); referred by medical doctor (20%); and no attempt to contact private dentist (16%).

Table 1. Reason for No Previous Dental Appointment

All Patients N=60		Caries N=23		Trauma N=37		
N	%	N	%	N	%	Reason
41	68	9	39	32	87	Felt child was too young
6	10	4	17	2	5	Could not find dentist due to child's age
6	10	5	22	1	3	Finances
5	8	1	4	4	11	Felt not necessary
5	8	3	13	2	5	Dentist access limited by insurance
3	5	3	13	0	0	Unaware of problem
1	2	0	0	1	3	Concern experience would be unpleasant
4	7	2	9	2	5	No reason given

Table 3. Satisfaction as Scored by the DSQ

	DSQ<50		DSQ=50		DSQ>50	
Factor (N)	N	%	N	%	N	%
Female DDS (52)	14	27	8	15	30	58
Male DDS (65)	14	22	4	6	47	72
Both (5)	0	0	0	0	5	100
Attending (21)*	4	19	0	0	17	81
Resident (101)*	24	24	12	12	65	64
Trauma (64)	11	17	6	9	47	73
Caries/infection (58)	12	21	5	9	41	71
No previous visit (60)	13	22	7	12	39	65
Previous visit (62)	15	24	5	8	43	69
Immobilized (47)	12	26	5	11	30	64
Not immobilized (75)	16	21	7	9	52	69
No insurance (12)	4	33	0	0	8	67
Insurance (64)	12	19	6	9	46	72
Medicaid (46)	12	26	6	13	28	61

** Found to be significant using chi-square analysis.*

Payer information was obtained from hospital billing records. The distribution was: 38% Medicaid (46/122); 31% private dental and medical insurance (38/122); 18% medical insurance only (22/122); 10% no medical or dental insurance (12/122); and 3% private dental insurance only (4/122).

TREATMENT EVENTS

Male dentists provided treatment to 53% of patients (65/122); female dentists treated 43% (52/122). Emergency treatment for 4% of the patients was managed by both a male and female dentist (5/122). Eighty-three percent of patients were treated by residents (101/122) and 17% by an APD (21/122).

Table 2. Parent Beliefs of Child's Age for First Dental Visit (N=120)

	All Parents		No Previous Visit		Previous Visit	
Preferred Age	N	%	N	%	N	%
1 year	21	18	6	5	15	13
2 year	43	36	22	18	21	18
3 year	34	28	20	17	14	12
4 year	12	10	5	4	7	6
5 year	5	4	4	3	1	1
6 year	5	4	2	2	3	3

Table 4. Dental Visit Satisfaction Survey – % Agreeing

DVSS Statements	Agreeing (%)
After talking with the dentist, I knew the condition of my child's mouth.	91
The dentist told me all I wanted to know about my child's dental problems.	85
I really felt my child was understood by the dentist.	81
I really felt that the dentist knew how upset my child was about the possibility of pain.	86
The dentist was thorough in doing the procedure.	88
The dentist was too rough when working on my child.	18
I was satisfied with what the dentist did.	85
The dentist seemed to know what he/she was doing during my child's visit.	91

DENTAL SATISFACTION

Sixty-seven percent of parents (82/122) had *DSQ* scores that indicated satisfaction. Twenty-eight parents were not satisfied (23%) and 12 parents were neutral (10%). The greatest satisfaction, as indicated by the *DSQ*, was seen when the APD provided treatment (Table 3). In the *DVSS*, 85% of parents agreed with the statement, "I was satisfied with what the dentist did" (Table 4). More than 80% of parents agreed to all *DVSS* items (Table 4).

Eighty percent of parents (97/121) reported receiving a clear explanation of their child's condition and rationale for treatment. Eighteen percent felt that an adequate explanation was not provided, 2% reported that no explanation was given. Residents treated 92% (22/24) of the patients with a parent who felt the explanation was inadequate ($P<.2$). Parents of children treated for trauma (15/64) were less often satisfied with explanations than parents of children who were seen for caries/infection (9/58, $P<.3$).

Mothers were less satisfied with diagnosis and treatment explanations than fathers; 22% of mothers were dissatisfied

Table 5. Satisfaction (%) Related to Location and Number of Extraction(s)

	Single incisor N=53	Multiple incisors N=33	Single molar* N=31	Multiple molars N=4
Overall	89	76	90	100
1992	92	83	80	—
1993	92	67	100	100
1994	100	57	100	100
1996–97	73	91	75	100

** One parent did not respond to question.*

Table 7. Treatment Immobilization (N= 47)

N	%	Parent Perception
28	60	Used to deliver safe and efficient treatment
6	13	Unsure as to why the device was used or did not think that it was necessary
2	4	Used to deliver safe and efficient treatment and due to unavailability of staff
2	4	Did not respond
9	19	Did not remember that immobilization was used

(22/100) compared with only 9% of fathers (2/22). Explanations provided by female dentists were perceived more negatively (23%, 12/52) than those by male dentists (14%, 9/65; $P<.2$). Satisfaction with the dentist's explanation did not correlate with parent ethnicity, education level, or funding source. Level of satisfaction did not correlate with duration of dental treatment. Parents of those children treated during clinic hours were found to be slightly more satisfied (87%, 51/59) than those treated after hours (84%, 53/63).

All patients received the extraction of 1 or more primary teeth. Fifty-six percent required no auxiliary behavior management (68/122). Uncooperative patients were treated using an immobilization device (76%, 41/54), immobilization with active restraint and/or oral sedation (11%, 6/54), or active restraint by parent and/or staff (11%, 6/54). Twenty-six percent received nitrous oxide (32/122).

The impact of incisor vs molar extraction and single vs multiple extractions was analyzed. Parents of children requiring extraction of 1 or more molars (89%) were more satisfied than parents requiring 1 or more incisor extraction(s) (84%). Parents were more satisfied with the removal of a single incisor (89%) as compared to extraction of multiple incisors (76%, $P=.2$) (Table 5). All parents of patients receiving extraction of multiple molars were satisfied, 90% of parents whose child had extraction of a single molar were satisfied.

The effect of time elapsed between treatment and survey was examined. The parents of children treated with extraction of a single incisor or molar in the year 1996–97 (closest to the time of survey) were least satisfied. Satisfaction by year and procedure is illustrated in Table 6.

Table 6. Satisfaction (%) by Treatment Year

	Satisfaction	Incisor Extraction	Molar Extraction
All years	86	84	89
1992	85	90	80
1993	86	81	91
1994	92	84	100
1996–97	79	81	78

Table 8. DVSS Satisfaction Scores

	DVSS agree		*DVSS* disagree		*DVSS* no answer	
Factor	N	%	N	%	N	%
Female dentist	45	87	7	13	0	—
Male dentist	57	88	7	11	1	2
Both	2	40	3	60	0	—
Attending	19	91	2	10	0	—
Resident	85	84	15	15	1	1
Trauma	54	84	10	16	0	—
Caries/infection	50	86	7	12	1	2
No previous visit	50	83	9	15	0	—
Previous visit	54	87	8	13	1	2
Immobilized	38	81	8	17	1	2
Not immobilized	66	88	9	12	0	—
Insurance	54	84	10	16	0	—
Medicaid	41	89	5	11	0	—
No insurance	9	75	2	17	1	8

According to treatment records, 47 patients were placed in a treatment immobilization device (Papoose Board, Olympic Medical Corporation, Seattle, Wash) yet 9 of their parents (19%) did not recall that immobilization was used. A majority of parents understood the rationale for the use of immobilization (Table 7). Satisfaction had no correlation with use of immobilization (Table 8).

Parents were asked their perception of behavior management modalities for a child unable to cooperate for emergency treatment. Their preferred method was sedation (64%, 72/113) followed by immobilization (38%, 43/113), general anesthesia (35%, 40/113), restraint by staff/parent (25%, 28/113), or aborting treatment (4%, 5/113). Parents of after-hours emergency patients preferred the following behavioral adjuncts: sedation (66%, 38/58), immobilization (43%, 25/58), general anesthesia (41%, 24/58), and restraint by staff/parent (29%, 17/58).

The written comments were categorized into 3 topics: dentist/staff, treatment/services, and parent preferences. Many comments were directed toward the style, communication ability, or perceived competence of the dentist. Comments indicated a preference for sedation and assisting staff after hours.

DISCUSSION

In a perfect world, young children with dental emergencies would be treated by an experienced, calm, reassuring empathetic dentist with available and expert support staff. The experience of the families participating in this study was somewhat different. Most care was delivered by residents with variable pediatric experience and a large number of children were treated by a resident working after hours with only the child's parent(s) to assist with treatment. Given these factors, it is encouraging that the majority of parents were satisfied with the dental experience, but not surprising that this study found lower satisfaction than that reported by Stokes.[29]

No single factor accounted for satisfaction and emergency care places stress on the child patient, parent, dentist, and staff. Many parents had struggled to find a dentist willing and available to treat their child on an emergent basis. After-hour patients had the additional process and time of registering with the hospital emergency room. After evaluation by the dentist, parents were informed that at least 1 extraction was needed. Due to the need for local anesthesia, extraction, and in some cases, auxiliary techniques to manage child behavior, the dental appointment was not inherently pleasant for the child or parent.

Parents of children with trauma were less satisfied with explanations than parents of patients with caries/infection. After a traumatic event occurs, the parent must calm the child, assess the situation, contact a dentist, and transport the child to the office. Depending on the cause of injury, the parent may feel guilty and responsible. Due to these stresses, parents could be expected to be more critical of the emergency experience.

The small group of parents whose child had the extraction of multiple molars were found to be the most satisfied. These parents who did not need to contend with the issue of esthetics may have been grateful for multiple problems being addressed in a single appointment. Parents of children with multiple incisor extractions were the least satisfied. Esthetic compromise and a feeling of parental guilt/responsibility may have decreased satisfaction (Table 5). Surprisingly, no significant differences were found in satisfaction as measured by the *DSQ* or *DVSS* between parents of children receiving emergent care for caries vs care for a traumatic injury.

The passage of time may diminish detailed recall and temper strong feelings. Parents whose children received incisor extraction closest to the time of the survey reported the lowest levels of satisfaction, however, there was no consistent relationship in time elapsed between treatment and survey completion (Table 6).

Parent satisfaction was clearly influenced by the dentist's experience level and to a lesser degree by gender. Parents were less satisfied with both the treatment and explanations provided by residents. The limited experience of residents can result in a parental perception of uncertainty. Our findings agree with those reported for patient/physician interactions where provider uncertainty, perceived intelligence and resident giving information were inversely related to the degree of satisfaction.[18-20]

Explanation of examination findings and proposed treatment plays an important role in determining a parent's perceptions of the quality of treatment. Communication skills are a key part of the perceived "professional package" along with diagnostic expertise and technical skills. Parents in this study perceived explanations by attending male dentists more positively. Similar findings were found in research conducted by Stokes.[32] Female patients have been shown to have differing expectations for interactions based on the professional's gender.[30] Female professionals may be held to a higher qualitative and quantitative standard of explanations. Mothers may have had different expectations of male vs female dentists; this may explain why female dentists were perceived more negatively.

In the written comments, parents repeatedly expressed a desire for support staff to assist with after hours emergency treatment. In Brown's study of parent satisfaction with pediatric hospital emergency medical services, less satisfied parents were concerned about staff availability, quality of staff communication with parents, and the speed with which their children's needs were met.[19] Provision of after-hours support staff is difficult due to the unpredictable need for services and economic factors.

Given the young patient age, nature of the dental problems, and large number of children experiencing dentistry for the first time, it is understandable that behavior management adjuncts were necessary. Although the dentist may be apprehensive about the use of treatment immobilization, this study demonstrates that most parents found it an acceptable aid to emergency treatment. Parent acceptance of immobilization depends on many factors including the dentist's confidence and communication skills.

The findings regarding parent preferences for behavior management techniques are interesting. Parents preferred sedation as an adjunct to providing treatment for an uncooperative child. Sedation is often not possible for emergency dental treatment because of NPO status, staffing requirements, time constraints, wait time and economic factors. This is particularly applicable for after-hours emergencies. The imbalance between parental expectations/desires and the dentist's ability to provide such services must be discussed thoroughly in advance of treatment.

The American Academy of Pediatric Dentistry (AAPD) recommends that an initial dental visit should occur within 6 months of the eruption of the first primary tooth and no later than 1 year of age.[35] The disparity between the parent's perception of ideal age for the first dental visit and the AAPD recommendation highlights the need for further public education. The first dental visit for the young trauma patients in this study resulted in tooth extraction. It is easier to lay a foundation of mutual trust and respect between the dentist, patient, and parent at an atraumatic first visit. The public, parents, and health care professionals should be targeted for education on the value of early dental evaluation and guidance before the occurrence of an emergent situation.

This study has implications for dentists, dental educators, hospital dental directors, and public health planners. It indicates the value of ongoing satisfaction survey research and suggests possible directions for future projects. An optimal approach would involve routine, timely follow-up contact with every parent of an emergency treatment patient. With this approach, difficulties in communication could rapidly be identified and addressed.

LIMITATIONS

This study reflects limitations both in the design and practical elements of this type of research. The education and payer status of those returning this survey indicates a significant sample bias towards those with higher levels of education and income. Those in lower socioeconomic groups proved much more difficult to locate and few parents responded. As in all survey research, those with neutral feelings about the emergency experience were less likely to take the time to complete the survey. This skews findings with both positive and negative results over-represented.

The length of time the patient waited in the clinic or emergency room prior to receiving treatment was not investigated in this study as a correlate to satisfaction, and this should be considered in future research. As in any retrospective study, the time lapse between the date of service and date of survey impacts the recall of events. A preferable design for this type of study would be collection of satisfaction data in a timely fashion following emergency treatment.

CONCLUSIONS

1. Factors associated with parental satisfaction with the emergency dental visit were: clarity of provider explanation; treatment by APD's; treatment by male dentists; treatment provided during clinic hours; and the location and number of extractions.
2. Satisfaction did not correlate with: ethnicity of the parent or patient; socioeconomic status; parent's education level; patient's previous dental experience; use of an immobilization device; or the amount of time elapsed between treatment and survey completion.
3. In this study, the perceived quality of explanations correlated with parent satisfaction:
   a. Explanations by APDs and male dentists were felt to be more adequate;
   b. Explanations given to parents of children with trauma were less satisfying to parents than those whose children were seen for caries/infection;
   c. Overall, mothers felt less well informed than fathers.

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