Scientific Article

Dentists' and Parents' Perceptions of Health, Esthetics, and Treatment of Maxillary Primary Incisors

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Abstract

Purpose: Dentists' and parents' assessment of primary maxillary incisors regarding attractiveness, perceived health, and treatment preferences were investigated in this study.
Methods: Sample groups of 103 general dentists, 67 pediatric dentists, 97 parents of children in low-income families and 112 parents of children in high-income families completed questionnaires presenting color photographs and radiographs of maxillary incisors. Questions addressed treatment need, health beliefs, and demographics.
Results: All groups recognized grossly carious teeth and carious teeth with visible sinus tracts as unhealthy and unattractive. All agreed that grossly carious teeth warranted extraction (dentists=92%, parents=73%). For carious teeth with sinus tracts, dentists favored extraction and restorations while parents favored fluoride application. Dentists rated a dark incisor as healthy and not requiring treatment. Parents rated a dark incisor as neutral for attractiveness and health, but favored extraction or restoration. All groups found anterior steel crowns esthetically unacceptable. Trust of the dentist, pain for the child, and dentist skill was important for parents in treatment plan acceptance.
Conclusions: A dentist's inexperience in pediatrics may result in a failure to diagnose or recognize the significance of some conditions. Proper parental education can better inform parents on dental conditions requiring prompt professional attention. Although parents today are more involved in clinical decision-making, they still rely on the dentist's expertise and advice. (*Pediatr Dent.* 2005;27:19-23)

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Ongoing efforts to develop new dental materials and treatment techniques reflect a high level of interest in esthetic dentistry among the dental profession and general public.[1-6] Both adults and children evaluate children differently based on physical attractiveness.[7,8] Attractiveness of the dentofacial area contributes to the total attractiveness of the face.[9] In the young child, maxillary primary incisors have a key impact on facial esthetics.

Medical sociologists have noted a shift toward a consumerist position on health care.[10-12] Parents are now involved in decision-making, which was previously the sole province of the medical or dental professional. Clinical decision-making has become a social process that includes the dentist, patient, and occasionally other family members and insurers.[13]

A dental treatment plan rarely offers one type of treatment with no alternatives.[14] Dentists should consider parental attitudes, beliefs, and values regarding esthetics and function when presenting treatment options.[5] Establishing which outcomes are of the greatest value to each party involved as well as likely outcomes of different approaches is critical to providing quality health care. Since dentists' and parents' opinions of optimum treatment can vary, understanding these differences may improve communication and aid in formulating parent-sensitive treatment plans.[15]

The purpose of this study was to explore dentists' and parents' assessment of primary maxillary incisors regarding attractiveness, perceived health, and treatment preferences.

Methods

Two questionnaires specific for dentist and parent groups were constructed.[16,17] Color slides and periapical radiographs were scanned and cropped. Respondents were informed that the child in the photo was 3 years old and asymptomatic. Radiographic images were included in parts 1 and 2 of the dentist questionnaire. The questionnaire parts were:

1. Demographics, health beliefs, and children's health care habits. Dentists were asked about the nature of their professional practices.
2. Photos of grossly carious incisors (Figure 1), carious incisors with visible sinus tracts (Figure 2), and a dentition with a dark incisor (Figure 3) were presented. Respondents rated esthetics, health, perception of need, and type of treatment required on a 0 to 10 scale.
3. Patient scenarios were presented with proposed treatment. Respondents agreed or disagreed with the treatment options and ranked the 3 most important factors influencing their decisions.
4. Three sets of 4 photographs were presented. Respondents ranked perceived attractiveness and health for different incisor restorations, incisor spacing, and various patterns of missing incisors.

The questionnaire was refined after dentist and parent pilot testing.

Subjects

Four groups participated in this IRB approved study: 103 general dentists (GPs), 67 pediatric dentists (PDs), 97 parents of children in low-income families (WIC), and 112 parents of children in high-income families (PS).

All dentists had a current dental license. General dentists were recruited at a regional dental conference. Pediatric dentists were recruited by direct mailing of the survey.

Five preschools and 2 Women, Infant, and Children (WIC) programs agreed to participate in the study. Parents in the low-income group were convenience sampled at WIC clinics at the University of Washington and Odessa Brown Community Clinic in Seattle, Wash. Parents in the high-income group were recruited from 5 randomly selected preschools located in census tract areas with a median family income of greater than $50,000.[18,19] To be eligible, parents had to either be enrolled in the WIC program or have at least 1 child and be able to read and write in English.

All participants except the PDs were approached by the principal investigator and asked to participate. After written consent was obtained, subjects were given a questionnaire. Upon completion, parents were given an oral hygiene kit as a thank you.

Statistical analysis

Descriptive statistics of demographics were tabulated for each group. Data were then combined from the PDs and GPs groups and the WIC and PS groups to create dentist and parent groups. Means and standard deviations were calculated for data pertaining to: (1) attractiveness; (2) health; and (3) need for dental treatment. Percentages were calculated for the dentist and parent groups for:

1. the ranking (first, second, third, or fourth) of
   a. restoration type;
   b. anterior spacing;
   c. pattern of missing teeth for esthetics;
   d. health.
2. perceived treatment need (yes or no);
3. treatment options (agree/strongly agree, neutral, disagree/strongly disagree).

Group means were compared using 2-sample *t* tests, and group percentages were compared using chi-square tests. Similar comparisons were conducted between the 2 dentist and parent groups. In addition, frequencies were described for factors that influence: (1) dentist treatment plan decision-making; and (2) parent treatment plan acceptance.

Results

Dentists were primarily male (PDs=75%, GPs=73%), and parents were primarily female (WIC=78%, PS=81%). The majority of the dentists and preschool parents were Caucasian (PDs=84%, GPs=71%, PS=80%). The WIC group had the greatest ethnic diversity (Caucasians=32%, African Americans=23%, Asians=20%). Mean age was 48 years for PDs (range=30 to 65), 43 years for GPs (range=27 to 70), 28 years for WIC (range=15 to 45), and 35 years for PS (range=23 to 53). Dentists were overwhelmingly in solo private practices (90%) providing 30 to 39 hours per week of patient care (92%), with 56% of GPs devoting less than 25% of their practice time to pediatric patients.

The parent groups differed in education, marital status, annual household income, and insurance coverage. Compared to PS parents, WIC parents had:

1. less education;
2. greater chance of never being married;
3. lower income;
4. higher percentage of Medicaid coverage.

Parents had neutral or positive feelings about their own dental visits (WIC=65%, PS=72%), but agreed that teeth contribute to overall health and that baby teeth are important (WIC=95%, PS=97%).

All groups rated pictures of grossly carious teeth and carious teeth with visible sinus tracts as unattractive and unhealthy. Dentists rated the dentition with the dark incisor as healthy (mean rating=7.5); parents gave this condition a neutral rating (mean=5.1, $P<.001$). Dentists found the dark incisor slightly more esthetically acceptable (mean=5.8) than parents (mean=4.8, $P<.001$).

All groups rated composite crowns as the most esthetic (dentists=99%, parents=86%) and stainless steel crowns as the least attractive incisor restorations (dentists=87%, parents=83%). Dentists ranked composite-faced steel crowns

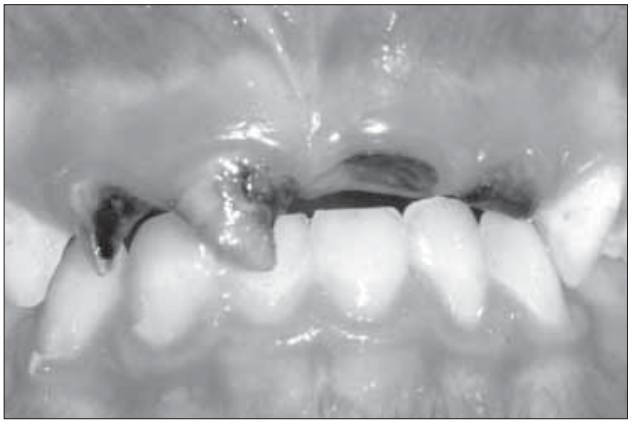

Figure 1. Grossly carious teeth.

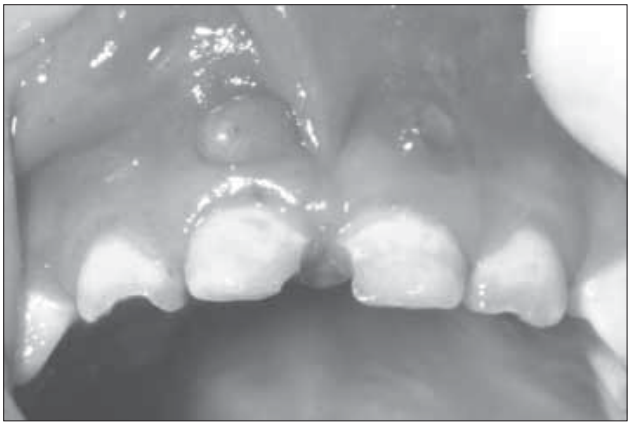

Figure 2. Carious teeth with visible sinus tracts.

Figure 3. Dark incisor.

second most attractive (79%), whereas parents tended to rank either composite-faced steel crowns or edentulous anterior ridges second ($P<.001$).

Parents (84%) were more likely than dentists (56%) to report a difference in health between the 4 pictures ($P<.001$). Dentists and parents who perceived a difference rated health similarly. Both groups agreed that composite crowns (dentists=65%, parents=79%) were healthiest and steel crowns were the least healthy (dentists=79%, parents=67%).

Dentists ranked slight incisor spacing as most esthetic (52%), and parents ranked no spacing as most esthetic (69%, $P<.001$). Dentists ranked no spacing as second most attractive (49%), whereas parents ranked slight incisor spacing as second (45%, $P<.001$). Parents (77%) were more likely than dentists (38%) to report a difference in health ($P<.001$).

For various patterns of missing teeth, all groups tended to agree that missing incisor was the most attractive (dentists=62%, parents=50%) and missing 2 nonadjacent incisors was least attractive (dentists=57%, parents=45%). Interestingly, 38% of parents and 32% of dentists rated missing 4 incisors as most attractive. The majority of dentists (80%) and parents (63%) did not perceive a difference in health.

All groups agreed that treatment was needed for grossly carious teeth (dentists=98%, parents=95%) and that extraction was warranted (dentists=92%, parents=73%).

Differences were found regarding treatment of carious teeth with visible sinus tracts. Although dentists and parents agreed that treatment was needed, dentists were divided on whether extraction was indicated and parents disagreed with extraction.

For the dark incisor, 83% of dentists favored no treatment, as compared to 71% of parents who thought treatment was needed ($P<.001$). Parents favored fluoride (43%) and composite crown/pulpotomy (48%).

There were significant differences between dentist groups for management of carious teeth with visible sinus tracts. PDs rated these teeth as significantly more unattractive (mean=1.8) and unhealthy (mean=0.9) than GPs (mean=2.8, $P=.009$; mean=2.6, $P<.001$). PDs favored extraction (77%), while GPs favored composite crown/pulpotomy (81%).

Factors influencing dentist treatment recommendations were highly variable. Child medical history and condition of the pulp were most important to PDs, while child pain and condition of the pulp were most important to GPs.

No significant differences were found between parent groups regarding esthetics, perceived health, and treatment preferences. Parents considered trust of the dentist, pain for the child, and skill of the dentist as important factors for treatment plan acceptance.

Discussion

This study revealed a number of findings about dentist and parent perceptions of attractiveness and health of the maxillary incisors. Understanding similarities and differences is a critical step in optimizing dentist and parent communication. Both dentist and parent groups consistently ranked attractiveness and health similarly, thus lending support to the "beauty-is-good" hypothesis. The link between attractiveness and perceived health raises intriguing issues concerning society's views on esthetics. Significant research has been conducted for adults, but very little has been done with children and parents.

All groups considered incisor steel crowns esthetically unacceptable and unhealthy, although they have been shown to be effective restorations.[20,21] The poor esthetics of anterior steel crowns is evidenced by methods to improve their appearance with composite veneering[4,6] and recently emphasized by Texas parents in a Dateline NBC television segment. Parents were concerned about poor esthetics, and children reported being teased. Shaw[22] found that, among children aged 9 to 13 years, dental features were the fourth most common reason for teasing after height, weight, and hair.

Dentist groups differed on treatment of carious teeth with sinus tracts. General dentists' ratings of health were similar to those of parents. Many general dentists failed to recognize the presence or significance of sinus tracts. Limited pediatric dental education and experience in treating children may have contributed to this oversight. The numbers and types of pediatric dental procedures that dental students receive have been declining.[23] This is problematic because general dentists see the majority of children. Inexperience in pediatric dentistry may result in conditions going unrecognized or untreated.

Consistent with studies by McKnight-Hanes,[24,25] treatment preferences and factors influencing treatment planning varied between dentist groups. General dentists reported being more influenced by patient age, behavior, pain, and their own skill than pediatric dentists. The additional training of pediatric dentists allowed for more confidence in treating the child patient. Within this group, however, differences existed in treatment preference.

Parents recognized deviations in attractiveness and health, but had difficulty determining treatment for carious teeth with visible sinus tracts and the dark incisor. A high percentage of parents selected fluoride application as their treatment of choice. During data collection, it was observed that many parents were unsure of what treatment was required, commenting "I'm not a dentist—I'm not sure what to do," but were familiar with fluoride from public campaigns. Parents may have selected fluoride based on familiarity. Parents might also prefer less invasive treatments.

Parents may not have knowledge to determine appropriate treatment for dental conditions, but had perceptions of when treatment was needed. For the dark incisor, parents preferred treatment that was not necessary. Education is needed to better inform parents of dental conditions requiring professional intervention. Additionally, parent education has been shown to increase preventive dental treatment for children under 4 years of age.[26]

Parents agreed that trust of the dentist was the most influential factor in treatment plan acceptance. Dentist skill and child pain were also important. The dentist's ability to build trust, educate, and influence parents depends on good communication.[27,28]

Treatment recommendations vary, and outcome assessments may be an effective method for establishing what is deemed to be good care for patients.[29-31] This concept challenges the dental profession to make treatment recommendations based on clinical outcomes research.

Limitations

Cultural influence on esthetic and health perceptions have been demonstrated.[32,33] It was beyond the scope and resources of this study to measure the specific influences of participants' ethnic makeup. Convenience sampling may have resulted in a self-selected sample group with more interest in and awareness of oral health. Questionnaire length may have deterred some potential participants. The self-administration of the questionnaire excluded those with limited ability to read English. WIC parents had low income, but a greater-than-expected percentage of higher education. This may have been a result of sampling from the University of Washington-based population, where many WIC participants are graduate students.

Conclusions

Based on this study's results, the following conclusions can be made:

1. Inexperience of the dentist in pediatrics may result in a failure to diagnose or recognize the significance of some conditions.
2. Parental education would better inform parents on dental conditions requiring prompt professional attention.
3. Although parents are more involved in clinical decision-making, they still rely on the dentist's expertise and advice.

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