

Case Study

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Decision Making for Dental Treatment- Competency among School Children

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Abstract Despite advances in dentistry, the decision of dental treatment and consent remains widespread among patients and is a significant barrier to dental treatment. Dental treatment that is decided by the dentist or the patient is a public health problem and no epidemiological study has been undertaken in Fujairah to evaluate its prevalence. The aim of this study is to recognize if children (between ages 14-16 years old), should be involved in the decision making as much as possible for dental treatment. A questionnaire survey was distributed conducted amongst a sample of 277 private school children of 14-16 year. Questionnaire was to assess their dental anxiety and to determine their ability in making decision regarding their dental treatment. Majority of children was not really worried about having their teeth checked by a dentist and was willing to visit a Dentist. 52% was worried about having an injection and having their tooth removed. But only 22.4% were arguing against the decision of removing a badly decayed tooth. The response about delay in putting a cap on a broken down front tooth until they were 18 saw a difference among male and female respondents. The overall result shows that the children in the age group of 14-16 are capable of making good decision in the areas where they are knowledgeable and were willing to discuss those matters which they were not sure about. Based on the finding of our study we conclude that if the patient can weigh the risk and benefits and are able to reach a good decision they can give an informed consent for dental treatment.

Keywords *Consent; Anxiety; Decision-Making*

1. Introduction

Decision making is a process where an individual select or choose the best suited for his or her personal benefit. Decisions are made from wide choices or selective choices available at the given point of time. Each individual make their own inference and has the right to do so, based on the cognitive development and interaction with the environment or surrounding they live. Several factors are involved in a good decision making, like the knowledge, choices, consequences, expectedness, permanence to name a few.

While making decisions regarding treatment, it is recommended to involve the child or young person in the decision as much as possible, based on their level of understanding. A child who comprehends and is more involved will have a high level of motivation and serve as a much better patient. This will help the dentist to get a desired result for the delivered treatment. If the child is not proficient of compliant they, in order to continue with the treatment, the consent of a responsible person or, in some settings, the court itself, will be needed. [1]

It is important to have a valid consent when treating children and young people as it is with the adults. Children are able to give consent themselves in some situations, while a more accountable person may need to take the decision on their behalf in certain other situation. Cognitive ability of children varies in accordance with their age. According to Jean Piaget, children were in informal operational stage by the age of eleven, permitting them to look at the problem from more than single aspect and study alternative solutions. According to Withorn and Campbell (1982) adolescents reaching formal operational stage are able to comprehend the information about treatment as it was with the case for adults too. In children's Act (1989), children can consent to treatment if they have "sufficient understanding to make an informed decision". Informed accord should be created on the fact that the patient can evaluate the risks and benefits from treatment and so a good conclusion can be reached. [2]

The present study is aimed to get the basic information from children and young people, if they should be involved in the decision making as far as possible, subject on their level of understanding. In the current study it will be determine whether children's decision regarding dental treatment is affected by their age and gender and to evaluate whether dental anxiety has an effect on decision making.

2. Objectives

- 1) To determine whether children's decision regarding dental treatment is affected by their age and gender;
- 2) To evaluate if dental anxiety has an effect on the decision making.

3. Methodology

The research study plan was approved by the Ethical committee of Ajman University of Science and Technology, U.A.E and permission was granted to proceed. A descriptive study was conducted by Questionnaire survey in March 2014. The Survey was carried out among a representative sample of the Private English Schools based on the permission from Ministry of Education, Fujairah.

The questionnaire had two parts. Part A: was to assess the dental anxiety which was based on Modified Child Dental Anxiety Scale Faces [3] (MCDASf). There were 8 questions with 3 choices. The children were asked to tick only in one of the box (Figure 1). Part B: was to determine the ability in making decision regarding their dental treatment. This was based on the collected 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. There were three questions on each topic with 5 choices. The children were asked to tick only in one of the box [2]. (Picture- 2)




Participant ID number used in the study

Decision making for dental treatment competency among school children- Questionnaire Survey

PART- A

Kindly give one response for each question:

Part A of the Questionnaire used in the Survey

Q Nos:	Questions:	Not worried 	Fairly Worried 	Very Worried 
1	How do you feel about having your teeth looked at, by a Dentist?			
2	How do you feel about going to the dentists generally?			
3	How do you feel about having your teeth scraped and polished?			
4	How do you feel about having a mixture of "gas and air "which will help you feel comfortable for treatment but cannot put you to sleep?			
5	How do you feel about having a filling?			
6	How do you feel about being put to sleep to have treatment?			
7	How do you feel about having a tooth taken out?			
8	How do you feel about having an injection in the gum?			

Participant ID number used in the study:

Decision making for dental treatment competency among school children- Questionnaire Survey

PART- B

Kindly read the situation given below and give one response for each question:

Part B of the Questionnaire Used in the Survey

Q Nos:	Questions	I Agree	I will Discuss the matter	I will Argue Against	I have nothing to say	I Do not Know
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					
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					
3	Imagine that you have a badly decayed back tooth and the dentist and your parents say that it should be extracted					
4	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					
5	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					
6	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					

7	Imagine that you have many decayed teeth and you are going to have them out under general anesthesia, as your parents' desire
8	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
9	Imagine that you have the option of having all fillings carried out while you are asleep under general anesthesia, as your parents' desire

Questionnaire survey was planned for 300 school children, both male and female combined. Only 277 children in the age group 14-16 years were attending in both the schools. All the children answered the classroom questionnaire survey. Information concerning the survey was sent to all the participant's parents and consent was obtained from the parents, allowing their child to participate in the survey. Prior to the class room survey all the participating children were verbally informed the nature of the survey and an information sheet was distributed. Consent was obtained from all 277 participating children. All the data collected were transferred to computer and was statistically analyzed using SPSS v20.

4. Results

All the 277 children answered the classroom questionnaire survey. There were 125 Female and 152 male respondents.

Part A: was to assess their dental anxiety. It had 8 questions (1A- 8A). Part B: was to determine their ability in making decision regarding their dental treatment. It had 9 questions (1B- 9B). Frequency of the General response to each question in Part A and Part B are given in Table 1 and Table 2 respectively. The Cross tab evaluation showing the comparison between male and female respondents for questions in Part A and Part B are given in Table 3 and Table 4 respectively.

Table 1: Frequency of the Response in Percentage (PART- A)

Q Nos:	Questions	Not Worried	Fairly Worried	Very Worried
1	How do you feel about having your teeth looked at, by a Dentist?	57.4	37.5	5.1
2	How do you feel about going to the dentists generally?	59.9	30.3	9.7
3	How do you feel about having your teeth scraped and polished?	54.5	29.2	16.2
4	How do you feel about having a mixture of "gas and air "which will help you feel comfortable for treatment but cannot put you to sleep?	35.4	43.3	21.3
5	How do you feel about having a filling?	44	35.7	20.2
6	How do you feel about being put to sleep to have treatment?	46.9	29.2	23.8
7	How do you feel about having a tooth taken out?	19.9	26.7	53.4
8	How do you feel about having an injection in the gum?	19.9	28.2	52

Table 2: Frequency of the Response in Percentage (PART-B)

Q Nos:	Questions:	I Agree	I will Discuss the matter	I will Argue Against	I have nothing to say	I Do not Know
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	58.1	27.8	5.4	2.9	5.8
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	19.9	28.9	22.4	24.9	4
3	Imagine that you have a badly decayed back tooth and the dentist and your parents say that it should be extracted	72.6	17	4.7	5.1	0.7
4	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	57.8	27.8	5.4	6.1	2.9
5	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	26.4	36.5	9	16.6	11.6
6	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	48.7	30.3	8.7	8.3	4
7	Imagine that you have many decayed teeth and you are going to have them out under general anesthesia, as your parents' desire	42.6	32.1	7.6	10.5	7.2
8	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	22	41.2	16.2	12.3	8.3
9	Imagine that you have the option of having all fillings carried out while you are asleep under general anesthesia, as your parents' desire	43.7	24.5	13.7	11.9	6.1

Table 3: Comparison and Correlation of Response by Female and Male Participants (PART-A)

	Female			Male			Correlation Chi Sq test	Significance P value
	Not Worried	Fairly Worried	Very Worried	Not Worried	Fairly Worried	Very Worried		
How do you feel about having your teeth looked at, by a Dentist?	75	40	10	84	64	4	6.045	0.49
How do you feel about going to the dentists generally?	84	33	8	82	51	19	5.786	0.55
How do you feel about having your teeth scraped and polished?	63	43	19	88	38	26	2.933	0.231
How do you feel about	37	60	28	61	60	31	3.431	0.180

having a mixture of "gas and air "which will help you feel comfortable for treatment but cannot put you to sleep?									
How do you feel about having a filling?	54	43	28	68	56	28	0.688	0.709	
How do you feel about being put to sleep to have treatment?	59	32	34	71	49	32	2.125	0.346	
How do you feel about having a tooth taken out?	24	33	68	31	41	80	0.098	0.952	
How do you feel about having an injection in the gum?	23	34	68	32	44	76	0.573	0.751	

Table 4: Comparison of Response by Female and Male Participants (PART-B)

	Female					Male					Chi Square Test	P value
	I Agree	I will Discuss the matter	I will Argue Against	I have nothing to say	I Do not Know	I Agree	I will Discuss the matter	I will Argue Against	I have nothing to say	I Do not Know	Correlation	Significance
Discolored front tooth, decided to cover the tooth with veneer	75	33	7	6	4	86	44	8	2	12	5.813	0.214
Broken front tooth it cannot be mended with a cap placed on until you are 18	21	32	38	31	3	34	48	24	38	8	9.879	0.043
Badly decayed back tooth and it should be extracted	95	18	5	7	0	106	29	8	7	2	3.268	0.514
Crooked teeth, you should have a brace	73	35	8	6	3	87	42	7	11	5	1.279	0.865
Need orthodontic treatment it will take much longer time than you originally thought	33	46	10	22	14	40	55	15	24	18	0.433	0.980
Crowded teeth decided to do the treatment now	68	36	9	8	4	67	48	15	15	7	3.572	0.467
Many decayed teeth to have them out under general anesthesia	49	46	8	13	9	69	43	13	16	11	2.585 ^a	0.630
You have been advised to have general anesthesia	31	50	21	17	6	30	64	24	17	17	4.609	0.330
All fillings under general anesthesia	54	33	19	16	3	67	35	19	17	14	6.029	0.197

5. Discussion

In the present study it was observed that 60% of female and 55% male were not worried either showing their teeth or going to a dentist. Probable reason could be the children are exposed to dental checkup at a much earlier age here in Fujairah. When asked in a nested survey in South Australia to 1511 adults by Jason Armfield in 2012 [4], about how you feel going to the dentists generally, 67.1% indicated that they avoided going to the dentist or went to the dentist less often than they felt they needed to. Of those who do avoid going to the dentist, around 18% do so due to fear or anxiety. Many people did not consider going to the dentist to be worth making time for, with just over 30% of those people who avoided or delayed going to the dentist citing lack of time as well as not getting around to it as reasons. This research indicates that almost two-thirds of Australian adults actively avoid or delay visiting the dentist. Thought there are several reasons behind this avoidance, but largely relate to the perceived barriers of cost, anxiety, and general apathy towards dental visiting. [4]

81% females and 78 % male were fairly and very worried about having an injection in the gum. Similar percentage of participants was anxious in having the tooth removed. Similar observations were made by Hulya Erten [5]. Most felt autonomic response was increased heart rate and the sight of the needle (25.1%) as the most fear-producing stimuli followed by sensation of the injection (24.1%). Of the patients 10.5% avoided calling for an appointment, and 4.9% canceled or did not appear for appointment [5]. In Another study by Floor M.D. Oosterink, [6] it was concluded that dental anxiety was four times greater in the youngest age group (18–39 yrs) compared to older participants (60+ years), controlling for sex, social class and self-reported dental visiting behavior confirming previous developed-world reports [6].

Thought the anxious level was high among the children of 12-14 years for receiving injection and to get the tooth removed, the result shows that they were agreeing to remove a badly decayed tooth. 56-57% participants were also agreeing for restorative procedures in general. This was in accordance to study by Fuad Hamed Al Moherat [2].

There was a statistically significant difference in the response to decision on postponing the treatment until 18 years if the tooth is broken. 30.4% girls argued against this decision while 15.7% boys argued against this decision. This variation in response was not observed on a gender basis in other studies. The reason for such a difference could be females were more esthetically concerned in the pre-teen and teenage.

When it came to orthodontic treatment children were readily agreeing to get it corrected or discusses the matter with the dentist and parents. Among those who agreed for the treatment, In case that needs orthodontic treatment and you agree to have, 36.5% wanted to discuss the matter and 16.6% and 11.6% had either nothing to say or were not aware about the delay in orthodontic treatment. Similar observation was made in study by Fuad Hamed Al Moherat [2]. Observations made by Roopa Siddegowda, Dr. Rani. M.S., in 2013 in India, was that the awareness in Orthodontic Treatment in School Children was in proportion to the literacy rate [7].

Treatment that needs to be carried out under General anesthesia as an option was also well received by children. But in case of associated side effect and risk of General Anesthesia, 41.2% felt that they should discuss the matter. Similar observation was made by Fuad Hamed Al Moherat [2].

The overall result shows that the children in the age group of 14-16 are capable of making good decision in the areas where they are knowledgeable and were willing to discuss those matters which they were not sure about.

Cognitive ability of children varies in accordance with their age. According to Piaget's theory of cognitive development, children were in informal operational stage by the age of eleven, permitting children to look at the problem from more than one aspect and examine alternative solutions [8].

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 [9].

6. Conclusion

In the present study, majority of children were not really worried about having their teeth checked by a dentist and were willing to visit a Dentist. 52% was worried about having an injection and having their tooth removed. But only 22.4% were arguing against the decision of removing a badly decayed tooth. The response about delay in putting a cap on a broken down front tooth until they were 18 saw a difference among male and female respondents.

The overall result shows that the children in the age group of 14-16 are capable of making good decision in the areas where they are knowledgeable and were willing to discuss those matters which they were not sure about.

Based on the finding of our study we conclude that if the patient can weigh the risk and benefits and are able to reach a good decision they can give an informed consent for dental treatment.

Few Recommendations so as to ensure a result that could be generalizable.

- To have children from different age groups and test their competence based on their age;
- To include and compare children from different socio economic back ground;
- To increase the sample size.

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