

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

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Authors' contributions

This work was carried out in collaboration between all authors. Authors MJ and DT designed the study, performed the statistical analysis, wrote the protocol and first draft of the manuscript. Authors MH and DT managed the analyses of the study. Author AHB managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Introduction: Psychological variables affect dental treatment, especially pediatric dentistry, and complicate the control of uncooperative pediatric patients. Therefore, dentists are to use recommended behaviour management techniques to cause cooperative behaviour in order to achieve treatment success. The aim of this study was to assess their behaviour 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.

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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 behaviour in different situations. The data were analyzed using SPSS software for *t*-test and the 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 behaviour, 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 behaviour 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 behaviour management techniques.

Keywords: Behaviour control; children; dental education; self-esteem.

1. INTRODUCTION

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

John et al's Study [12], which was conducted on 241 general dentists, shows that experience develops their attitude and shape their professional behaviour [12].

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

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

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

Batista and colleagues [16] found that children's disruptive behaviour reduced dental students' confidence in controlling them [16].

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

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

2. METHODS AND MATERIALS

In this descriptive cross-sectional analytic study, 100 senior students (the year 2015-2016) from

dentistry schools of Isfahan and Shahid Beheshti universities of medical science (50 of each) participated. All the participants had pediatric dentistry experience and participated voluntarily, all the information of participants were kept anonymously and secretly and all the ethical principles were considered.

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

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

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

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

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

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

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

For each question, the following options were presented: My confidence level to cope with this situation is 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 of dealing with this kind of patient's behavior. 4 – I believe that my abilities are not always good enough. I think that I am capable of dealing with this behavior in half the times that it occurs. 7 – I believe that my abilities are very good. I am capable of dealing with this kind of behavior every time it occurs.) How would 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.

The data were analyzed using the SPSS for T-tests and Mann Whitney tests and differences were considered significant at a value of P -value=.05.

3. RESULTS

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

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

For questions 3,9 and 10 the students had graded themselves lower self-confidence score than for other questions, which shows in conditions showing extreme uncontrollable child score of self-confidence decrease.

Most of the students had graded self-confidence higher for questions 1, 4, 5, and 7, which shows they were able to control those circumstances efficiently. For the other questions (2, 6, and 8) their self-confidence scores were medium.

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

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

According to Table 3, the percentages of the behavioural controlling method's frequency reveal that most of the participants failed to control children, as revealed by questions 3, 9,

and 10. In questions 1, 2, 4, 6, 8, which were about educational methods, in question number 5 inborn behavioural method and question number 7, restricting method was the most used.

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

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

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

4. DISCUSSION

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

Table 2. 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

Table 3. 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

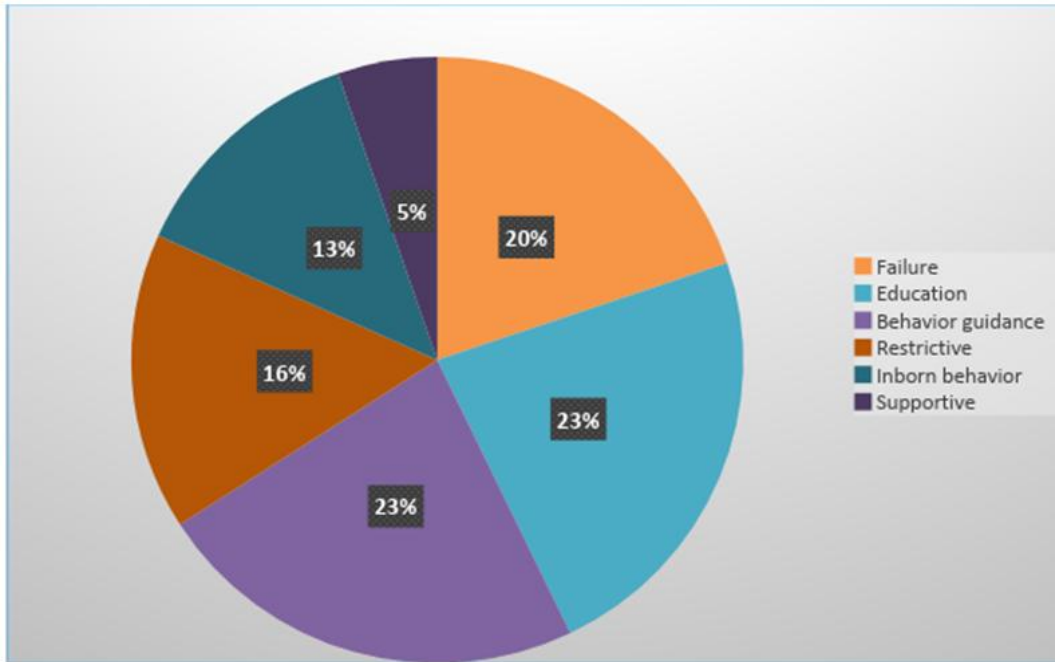


Fig. 1. Frequency of behavioral control methods used by students

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

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

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

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

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

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

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

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

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

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

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

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

5. CONCLUSION

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

CONSENT

As per international standard or university standard, patient's written consent has been collected and preserved by the authors.

ETHICAL APPROVAL

All the information of participants was kept anonymously and secretly and all the ethical principles were considered.

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COMPETING INTERESTS

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

REFERENCES

1. Sarafino EP. Health psychology: Biopsychosocial interactions. New York: John Wiley & Sons; 2008.
2. Klaassen MA, Veerkamp JSJ, Hoogstraten J. Dental fear, communication, and behavioral management problems in children referred for dental problems. J Pediatr Dent. 2007;17:469-477.

3. Newton T, Sturme y P. Students' perception of the acceptability of behavior management techniques. *Eur J Dent Educ.* 2003;7:97-102.
4. Cardoso CM, Loureiro SR, Nelson-Filho P. Pediatric dental treatment: Manifestations of stress in patients, mothers, and dental school students. *Braz Oral Res.* 2004;18: 150-155.
5. Schrepferman L, Snyder J. Coercion: the link between treatment mechanisms in behavioral parent training and risk reduction in child antisocial behavior. *Behav Ther.* 2002;33:319-359.
6. Divaris K, Barlow PJ, Cendea SA, et al. The academic environment: The students' perspective. *Eur J Dent Educ.* 2008; 12(Suppl.1):120-130.
7. Casa Massimo PS. The 2003 behavior management conference-Whats at stake. *Pediatr Dent.* 2003;25:423-424.
8. Wanigasooriya N. student self-assessment of essential skills n dental surgery. *Br Dent J.* 2004;(Suppl.):11-14.
9. Crossley ML, Joshi G. An investigation of pediatric dentists' attitudes towards parental accompaniment and behavioral management techniques in the UK. *Br Dent J.* 2002;192(9):517-21.
10. Seddon RP. Undergraduate experience in clinical procedures in pediatric dentistry in a UK dental school during 1997-2001. *Eur J Dent Educ.* 2004;8:172-176.
11. Hill LH, Delafuente JC, sicut BL. Development of a competency-based assessment process for advanced pharmacy practice experiences. *Am J Pharmac Educ.* 2007;71:532-539.
12. John P. Rich III, Liloyd Straffon, et al. General dentists and pediatric dental patients the role of dental education. *J Dent Educ.* 2006;70:1308-1315.
13. Karaharju-Suvanto T, Napankangas R, et al. Gender differences in self-assessed clinical competencea survey of young dentists in Finland. *Eur J Dent Educ.* 2014:234-240.
14. York KM, Mlinac ME, Deibler MW, Creed TA, Ganem I. Pediatric behavior management techniques: a survey of prodocroral dental students. *J Dent Educ.* 2007;71:532-539.
15. Davies EB, Buchanan H. An exploratory study investigating children's perceptions of dental behavioural management techniques. *Int J Paediatr Dent.* 2012;3: 195-200.
16. Bastista CG, Nascimento CL, et al. Student self-confidence in coping with uncooperative behaviours in peadiatric dentistry. *Eur J Dent Educ.* 2011:199-204.
17. Milgrom P. Oral communication. Faculdade de Odontologia de Piracicaba. Universidade Estadual de Campinas; 1995.
18. Schrepferman L, Snyder J. Coercion: the link between treatment mechanisms in behavioral parent training and risk reduction in child antisocial behavior. *Behav Ther.* 2002;33:319-359.
19. Garmen Lucia Cardoso, Sonia Regina Loureiro, Paulo Nelson-Filho. Pediatric dental treatment: Manifestations of stress in patients, mothers and dental school students. *Brazilian Oral Research.* 2004; 18:159-169.
20. Birute Jankauskiene, Jorma I. Virtanen, Ricardas, Kubillius, Juliaja Narbutaite. Treatment under dental general anesthesia among children younger than 6 years in Lithuania. *Medicina.* 2013;49:403-408.
21. Shepherd AR, Ali H. A care pathway for children unable to accept dental care within the general dental services involving the use of inhalation sedation and general anesthesia. *Prim Dent J.* 2015; 4:29-34.

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