

CHILDREN'S CONSENT TO DENTAL TREATMENT

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ABSTRACT

Objective: To determine whether children's decision regarding their dental treatment is affected by their age and gender and whether dental anxiety has an effect on their decision.

Methods: Participants in this study were 285 children including 148 boys and 137 girls aged 12-16 years old. Three questionnaires were distributed to children in their classroom at local Liverpool School-Broadgreen Comprehensive School. The first questionnaire was to assess their dental anxiety; the second was to determine the children's ability in making a decision concerning their dental treatment.

Results: Analysis of data demonstrated a significant relationship between decision-making and age of children ($p < 0.05$). Limited relationship was found between making a decision and both gender and dental anxiety.

Conclusion: Age of children was more strongly related to understanding the treatment and making a decision than gender and dental anxiety.

Key words: Consent, Children, Decision-making, Questionnaire, Dental Anxiety.

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Introduction

Consent is defined in the shorter Oxford English dictionary as: To agree together voluntarily, to accede or acquiesce in a proposal, request, etc or as a voluntary agreement to or acquiescence in what another proposes or desires, and compliance, concurrence or permission. Consent has been classified into implied and expressed or informed consent ⁽¹⁾.

Informed consent has 3 important elements: Firstly, the patient must have adequate information about the treatment and its alternatives. Secondly, the patient must be competent or having the capacity to make a decision while thirdly, he should be able to give consent voluntarily ⁽²⁾. All these three conditions must be met in order to have a valid consent ⁽³⁾. In accordance with Children Act for the year 1989 in the (UK), all children can give consent if they have sufficient understanding to make an informed decision ⁽⁴⁾.

When does a child become no longer a child?

When can a child consent to his or her own dental treatment without or even with the knowledge of his/her parents? In this study, the aims were to determine whether children's choice were affected by their age or gender and to determine to what extent the children's desire to take a decision and consent to dental treatment is related to dental anxiety.

Methods

The total subjects involved in this study included 285 male and female students. The children's age ranged between 12 to 16 years. They were selected from a local Liverpool School-Broadgreen Comprehensive School.

The children were divided into 5 ages with an equal number of children from both genders in each.

A consent letter was sent out to all parents. In the letter, the aims of the study were explained and it was made clear that any information given by a child would be treated confidentially and that parents were totally free to accept or refuse the participation of

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their child in this study. Moreover, should they decide not to take part in this questionnaire, then their decision would not affect their children's position in any way. Informed consent was obtained from parents as no refusals were received.

A Pilot study was conducted on 10 children in order to test how long it takes recipients to complete the questionnaires, to check whether all questions were clear or not and to remove any term that does not yield usable data. This was conducted on children of the same age group as in the main study.

After obtaining permission from parents, 2 questionnaires were administered by teachers, completed by children in the classrooms, and supervised by their teachers. The investigator gave an introduction outlining the purpose of the study and the confidential nature of the information was produced.

The first questionnaire was the main one, which aimed to collect information on children's capacity to make a decision for or against dentist's and their parent's decision, regarding three topics: Orthodontic treatment, conservative treatment and dental treatment under general anesthesia and if this decision is varied by their age.

There were only three questions on each topic with 5 choices. The children were asked to tick only one box. The choices were: Agree, discuss the matter, argue against, say nothing, and do not know what to do. A brief explanation for each topic was made before each question.

In conservative treatment the questions were:

1. Imagine that you have a discolored front tooth, which you are happy with, while the dentists and your parents decided to cover the tooth with veneer (C1).
2. Imagine that you have broken a front tooth, but you are told that it cannot be mended with a cap placed on until you are at the age of 18 (C2).
3. Imagine that you have a badly decayed back tooth and the dentist and your parents say that it should be extracted (C3).

In orthodontic topic the questions were:

1. Imagine that you have crooked teeth, but you are happy with them. Both your dentist and your parents decided that you should have a brace (Or1).
2. Imagine that you need orthodontic treatment and you agree to have such a treatment, but it will take much longer time than you originally thought (Or2).

3. Imagine that you have crowded teeth. The dentist told you that you could have orthodontic treatment now or at a later stage. Your parents decided to do the treatment now (Or3).

In general anesthesia topic the questions were:

1. Imagine that you have many decayed teeth and you are going to have them out under general anesthesia, as your parents' desire (GA1).
2. General anesthesia may be associated with side effects. For example, recovery takes a long time (many minutes) with drowsiness and the feeling of sickness. Imagine that you have been advised to have general anesthesia as your parents' desire (GA2).
3. Imagine that you have the option of having all fillings carried out while you are asleep under general anesthesia, as your parents' desire (GA3).

The second questionnaire was to assess their dental anxiety using the modified child dental anxiety scale ⁽⁵⁾. This consists of questions about the child feeling to general dental visit and about other seven specific clinical dental procedures that included: Examination of the child teeth, scaling and polishing, injection, restoration, extraction, general anesthesia and inhalation sedation.

Each question carried 1 to 5 marks. The lowest mark was 1 and the highest one was 5 for each question corresponding to "relaxed" and "very worried" respectively. The overall possible minimal mark that children might obtain was 8 and the overall possible maximum mark was 40.

The questions were completed by most of the children in approximately 15-20 minutes. The collected data were analyzed using the SPSS 6.0 version. The Chi-square test was used for non-parametric data, using 0.05 as significance level.

Results

Out the total of 285 students, there were 146 boys (51.2%) and 139 girls (48.8%). Table I shows the distribution of children in each age group.

Analysis of data in Table II showed that there was a statistically strong relationship between the age of children and their level of negotiation with their parents regarding different conservative treatments (Chi-square 42.5, 42.5, 54, respectively, $p < 0.05$). For example, the 12 year old children (54.9%) agree with their parents to cover anterior discolored tooth by veneer compared to 11.9% of children in the 16 years old group.

Analysis of data in Tables III demonstrated that there was a statistically significant relationship between the age of children and their level of negotiation with their parents concerning treatment under general anesthesia (Chi-square 45.8, 45, 65.3, respectively, $p < 0.05$). Children were less likely to agree with their parents by the increase of their age. For example, in 16 years old group 21.4 % of children agree with their parents to have extraction of teeth under GA, while 45% of children in 12 years old would like to agree.

Analysis of data in Table IV showed a significant relationship between the age of children and different orthodontic treatment (Chi-square 40.8, 70, $p < 0.05$), except for having orthodontic treatment longer than they expected.

There was no significant difference between boys and girls in their response to different conservative treatment as shown in Table V, and regarding orthodontic treatment and treatment under general anesthesia as shown in Table VI. However, there was a significant difference between boys and girls in their response when asked about having all fillings done under general anesthesia (Chi-square 40.2, $p < 0.05$). Table VII revealed that a higher percentage of boys discuss or argue against different orthodontic questions while a higher percentage of girls agree or say nothing regarding the same questions.

The mean value for dental anxiety of children who had been involved in the investigation was 8.2 with a standard deviation of ± 6.6 but with four missing cases. Table VIII showed that children were quite, relaxed about having the teeth looked at, while they were so worried about the injection in the gum. Children were worried about inhalation sedation, against the fact that this kind of treatment was supposed to make children relaxed.

It was found that there was no significant relationship between dental anxiety and having different kinds of conservative treatment. Regarding GA topic, there was a significant relationship between level of anxiety and level of negotiation of treatment of having all fillings under general anesthesia ($F = 3.03$, $p < 0.05$).

The least anxious children would like to discuss the matter (having all fillings under GA) with their parents, while the highly anxious children do not know what to do (Fig. 1).

There was a significant relationship between anxiety and making a decision when orthodontic treatment exceeded their time of expectation in finishing orthodontic treatment ($F = 2.89$, $p < 0.05$). The least anxious children either prefer to agree or argue

against their parents' desire, while highly anxious children say nothing (Fig. 2.)

Discussion

There was a significant relationship between age of children and level of negotiation with their parents regarding conservative treatment; treatment under general anesthesia and orthodontic treatment except for telling the children that orthodontic treatment will last longer than they thought. In general, the older children we have the more decrease in agreement with their parents and the more increase in the level of discussion of treatment we get. So whenever we have older children the level of understanding is supposed to be increased which makes them more capable to understand treatment and its alternatives and facilitates making a decision for him/herself.

Cognitive ability of children varies in accordance with their age. According to Piaget's theory of cognitive development, children were in informal operational stage, which started at the age of eleven, allowing children to look at the problem from more than one aspect and examine alternative solutions⁽⁶⁾.

According to Withorn and Campbell (1982) adolescents who reach the level of formal operational stage are able to understand the information about treatment as it was the case for adults as well⁽⁷⁾. In children's Act (1989), children can consent to treatment if they have "sufficient understanding to make an informed decision"⁽⁴⁾. Informed consent should be based on the fact that the patient can weigh the risks and benefits from treatment and so a good decision can be reached⁽⁸⁾.

Approximately the highest percentage of children in each age group preferred to discuss and talk with their parents regarding the length of orthodontic treatment. This could be attributed to the fact that adolescents in general would like to have alignment of teeth and improved appearance in as much as possible short period of time so as to avoid being embarrassed in front of their.

In this study, it was found that there was no significant relationship between gender of children and their level of negotiation with their parents except for having treatment of all fillings under general anesthesia. This exception may be avoided by increasing the number of children involved in this study. The ability of children to negotiate is unlikely related to their gender while more likely related to their age and cognitive development as discussed previously. In a study conducted by Arch (1996) on 88 children aged between 9 to 15 years old, it was clear that no statistically significant relationship

between sex of children and the technique (general anesthesia and relative analgesia) preferred by children ⁽⁹⁾.

The second aim of the study was to see if taking a decision by children is related to their dental anxiety. Therefore, a significant relationship was found between anxiety and having all fillings done under general anesthesia and having orthodontic treatment longer than they expected.

The highly anxious children appeared unable to make a decision regarding having all treatment done under general anesthesia. Anxiety may have prevented them from making the right choice. Excessive anxiety could lead to retardation of understanding information, reasoning, and recall ⁽¹⁰⁾. But the least anxious children preferred to talk and discuss treatment with their parents. This could be justified because older children would like to know more about any treatment they will receive, as a result, become less anxious and more willing to discuss the matter.

Highly anxious children preferred to say nothing regarding orthodontic treatment that took longer than they expected. This may be anxiety does not make

them understand the idea behind why treatment is long. The least anxious children either agree or disagree with their parents. It was clear in this study that there was no statistically significant relationship between level of anxiety of older children and the level of negotiation with their parents. In this study, anxiety has little effect on children's decisions. This finding is against the expectation of having children refuse the treatment and that anxiety would lead to avoidance of treatment as mentioned by some authors ^(11,12). This result could be attributed to the fact that the questionnaire was made at school in classrooms and not in a real dental clinical situation. Therefore, children then were relaxed and not anxious.

They were asked imaginative questions in unreal clinical situation.

Conclusion

Age of children was more strongly related to understanding the treatment and making a decision than gender of children and their dental anxiety.

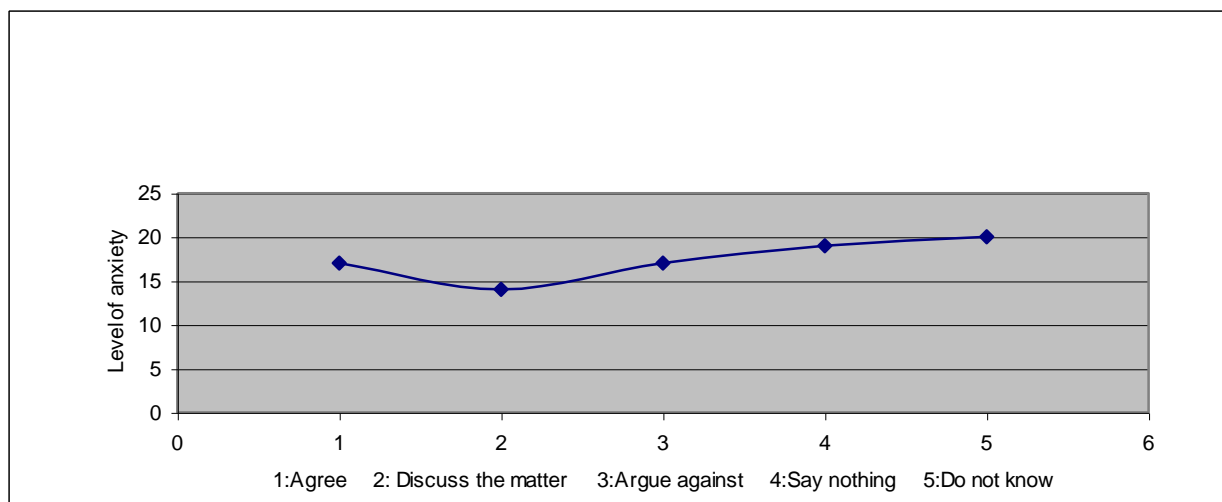


Fig.

1. The mean of dental anxiety of children and their level of negotiation with their parents regarding having all fillings under GA.

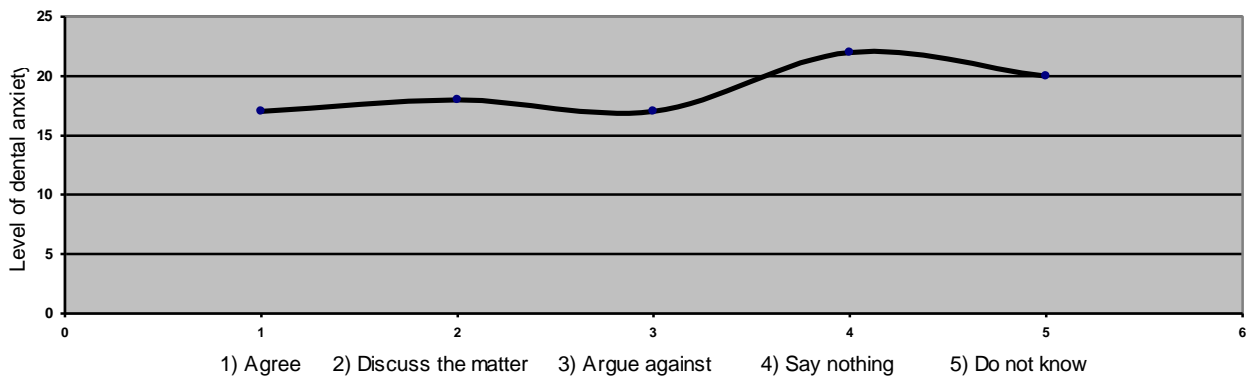


Fig. 2. The mean of dental anxiety of children who negotiate with their parents regarding period of orthodontic treatment

Table 1. Number of boys and girls in each age group.

Age	12		13		14		15		16	
Number of children	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
	36	35	36	33	23	30	27	23	24	18

Table II. Negotiation of children (in percentage), regarding discolored anterior teeth, broken anterior teeth and extraction of decayed posterior teeth.

Age	12			13			14			15			16		
Questions	C1	C2	C3	C1	C2	C3	C1	C2	C3	C1	C2	C3	C1	C2	C3
Agree	54.9	32.4	54.9	30.4	23.2	49.3	45.3	22.6	71.3	38	16	32	11.9	9.5	19.0
Discuss the matter	19.7	12.7	15.5	37.7	37.7	29	18.9	11.3	7.5	28	44	32	40.5	40.5	59.5
Argue against	7.0	38	11.3	10.1	24.6	8.7	20.8	41.5	9.4	26	24	22	33.3	42.9	11.9
Say nothing	8.5	7.0	7.0	11.6	7.2	5.8	7.5	18.9	5.7	6	8	8	4.8	4.8	7.1
Do not know	9.9	9.9	11.3	10.1	7.2	7.2	7.5	5.7	5.7	2	8	6	9.5	2.4	2.4

Table III. Negotiation of children (in percentage), regarding extraction of teeth under GA*, side effect of GA and filling of teeth under GA.

Age	12			13			14			15			16		
Questions	GA1	GA2	GA3	GA1	GA2	GA3	GA1	GA2	GA3	GA1	GA2	GA3	GA1	GA2	GA3
Agree	45.1	39.4	64.8	49.3	46.4	55.1	64.2	41.5	64.2	24	24	20	21.4	9.5	11.9
Discuss the matter	25.4	23.9	15.5	29	30.4	24.6	17	39.6	17	34	32	36	38.1	54.8	42.9
Argue against	11.3	8.5	8.5	7.3	8.7	7.2	5.7	3.8	57	12	16	18	26.2	26.2	31.0
Say nothing	8.5	15.5	8.5	10.1	4.3	4.3	5.7	11.3	75	22	18	16	4.8	7.1	4.8
Do not know	9.9	12.7	2.8	4.3	10.1	8.7	7.5	3.8	5.7	8	10	10	4.8	2.4	7.1

* GA= General Anesthesia.

Table IV. Negotiation of children (in percentage), regarding having orthodontic treatment, period of orthodontic treatment and time of orthodontic treatment.

Age	12			13			14			15			16		
Questions	Or1	Or2	Or3	Or1	Or2	Or3	Or1	Or2	Or3	Or1	Or2	Or3	Or1	Or2	Or3
Agree	52.1	36.6	59.2	27.5	26.1	43.5	24.5	17	47.2	38	20	36	14.3	23.8	7.1
Discuss the matter	12.7	35.2	70	37.7	33.3	36.2	22.6	35.8	17	28	42	34	47.6	33.3	54.8
Argue against	9.9	11.3	9.9	15.9	11.6	4.3	30.2	15.1	17.0	16	22	22	23.8	28.6	28.6
Say nothing	11.3	8.5	12.7	5.8	10.1	4.3	9.4	18.9	3.8	10	8	6	9.5	11.9	7.1
Do not know	14.1	8.5	11.3	11.6	18.8	11.6	13.2	13.2	15.1	8	8	2	4.8	2.4	2.4

Table V. Negotiation of boys and girls (in percentage), regarding discolored anterior teeth, broken anterior teeth and extraction of decayed posterior teeth

Gender	Boys			Girls		
	Q1	Q2	Q3	Q1	Q2	Q3
Agree	38.5	24.3	43.9	37.2	19.7	51.1
Discuss the matter	34.5	30.4	31.1	21.9	25.5	21.9
Argue against	13.5	29.7	12.2	21.9	38	12.4
Say nothing	6.1	8.1	4.7	10.2	10.2	8.8
Do not know	7.4	7.4	8.1	8.8	6.6	5.8

Table VI. Negotiation of boys and girls (in percentage), regarding having of orthodontic treatment, period of orthodontic treatment and time of orthodontic treatment.

Gender	Boys			Girls		
	Or1	Or2	Or3	Or1	Or2	Or3
Agree	28.6	23.1	36	38.5	28.7	47.8
Discuss the matter	24.5	42.2	34.7	25.9	29.4	20.6
Argue against	22.4	17	15.6	12.6	15.4	14
Say nothing	9.5	8.8	6.1	8.9	14	8.1
Do not know	8.2	9.5	8.2	14.1	12.5	9.6

Table VII. Negotiation of boys and girls (in percentage), regarding extraction of teeth under GA, side effect under GA and filling of teeth under GA.

Gender	Boys			Girls		
	GA1	GA2	GA3	GA1	GA2	GA3
Agree	38.8	34	44.9	47.1	35	48.9
Discuss the matter	32.7	36.7	27.9	23.5	31.2	23.4
Argue against	12.2	13.6	17	11.0	9.5	8.0
Say nothing	8.2	8.2	4.8	12.5	14.6	11.7
Do not know	8.2	7.5	5.4	5.9	9.5	8.0

Table VIII. Mean and standard deviation of children's anxiety of various dental treatment (Modified dental anxiety scale), Cases = 281.

Content	Mean	SD
Examination	1.37	0.8
Generally	1.48	0.9
Scraped and polish	1.97	1.2
Filling	2.25	1.3
Sleeping Gas (GA)	2.43	1.5
Gas and Air (RA)	2.83	1.5
Extraction	2.85	1.5
Injection	2.02	1.4

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