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A Comparative Study of Shahid Beheshti and Isfahan Universities Dental Students' Self Confidence in Managing Uncooperative Pediatric Dental Patients (a cross sectional study)

Abstract:

Introduction: Psychological variables affect dental treatment, especially pediatric dentistry, and complicate the control of uncooperative pediatric patients. Therefore, dentists are to use recommended behavior management techniques to cause cooperative behavior in order to achieve treatment success. The aim of this study was to assess their behavior management techniques and self-confidence in coping with uncooperative children in pediatric dentistry in order to help the students have sufficient knowledge and skills to start treatment independently.

Methods and materials: For this cross sectional-descriptive-analytical study, 50 dental students from Isfahan Medical Science University and 50 from Shahid Beheshti University were selected. Then, a two-part questionnaire was given to each of the participants. The first part, which used a Likert scale, was to evaluate the participants' self-confidence. The second part consisted of open questions for the participants to write their techniques for managing children's behavior in different situations. The data were analyzed using SPSS software for *t*-test and Mann Whitney test. ($\alpha=0.05$)

Results: The analysis of the data revealed that the dental students had a high level of self-confidence in the majority of situations; in cases that children had uncooperative behavior, their self-confidence scores were lower. The results of the *t*-tests showed that the participants' self-confidence scores did not significantly vary by university or gender. (P value=0.425) Also, a Mann Whitney test revealed that the most commonly observed behavior management techniques, used by the participants, did not significantly vary by their gender or university. (P value=0.499)

Conclusion: According to the results, gender or university does not have any statistically significant impact on the participants' scores on self-confidence and behavior management techniques.

Key words: behavior control, children, dental education, self-esteem

27 Introduction:

28 Dental treatment, as well as other health services, is important in order to maintain a healthier life. ^[1] However,
29 there are an individual, social variables and psychological variables such as stress, anxiety and service
30 accessibility which complicate the therapeutic services especially pediatric dentistry. ^[2] One of the well-known
31 variables which affect both the dentist and patient is psychological, which can harden the control of
32 uncooperative patients. ^[3-7] With these problems in pediatric dentistry, dentists should use methods which cause
33 the patient to be operative and lead the therapy to success. The appropriate choice of these methods depends on
34 information learned in their training. ^[8,9] On the other hand, teaching most dentistry principals are based on
35 contact with patients. ^[10] Therefore, it is important to consider strategies for controlling uncooperative children
36 to enhance their skills before dentists are graduated. ^[11]

37 John et al's Study (2006), which was conducted on 241 general dentists, shows that experience develops their
38 attitude and shape their professional behavior. ^[12]

39 In another study in Finland, Karaharju and colleagues (2014) found out that the majority of young dentists
40 needed more training and practice in most fields of dentistry, such as emergency treatment, prosthetics, and
41 orthodontic, training, before graduation. ^[13]

42 York et al (2007) who assessed dentistry's students' ability by questionnaire noticed that most dentists used
43 techniques which were outdated. ^[14]

44 The techniques used by a dentist can help decrease the child's anxiety. It is noticeable that most children have a
45 positive attitude about their dentists' relationship and just a small percentage of them are uncooperative;
46 therefore, it is important that dentists adopt techniques which make the patient be uncooperative. ^[15]

47 Batista and colleagues (2011) found that children's disruptive behavior reduced dentistry students' confidence
48 in controlling them. ^[16]

49 Not many studies have been done on strategies which have been used to make the children cooperate or
50 preparing dentistry students to manage the uncooperative child. Therefore, an assessment of students'
51 performance may reveal information about the dental training they receive. ^[13-15]

52 The aim of this study was to evaluate the methods used by last year dentistry students, who are expected to have
53 developed sufficient knowledge, skills, and self-confidence for encountering uncooperative children in pediatric
54 dentistry. The hypothesis is that there is a connection between the students' self-confidence and their control of
55 uncooperative children.

56 **Methods and materials:**

57 In this descriptive cross-sectional analytic study, 100 senior students (the year 2015-2016) from dentistry
58 schools of Isfahan and Shahid Beheshti universities of medical science (50 of each) participated. All the
59 participants had pediatric dentistry experience and participated voluntarily.

60 The 100 participants were selected randomly from among 55 students from Shahid Beheshti and 82 from
61 Isfahan universities.

62 The instrument used in this study was a questionnaire provided by Milgrom ^[17] and had been translated to
63 Persian forward backwardly. The questionnaire was validated by 5 pediatric dentists and its reliability was
64 estimated at 0/847 by an ICC (Interclass Correlation Coefficient) test.

65 This questionnaire contained the description of 10 cases in specific situations and had two parts; one part for
66 estimating the respondents' self-confidence with a Likert scaled rating from 1 to 7 (1 for total inability to control
67 patients, and 7 for full control of patients). The other part contained open questions for which the students were
68 to provide answers by describing the behavior management techniques they used for each case. (Table1)

69 Then, based on the answers the data were classified into 11 groups of behavioral management techniques as:

70 1- explaining the process in childish and simple ways; 2- verbal guidance and requesting the children; 3-
71 calming the children; 4- involving the children in treatments; 5- promising awards to the children; 6- voice
72 control and physical restriction for children; 7- distracting the children; 8- postponing the treatment; 9- changing
73 the treatment plan; 10- ignoring the children's complaints and continuing to work; and 11- unable to control the
74 children.

75 To complete the analysis and more tangible results, we classified the answers in 6 more general groups as: (1)
76 explaining the process in childish and simple ways in educational groups; (2) calming the children in supporting
77 groups; (3) involving the children in the treatment, promising awards to the children and distracting the child, in
78 inborn behavior groups; (4) voice control and physical restrictions for children in restrictive groups; (5) verbal
79 guidance and requesting children in child guiding groups; and (6) postponing the treatment, changing the
80 treatment plan, ignoring the children and continuing to work, and unable to control the children, in the failure
81 groups.

82 The data were analyzed using the SPSS for T-tests and Mann Whitney tests.

83 **Results:**

84 In this study, there was 100 participants, 62% of whom were female and 38% male.

85 According to the analysis of the first part of the questionnaire, as presented in Table 2 the participants' self-
86 confidence level was different in different conditions. For the majority of the questions, the median was either
87 equal or greater than the mean for every single question. The participants reported variant self-confidence
88 levels; the medians were between 4 and 6, which indicates the participants had fairly high levels of self-
89 confidence in controlling the children.

90 For questions 3,9 and 10 the students had graded themselves lower self-confidence score than for other
91 questions, which shows in conditions showing extreme uncontrollable child score of self-confidence decrease.
92 Most of the students had graded self-confidence higher for questions 1, 4, 5, and 7, which shows they were able
93 to control those circumstances efficiently. For the other questions (2, 6, and 8) their self-confidence scores were
94 medium.

95 The Mann Whitney test showed that there wasn't a significant difference between the means of self-confidence
96 scores for each question, neither was there a significant difference between each university's mean of self-
97 confidence scores for each question. Moreover, the T-test results demonstrate that there was no significant
98 difference between the two universities in self-confidence scores (P-value = 0.425). Also, there was no
99 significant difference between genders in their self-confidence's scores. (P-value = 0.499)

100 The results of the open questions part of the questionnaire (about methods of controlling behavior), which
101 included about 1000 feedbacks, were classified into 11 head groups and then to 6 general groups.

102 According to Table 3, the percentages of the behavioral controlling method's frequency reveal that most of the
103 participants failed to control children, as revealed by questions 3, 9, and 10. In questions 1, 2, 4, 6, 8, which
104 were about educational methods, in question number 5 inborn behavioral method and in question number 7,
105 restricting method was the most used.

106 As shown in Figure 1, behavior-controlling techniques which were used mostly by the students were:
107 educational (simple language explanation) 29.8%, restriction (voice control and physical restriction) 20.5%,
108 which can indicate that students had been taught these methods in their training period more than other methods.
109 25.6% of the participants were those who failed to control the children.

110 According to the frequency distribution tables, behavior-controlling techniques we, which show separate results
111 for each gender, for most questions both genders used the same method except in questions 1 and 3, where there
112 was an insignificant difference between the male and female participant in choosing their methods. This means
113 that in question number 1 (the child stops dental examination) the female participants, mostly used educational
114 method and male participants used restrictive ones. In question 3 (the little girl who bites and kicks during

115 injection) the female respondents mostly used reference (failure) and the male ones used physical restriction
116 methods.

117 Based on the frequency distribution table, behavior-controlling methods of each question were identified for
118 each university, and it was revealed that for most of the questions students of each group used the same method
119 except questions 4, 7 (a child who closes his mouth with hand during local anesthesia, and a boy who holds your
120 hand during polishing the restoration), Isfahan university's students used restriction method more frequently
121 than Shahid Beheshti student, whose different was statistically insignificant.

122 **Discussion:**

123 This study is about dentistry students' self-confidence, self-assessment in using different methods in different
124 situations. As shown in Table 1, the participants reported varying ranges of self-confidence in different
125 situations. The overall students' self-confidence was assessed as high; however, in specific situations, where
126 painful and aggressive operations were involved, the self-confidence scores were not as high.

127 Bastista et al (2011) found that students score themselves lower in difficult situations, which supports the results
128 of the present study. The results of this study indicate that students generally trusted their professional
129 performance, but they had a problem facing prevention behavior during such aggressive operations as an
130 injection or restoration.^[16] Therefore, for increasing their self-confidence it should be considered in their
131 instruction that during operation on children every conflict and non-satisfaction of the children is predictable
132 and by using learned techniques and controlling the situation, the operation can continue.

133 Karaharju et al (2014) noted that women had higher self-confidence than men, although needed more time to
134 learn clinical skills in pediatric dentistry. However, in the present study, there was no statistically significant
135 between both men and women; both groups had high levels of self-confidence.^[13]

136 According to the frequency distribution of methods used by the students, the most frequently used methods have
137 been educational (which include say-show-do and explaining in a simple language) and restrictive and 25/6 %
138 failed.

139 In Bastista et al's study^[16] three common methods of support, training, and restrictions for children were used
140 by the students. The difference in the two places can be due to different attitudes in different cultural settings; in
141 some countries, dental treatment is generally interpreted as suffering and pain, therefore, the patient requires
142 support, and accordingly the use of comforting words and gentle physical contacts can be helpful. Another
143 reason can be found in the psychology topics taught in dental schools. In some faculties, they emphasize such
144 subjects as child psychology and encouraging the use of educational methods; whereas, in other faculties, they

145 emphasize the importance of doctor-patient communication, which raises the possibility of using supporting
146 methods by the students.^[16]

147 In York et al'(2007) study, somewhat similar to our study, 70% of the students used educational methods to
148 control children. Although the quantitative difference between York's and our study can be the use of open
149 questions in our study, while in York's study different behavior controlling methods had been attached to the
150 questions.^[14]

151 It seems that our study is closer to reality because of a lack of mental preparation about behavioral controlling
152 methods.

153 Schrepferman and Snyder (2002) observed that most of the dentists used negative reinforcement and restricted
154 creation methods and only a few used TSD or supporting methods.^[18]

155 Our results show that there was no statistically significant difference between the participants in using behavior
156 control methods by gender. Of course, the male participants used restriction methods more frequently than the
157 female ones, who used educational methods more frequently. In Bastista et al's (2011) study, women used
158 restriction methods more frequently than men, who used educational methods more. This difference may
159 indicate how individuals' behaviors in treating behavior control are affected by emotions, education, or gender.
160 ^[16] In our study, we observed 20.5% use of restriction method as compared with 10% in North America ^[14] and
161 9% in Brazil 9% ^[16] of students' use of this method. Considering legal problems and the low popularity of this
162 method for parents and unknown effects of its use on incompatible behaviors in the future, this method must be
163 used with care and its possible effects must be explained for dentistry students.

164 In uncontrollable situations, as questions 9 and 10, similar to Garmen's study, self-confidence scores were lower
165 and the students mostly suggested referring to an expert or postponing treatment. Garmen contends that
166 children's stress is linked to the dentist's stress and of course controlling the child is harder when the dentist has
167 high levels of anxiety which may result in the attenuation of children's cooperation during treatment.^[19] In the
168 present study, the use of drug methods wasn't mentioned, because it was not on the knowledge base of general
169 dentists. Of course, because of the great number of non-cooperative children^[20,21] and limits of general dentist's
170 knowledge, referring to experts and postponing treatment was most of the students' preferences.

171 As we expected, comparing Isfahan and Shahid Beheshti Universities of Medical Sciences there was no
172 statistically significant difference between the two, because both universities use the same educational
173 curriculum and they are rated at about the same level.

174 To improve the students' knowledge and accurate use of information, we may use new educational methods,
175 such as problem-solving and the use of simulation technology.

176 Among the limitations of this study was gaining the students' cooperation in filling out the questionnaire and
177 also the analysis of a large number of replies (about 1000 replies). We suggest such studies be conducted on
178 pediatric dentistry residents.

179 **Conclusion:**

180 Based on the result of this study students had high levels of self-confidence based on their framework of
181 knowledge. Also, it was observed that while the children's behavior (cooperation) had a significant impact on
182 the students' self-confidence score and their controlling behavior methods the participants' scores of self-
183 confidence and behavior management techniques did not significantly vary by university or gender.

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228 TABLE 1. Questionnaire: Abilities to cope with non-collaborative children in pediatric dentistry

229 For each question, the following options were presented: My confidence level to cope with this situation is:
 230 1- 2 -3 -4- 5- 6- 7 (1 – I believe that my abilities are not good enough. I don’t think that I would be capable
 231 of dealing with this kind of patient’s behavior. 4 – I believe that my abilities are not always good enough. I
 232 think that I am capable of dealing with this behavior in half the times that it occurs. 7 – I believe that my
 233 abilities are very good. I am capable of dealing with this kind of behavior every time it occurs.) How would
 234 you cope with this situation? _____

Number	Question
1	Sara, 6years old, repeatedly takes your hand and tries to force you to stop the examination of the teeth with a mirror and probe.
2	Arezoo, 8 years old, cries loudly when you are beginning to prepare her tooth using a high-speed bur.
3	Mary, 6 years old, when she realizes you are going to inject the anesthesia, gases and kicks.
4	Parisa, 4 years old, closes her mouth with her hands when she realizes that you are ready

	to use a topical anesthetic.
5	Mohammad, 6years old, tries to make a bet for you when you start doing anything.
6	Hamed, 8years old, is trying to get down from the unit when you want to take a radiograph.
7	Amin, 6 years old, repeatedly grabs your hand, trying to interrupt your work of polishing a dental restoration.
8	Mahsa, 12years old, with a history of pain in dentistry, begins to cry by hearing the kind of her dental work
9	Reza, 7years old, does not even enter the dentist's room for examination.
10	Negar, 5years old, does not listen to you and screaming during work constantly.

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237 Table2: Statistical Indices and Percentage of Students' Self-Esteem Ratings by Question

Score7	Score6	Score5	Score4	Score3	Score2	Score1	Median	Standard Deviation	Mean	Question
37.5%	14.6%	10.4%	31.3%	2.1%	0%	4.2%	6	1.61	5.37	Question1
9.5%	18.9%	13.7%	41.1%	10.5%	2.1%	4.2%	4	1.43	4.52	Question2
8.3%	7.3%	9.4%	29.2%	14.6%	10.4%	20.8%	4	1.83	3.51	Question3
38.5%	12.5%	13.5%	28.1%	3.1%	6.3%	4.2%	5	1.75	5.07	Question4
32.3%	12.5%	18.8%	22.9%	2.1%	4.2%	1%	6	1.52	5.45	Question5
20.8%	24%	15.6%	28.1%	7.3%	1%	3.1%	5	1.50	5.07	Question6
38.5%	16.7%	19.8%	18.8%	3.1%	2.1%	1%	6	1.43	5.58	Question7
19.8%	20.8%	11.5%	30.2%	5.2%	5.2%	7.3%	5	1.76	4.75	Question8
18.8%	9.4%	12.5%	14.6%	4.2%	8.3%	31.3%	4	2.34	3.68	Question9
12.5%	3.1%	17.7%	21.9%	9.4%	8.3%	27.1%	4	2.03	3.54	Question10

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241 Table3: Frequency distribution of behavioral control methods by the question

Failure	Behavior guidance	Restrictive	Inborn behavior	Supportive	Educational	Behavior management method
8.1%	0	22.4%	17.4%	15.3%	36.8%	Question 1
18.5%	0	17.3%	11.2%	9.2%	43.8%	Question 2
52%	0	30%	8%	2%	8%	Question 3
10.3%	0	15.5%	15.5%	5.2%	53.5%	Question 4
5.2%	0	21.6%	60.8%	3.1%	9.3%	Question 5
17.7%	3.1%	15.6%	8.4%	3.1%	52.1%	Question 6
22.4%	2%	34.7%	18.4%	5.1%	17.3%	Question 7
16.1%	0	12.1%	9.1%	9.1%	53.5%	Question 8
52.5%	0	5.1%	10.1%	13.1%	19.2%	Question 9
54.6%	0	30.3%	10.1%	2%	3%	Question 10

242 figure1: Frequency of behavioral control methods used by students

