Parents' Attitude toward their Children's Appearance in the Case of Esthetic Defects of the Anterior Primary Teeth

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Purpose: *To evaluate parents' attitude toward esthetic defects of maxillary primary incisors and the association between various demographic parameters and the treatment parents chose for their children.* ***Methods:*** *The study consisted of two parts: 1) a clinical examination of the child's primary incisors, and 2) a questionnaire for the accompanying parent. 362 parents who accompanied 294 children aged 1-6 years, participated in the study. They were divided in 2 groups: parents' accompanying children with esthetic defects (study group) and parents' of children without esthetic defects (control group).* ***Results:*** *Significantly more parents in the study group (73%) recognized an esthetic problem in their child's incisors, compared to (17%) in the control group. Eighty seven percent (219 in the Study Group[85.2%] and 97 in the Control Group[92.4%]) advocated dental treatment to save a primary tooth even if the chances for success were only 50%. 35.9% rejected the idea of a prosthetic replacement for a lost primary incisor. The same percentage of parents (35.9%) answered that they "want it 'very much'" while the rest (28.2%) chose intermediate scores '2-3' on a scale of '0' (= not at all) to '5' (= yes! very much).* ***Conclusion:*** *Parents are interested in a conservative treatment for preserving esthetically damaged incisors, but will be less enthusiastic to replace extracted or missing teeth with an esthetic device.*

Keywords: *esthetic restorations ,primary, deciduous, teeth, parents.*
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INTRODUCTION

Impaired esthetic appearance of maxillary primary incisors may be the result of a variety of circumstances. The major causes are: traumatic injuries[1-5]**;** pulpal pathology[6]; caries[7]; developmental disturbances such as hypodontia and hyperodontia, malformation, fusion and gemination[8–10]; fluorosis; opacities and others.[11-13] Endodontic treatment in which an iodoform containing paste is used to fill the pulp space may also affect the esthetic appearance of the primary incisors.[14]

The development of new dental materials and novel techniques to improve the esthetic appearance of permanent teeth increased the awareness of pediatric dentists of their ability to solve esthetic problems in primary teeth.

It was found that children with normal dental appearance were judged to be better looking, more desirable as friends, more intelligent, and less likely to behave aggressively. The oral region proved to be of primary importance in determining over-all facial attractiveness.[15] Woo *et al* [16] evaluated parents' perception of the esthetics of maxillary primary incisors that were grossly carious and infected or darkly discolored and found that parents, primarily mothers, found these conditions to be unattractive.

Various methods have been suggested in the dental literature to improve the appearance of esthetically impaired primary incisors. Among them are bleaching primary incisors[17-19] the use of strip crowns for fractured and carious teeth[20,21] pre-veneered stainless-steel crowns[22] fixed appliances,[23] and even the use of the natural crown of an exfoliated tooth of another child.[24]

Several studies evaluated parents' satisfaction with the appearance of their children's permanent teeth[15] but only few reports on parents attitude to primary teeth were found in the dental literature. Shaw, Woodward**,** and Shulman**,**[15,25,26] evaluated the esthetic appearance of permanent teeth but concentrated on malocclusion and tooth color only. The literature related to the effect of primary teeth on the esthetic appearance of preschool children is limited. In a study, by Woo *et al* [16] parents did not evaluate the esthetics of their

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own children, but teeth seen in a set of pictures.

Despite the fact that pediatric dentists are capable to offer a variety of techniques to restore esthetically damaged primary incisors, it is, not yet clear whether parents recognize defects in the primary teeth of their children as an esthetic problem, and even if they do, to what extent do they require such esthetic solutions.

The purpose of this study was to evaluate parents' attitude toward esthetic defects of maxillary primary incisors and to evaluate the association between various demographic parameters and the treatment parents chose for their children.

MATERIALS AND METHODS

All parents who accompanied their preschool children for consultation or for emergency treatment at the dental clinic of the Department of Pediatric Dentistry of the Hebrew University – Hadassah School of Dental Medicine in Jerusalem, Israel were approached and asked to participate in the study. The Institutional Helsinki Committee approved the study. Parents were informed about the process of the study and were asked to sign a consent form prior to participation in the study.

The study consisted of two parts: 1) a clinical examination of the child's primary incisors, and 2) a questionnaire for the accompanying parent.

In the first part of the study, a specialist in pediatric dentistry recorded the child's age, gender and previous dental experience. The dentist then evaluated the esthetic appearance of the child's incisors as part of a routine clinical dental examination that the child had to undergo. The esthetic appearance was assessed according to predetermined criteria including clinical evidence of dental trauma, caries, external staining, malocclusion and developmental disturbances (Appendix 1). The children were divided into two groups: children *with* and children *without* an esthetic imperfection. Esthetic imperfection was defined as any score but '0' as appear in Appendix 1 under the heading: *Type and cause of esthetic defect*. The examiner, when checking the child, was unaware of the parent's attitude to the esthetic appearance of the child.

In the second part, accompanying parents were asked to complete a questionnaire regarding their attitude toward the appearance of their child's maxillary primary incisors. The questionnaire had two sections. Section 1 consisted of demographic questions such as: parents' age and gender; number of years of formal education and occupation; number of children in the family; the child's birth order; and if the child lives with both parents or with one of them only. The second section of the questionnaire related to the parents' attitude toward the esthetic appearance of his/her child's maxillary incisors (appendix 2). To some questions the parents were asked to reply by encircling a figure on a scale between '0' (= not at all) and '5' (= yes! very much). For statistical analysis score '0' was united with '1' to form the 'negative response'; scores '2' and '3' were united to form the 'intermediate response', and scores '4' and '5' formed together the 'positive response'(Appendix 2). The questionnaire was pre-tested before it was distributed to the parents participating in the study.

Three hundred and sixty-two parents participated in the study. They accompanied 294 children (166 boys and 128 girls) aged 1-6 years (42 were one-year old; 72 were 2-years old; 25 were 3-years old; 86 were 4-years old and 68 were 5-years old). One child was 6 years old but still had his maxillary primary incisors. Sixty-eight children were accompanied by both parents. In these cases, parents were asked to complete two separate questionnaires without collaboration. Only three parents refused to participate in the study.

The parents were divided into two groups. The Study Group consisted of 257 parents (71% of all parents) to 211 children who, according to the clinical examination had an esthetic imperfection of the maxillary primary incisors. The Control Group consisted of 105 parents (29%) of 83 children who had no esthetic imperfection.

The data collected from the Study Group was compared with that obtained from the Control Group using the Pearson's Chi-Square test and Fisher's Exact Test. Significance was set at a p-value less than 0.05.

RESULTS

The distribution of children and parents in both groups are presented in Table 1.

Of all children who had esthetic imperfections in their teeth 197 (93.4%) were limited to the maxillary teeth, in 4 (1.9%) children the defects were in the mandibular teeth and 10 (4.7%) children presented defects in both arches.

Twenty-eight children (10.9%) had already a cosmetic treatment of the primary incisors.

Seventy parents of both groups (19.3%; 70/362) mentioned they noticed an esthetic problem in their child's teeth, fifteen (21.4%; 15/70) of which asked about a possible cosmetic solution.

Three hundred and sixty-two parents (36.7% fathers and 63.3% mothers) completed the questionnaire. The 20-30 years age group consisted of 121 parents, 197 were in the 30-40 years group, and 44 parents were over 40 years old.

There was no statistically significant difference between the Study and the Control Groups concerning the following parameters: parents' age and gender, number of children in the family, the child's birth order, number of parents with

Table 1. Distribution of parents and children in the study and control groups.

	Causes for esthetic defects	No. of children (%)	No. of Parents (%)
Study group	Trauma	77 (36.5%)	94 (36.6%)
	Caries	99 (46.9%)	119 (46.3%)
	Malocclusion	9 (4.3%)	11 (4.3%)
	Other	7 (3.3%)	9 (3.5%)
	Combined causes	19 (9.0%)	24 (9.3%)
	Total Study group	**211 (100%)**	**257 (100 %)**
Control group	No esthetic defects	83	105
	Total Control group	**83**	**105**
	Total	**294**	**362**

whom the child lives, and child's gender and age.

Sixty-eight children were accompanied to the dental clinic by both parents. Twenty-three couples (46 parents) were of the study group and 11 (22 parents) of the control group.

This difference was not statistically significant (Chi-square, p>0.5). Comparison of their answers revealed no significant difference with regard to the number of years of formal education, recognition of an esthetic defect in the child's maxillary primary incisors, and their attitude toward a procedure aimed at saving an anterior tooth or replacing it with a prosthetic device if extraction was unavoidable.

One hundred and eighty seven (73%) of the parents of the Study Group stated they had recognized an esthetic problem in their child's front teeth, compared to eighteen (17%) of the parents in the Control Group. This difference was statistically significant (Chi-Square, p<0.001). Seventy (27%) parents rated '0' the degree of disturbance of the esthetic defect, 54 (21%) rated degrees 1+2; 48 (19%) rated degree 3 and 85 (33%) found the esthetic defect to be very much disturbing (degrees 4+5).

According to the report of parents of the study group, 6.6% (14/211) of the children complained of an esthetic disturbance in his/her teeth. This was not dependent on the child's gender; age; birth order; or parent's gender; age; profession and number of years of formal education, and 9 of these children where older than 5 years-of age (19.5% of their age group).

Three hundred and sixteen of all parents (87.3%) (219 [85.2%] of them in the Study Group and 97 [92.4%] in the Control Group) were interested in dental treatment to save a primary tooth even if the chances for success were only 50%. This difference was not statistically significant (Fisher Exact Test p= 0.081) though close to the limit of p<0.05. The parents' reply to this question was not dependent on the child's gender; age; birth order; or parent's gender; age; profession and number of years of formal education.

Of all parents, 35.9% rejected the idea of a prosthetic replacement for a lost primary incisor. The same percentage of parents (35.9%) answered that they "want it 'very much'" while the rest (28.2%) chose intermediate scores '2-3' on a scale of '0' (= not at all) to '5' (= yes! very much). There was no statistically significant difference between the attitudes of the parents in both groups. When evaluating the parents' attitude according to their age group: 40.7% (37/91) of the parent in the '20-30 years-age-group' strongly advocated a prosthetic replacement for a lost tooth, compared to only 32.1% (43/134) of the '30-40 years-age-group'. This difference was statistically significant (Chi-Square, p<0.005).

Evaluation of parents' attitude according to their children's age revealed that 18.8% (25/133) of parents to children less than 4-years-old expressed a strong disagreement with the idea of a prosthetic solution for a lost tooth compared to 54.8% (68/124) of parents to children older than 4-years-old. This difference was statistically significant (Chi-Square, p<0.005).

Disagreement with an esthetic restoration of a lost tooth was expressed by 42.9% (99/231) parents with less than 12 years of formal education compared to 23.7%(31/131) parents with more than 12 years of formal education (Chi-Square , p<0.005).

DISCUSSION

Though never investigated and proved, the development of a various methods to improve the appearance of esthetically impaired primary incisors seems to be the result of parents' demands to improve the esthetic appearance of their children's teeth. Previous studies support this assumption showing that parents prefer tooth colored restoration over amalgam and stainless steel crowns.[27,28] Also supporting this assumption is the high percentage (more than 87%) of parents in the present study, who advocated dental treatment to save a primary incisor even if the chances for success are only 50% and regardless of the child's gender; age; birth order; or parent's gender; age; profession and number of years of formal education.

Koroluk and Riekman,[29] concluded that the majority of parents did not see behavior changes after the extraction of primary incisors. Parents reported that after extraction children had no problems establishing social contacts and making new friends. In addition, the majority of the parents thought their children had no difficulty in speaking and learning to speak without the maxillary incisors. These findings seem to contradict the above mentioned assumption. However, Koroluk and Riekman investigated parents of children with nursing caries in which destruction of the teeth is gradual and spread over a long period. This condition allows parents to get used to the child's esthetic imperfection and internalize the idea that the teeth may need extraction, unlike traumatic injuries where the change is sudden. The perception of the esthetic appearance of a preschool child with missing front teeth depends on the condition before the loss of the teeth. Extraction is considered better where the teeth were severely decayed for a long time compared to healthy, normal appearing teeth that were knocked out or became dark discolored within a very short time.

Woo *et al*[16] investigated the attitude of parents to various esthetic defects of primary incisors (missing teeth, severe caries, dark coronal discoloration and caries accompanied by sinus tract) and their preferred treatment for these teeth. They found that missing two incisors is less attractive than missing one tooth, but the absence of all four incisors was not perceived as the worst condition. The majority of the parents preferred a conservative treatment for teeth with a sinus tract and preferred treatment to no-treatment for dark discolored teeth. This finding is in agreement with our observation that 87.3% of the parents of both groups advocated dental treatment to save primary teeth even if the chances for success are only 50%. These findings are not in accordance with those of Tickle *et al*[30] who examined parental attitudes to dental care, taking into account the family's socio-economic background and found that in the UK, there was little explicit support among parents for the restoration of asymptomatic carious primary teeth.

Unlike Woo's study,[16] in which parents were shown pictures of esthetic defects in primary teeth, in our study parents were grouped according to presence or absence of esthetic problems in their own children's teeth. In our study 27% of the parents of the study group did not consider a defect in their child's teeth as an esthetic problem. On the other hand, 17% of the parents of the control group complained about a defect not considered as such by the dentist. This reflects the difference between parents' and dentists' perception of defects in primary teeth as an esthetic problem, as was also shown by Woo *et al*[16] When parents were asked about their preferred treatment for a missing tooth only 36% rejected the idea of a prosthetic solution, while the same percentage of parents strongly believed that this is the right way to solve the esthetic problem. The difference between the parents' demand for a conservative treatment of a defected tooth and a missing one can be explained by their belief that restoring a missing tooth is more complicated than treating a dark discolored or a severely carious tooth. In very young children sedation may be needed to allow dental treatment. We assume that parents accept the need of sedation to treat a health problem more easily than for esthetic defect.

This also explains the finding that parents of children less than 4-years old strongly disagreed with the idea of a prosthetic solution for a lost tooth.

We found that more young parents (20-30 years-old group) preferred a prosthetic replacement of a missing tooth compared to older parents (30-40 years-old group). This may be explained by the findings of Vallittu *et al* [31] who found that younger patients are more likely to make demands regarding the appearance of their teeth. Unlike Vallittu *et al*,[31] in our study more highly educated parents agreed to an esthetic restoration for a lost tooth than parents with less than 12 years of formal education. This can be explained by the higher income and higher socio-economic status among more educated parents, even though Woo *et al*[16] did not find a significant difference between the attitude of high- and low-income parents regarding esthetics and treatment preferences.

Only a few children who were diagnosed by the dentist as having an esthetic problem complained about an esthetic defect in their teeth, according to the parents' report. The parents' reply to this question was not dependent on the child's gender; age; birth order; or parent's gender; age; profession and number years of formal education. This finding is very similar to that of Koroluk and Riekman[29] who concluded that after extraction of anterior maxillary teeth, parents reported that their children had no problem establishing social contact and making new friends, and they did not see behavior changes. Parents' report does not express the children's feelings about esthetic appearance of their own teeth. In order to assess the children's attitude a different investigation is required.

CONCLUSION

Most of the parents are interested in a conservative treatment for preserving esthetically damaged teeth, but will be less enthusiastic to replace extracted or missing teeth with an esthetic device.

Appendix #1

CLINICAL EXAMINATION OF THE CHILD'S PRIMARY INCISORS

Demographic data:

Child's gender (m/f) and age. (1/2/3/4/5/6)

Esthetic defects in the child's anterior teeth

1) ***Type and cause of esthetic defect*:**

a) **Esthetic defect due to trauma**: (0) none, (1) gray discoloration, (2) yellow discoloration, (3) crown fracture, (4) infra-occlusion, (5) missing tooth, (6) ectopic alignment (intrusion, extrusion, oral or lateral luxation)

b) **Esthetic defects due to caries**: (0) none, (1) labial or proximal caries, (2) crown destruction, (3) extracted tooth.

c) **Esthetic defects due to malocclusion**: (0) none, (1) open bite, (2) crowding, (3) spaced dentition.

d) **Various reasons for esthetic defects**: (0) none, (1) black stain, (2) hypoplasia/hypocalcification, (3) developmental disturbance (congenitally missing teeth, peg shaped, microdontia, fusion, gemination).

2) ***Type of tooth with defect:*** (0) no defects, (1) maxillary teeth, (2) mandibular teeth, (3) both mandibular and maxillary

3) ***Does the tooth have a cosmetic treatment?*** (0) no, (1) yes.

4) ***Did the parent notice an esthetics defect in the child's teeth?*** (0) no, (1) yes.

5) ***Did the parent ask for a cosmetic solution for the child's teeth?*** (0) no, (1) yes, (2) not applicable.

6) ***Does the child have maxillary incisors that should be extracted?*** (0) no, (1) yes (how many? 1, 2, 3, 4)

Appendix #2

Section 1 - Demographic questions

1. Parent's gender (m / f) and age (20-30 / 31-40 / 40+)
2. Number of years of formal education and occupation,
3. Number of children in the family,
4. The child's birth order,

Parent's attitude toward the esthetic appearance of his/her child's maxillary incisors

a) Do you recognize any esthetic problem in your child's teeth? **Yes / no**.

b) If 'YES', to what extent do you find it disturbing (please encircle the number that fits best your feeling):

5 4 3 2 1 0

Not at all **Very much**

c) Did your child complain of an esthetic disturbance in his/her teeth? **Yes / no**.

d) Assuming your child's upper front baby tooth is severely damaged, would you be willing him to have a treatment to save the tooth even if there were only 50% of chance of success of the treatment? **Yes / no**

e) Assuming it is impossible to save the upper front baby tooth, and it requires extraction, to what extent would you like your child to get a prosthetic device to replace the missing tooth? (please encircle the number that fits your feeling best)

5 4 3 2 1 0

Not at all Very much

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