AN INVESTIGATION OF STUDENTS` OPINION ABOUT MANAGEMENT OF DENTAL ANXIETY IN CHILDREN

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Abstract

Aim: To investigate the tenth-(clinical) semester students` opinion about the management of dental anxiety in paediatric dentistry.

Material and methods: An anonymous, self-completed mailed survey was sent to 210 dental students from the Vth course. The questionnaire consisted of 12 statements, describing the non-pharmacological behaviour management techniques for the treatment of paediatric dental patients. To obtain students` acceptability scores, they had to mark on a 5-point Likert scale from 1 (total disagreement) to 5 (total agreement).

Results: The most acceptable behaviour management techniques among the students were Nonverbal communication, Stop signals and Tell-Show-Do. The analysis of our study showed that the least acceptable techniques were the aversive ones – Negative reinforcement and Restraint.

Conclusion: Students' acceptance of the various techniques provides useful information for the Faculty of Dental Medicine about the students' knowledge and skills in behaviour management techniques. The analysis of the results obtained is an indication of how and to what extent this educational material can be modified in the dental programme.

Keywords: students, management of dental anxiety, paediatric dentistry

Introduction

The American Academy of Pediatric Dentistry has issued a set of guidelines on behaviour guidance for paediatric dental patients with recommendations for focusing and implementing them during the entire period of dental education [3]. For the basic behaviour management techniques, students receive theoretical and clinical training during the educational process at the university. Dental education in paediatric dentistry should provide the students with the opportunity to learn, observe and exercise in practice the different behaviour management strategies and techniques.

Some authors considered that the content of the educational curriculum and the degree of the training in behaviour management techniques have an impact on the students` perceptions and practice of such techniques [2]. Dental practitioners` and students` views are associated not only with the dental experience but also with the degree obtained during the learning process [13].

To a large extent, dentist`s perceptions about behaviour management techniques for the treatment of dental patients are based on the information obtained during their dental education and on the experience derived from the contact with patients [14]

The educational opportunities in the discipline of Paediatric dentistry allow acquiring knowledge and skills for clinical work with children. At the beginning of the course of Paediatric dentistry, students have no or limited knowledge of behaviour management techniques, thus their views could be compared with those of parents [17]. On one hand, seminar classes ensure discussion on the previously presented topics during the lectures as well as discussion of interesting clinical cases. On the other hand, during the clinical training classes the assistant professor provides students with demonstrations of various clinical cases and students themselves work with paedtiatric dental

patients. As a result, a significant change in students` opinion about the management of dental anxiety in children at the end of the educational process occurred [14].

Thus, the purpose of the present study was to investigate the tenth-(clinical) semester students` opinion about the management of dental anxiety in paediatric dentistry.

Material and methods

A cross-sectional study was approved by the Committee for Scientific Research Ethics, Medical University - Plovdiv, Bulgaria (Reference number P-1371/30.04.2018, Protocol of approval No. 3/01.06.2018). It consisted of an anonymous, self-completed mailed survey. Subjects were sent an email describing the study and inviting their participation. A total of 210 students from the tenth semester (V[th] course) were invited to participate in the study. The mail included a brief cover letter explaining the purpose of the survey. It stressed the anonymity of the survey and that the responses would be aggregated. The surveys were mailed within three weeks. The study was conducted in January 2021 and consisted of 12 statements, describing the non-pharmacological behaviour management techniques for the treatment of paediatric dental patients (Figure 1). To obtain students` acceptability scores, they had to mark on a 5-point Likert scale from 1 to 5 (Figure 2).

Statistical analysis

The obtained data were tabulated, processed, and analysed using SPSS (Statistical Package for Social Science software) version 21.0 (IBM, the USA). Descriptive statistics were generated to estimate the acceptability of using behaviour management techniques. The level of significance was set at $p<0.05$.

Results

Out of the 210 surveys that were e-mailed, 152 subjects (72.38% response rate) were included in the statistical analysis for this study, N=152. Table 1 shows the means and standard deviations of the acceptability scores of the clinical students.

Nonverbal communication, Stop signals and Tell-Show-Do appeared to be the most acceptable behaviour management techniques among the investigated group of students. The results demonstrated students` acceptability scores - Means±SD≥4.47 for these techniques which correspond with `total agreement` (Figure 3). The analysis of our study showed that the least acceptable techniques were the aversive ones – Negative reinforcement and Restraint, Means±SD<2.57. However, Voice control as an aversive technique was defined as `acceptable/agreement` among the investigated group of students, Means±SD=3.52.

Discussion

In line with other similar studies, most students demonstrated an acceptance of methods categorized as communicative and self-control techniques [1,2,4,14,17,19]. Significant acceptability of Nonverbal communication was observed in the views of the Vth-course students. The technique is simple, easy to be remembered and applied. Besides, communicative techniques are included as a first option in the behaviour guidance strategies of the dental curriculum. The findings of several studies allowed the authors to report that Nonverbal communication, particularly the facial expression of the dentist, is of immense importance for positive dental experiences. The gestures, posture of the body, spatial distance are less effective for managing paediatric dental anxiety [7,9,11,15].

According to students' opinion about the management of dental anxiety in children Tell-show-do and Stop signals took second place after nonverbal communication.

A survey among the students - V course, Dental medicine

Dear colleagues,
My name is Maria Shindova, PhD, and I am an Assistant Professor, Department of Pediatric dentistry. I would like to ask you to complete the following online questionnaire. It is anonymous and will only take a few minutes of your time.

The survey investigates the students` perceptions about the behaviour guidance techniques during the dental treatment of paediatric patients. Rate your acceptability for the use of each of the following techniques using numbers form 1 to 5, as:
Number 1 means `TOTAL DISAGREEMENT with the use of the technique`
Number 2 means `DISAGREEMENT with the use of the technique`
Number 3 means `NEUTRAL opinion about the use of the technique^
Number 4 means `AGREEMENT with the use of the technique`
Number 5 means `TOTAL AGREEMENT with the use of the technique`

1. Communication:

Verbal communication improves the cooperation of the patient during dental treatment by appropriate tone and type of the language of the dentists.

Nonverbal communication, particularly the facial expression of the dentist, gestures, posture of the body, spatial distance are of immense importance for the positive dental experiences.

1 2 3 4 5
○ ○ ○ ○ ○

2. Tell-show-do:

The technique involves verbal explanations of the procedures in phrases appropriate to the developmental level of the patient (tell); demonstration for the patient of the visual, auditory, olfactory and tactile aspects of the procedure in carefully defined, nonthreatening setting (show); and then, without deviating from the explanation and demonstration, completion of the procedure (do).

1 2 3 4 5
○ ○ ○ ○ ○

3. Voice control:

Voice control is a punishment technique involving a controlled alteration of the voice volume, tone, or pace which, more especially, equates to issuing commands in a loud voice in order to reduce a child`s disruptive behaviour.

1 2 3 4 5
○ ○ ○ ○ ○

4. Positive reinforcement:

Positive reinforcement is an effective technique to reward desired behaviours during a dental visit and, thus, strengthen the recurrence of those behaviours.

1 2 3 4 5
○ ○ ○ ○ ○

5. Negative reinforcement:

Negative reinforcement is a `punishment`, e.g. loud and firm `Put your hands down by your side and open your mouth!`, when the consequence of behavior is such that the behaviour is weakened and therefore less likely to recur in similar circumstances.

1 2 3 4 5
○ ○ ○ ○ ○

6. Distraction:

Distraction is the technique of diverting the patient`s attention from what may b perceived as an unpleasant procedure. Giving the patient a short break during a stressful procedure – presenting cartoons, videos, music, stories or even talks to patient can be an effective behaviour guidance technique.

1 2 3 4 5
○ ○ ○ ○ ○

7. Signaling, Stop signals:

Signaling is giving the patient a means to communicate with the dental practitio during the procedure to which the dentist is sure to respond. The most frequentl used signal is a raised hand to notify the dentist that the patient would like to sto the procedure.

1 2 3 4 5
○ ○ ○ ○ ○

8. Modelling:

This technique is based on the psychological principle that people learn about environment by observing the behaviour of others. Two types of Modeling are recognized: live (child watches sibling, parent, peer receiving dental treatment) symbolic (the model, usually a puppet or video is shown undergoing treatment

1 2 3 4 5
○ ○ ○ ○ ○

9. Systematic desensitization:

A hierarchy of fear-producing stimuli is constructed with patient input and the patient is then exposed to these fear-producing stimuli in an ordered manner, starting with the stimulus posing the lowest threat, for example explanation of t components of local anaesthetic equipment.

1 2 3 4 5
○ ○ ○ ○ ○

10. Parental presence/absence:

In this technique, the parents are present in the dental operation room, and in c the child is uncooperative, the parent is asked to leave the room, and after the cooperation is stabilized, and as a reward, the parent is again asked to be prese the room.

1 2 3 4 5
○ ○ ○ ○ ○

11. Latent inhibition (Stepwise learning, Graded exposure):

This is a series of positive or neutral dental experiences which may protect the patient against the development of traumatic associations or negative experier Starting a child's dental experience with noninvasive procedure, check-up visits help the child to cope more adequately with potentially invasive visits in the fu Step by step the child is exposed to different potential anxiety-provoking proce or instruments in combination with the technique Tell-show-do.

1 2 3 4 5
○ ○ ○ ○ ○

12. Restraint:

Restraint is the act of physically limiting the body movements of the child in or facilitate dental procedures and to decrease possible injuries to the child and/o dentist. It includes mechanical restraint such as the `Papoose board method` an physical restraints such as `Hand over mouth exercise`, or holding the child dow the dental practitioner, dental assistant or parent.

1 2 3 4 5
○ ○ ○ ○ ○

Figure 1. Questionnaire used in students` online inquiry survey
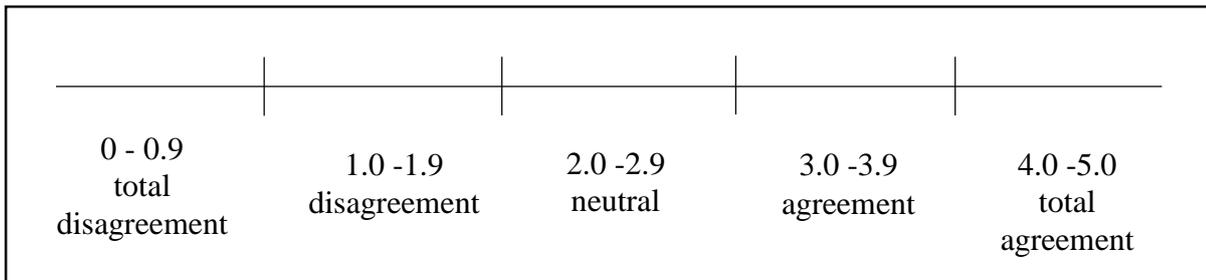
Figure 2. Rating of acceptability to determine students` perceptions

Table 1. Means and standard deviations of the acceptability scores of the clinical students

BEHAVIOUR MANAGEMENT TECHNIQUES	MEANS±SD
	TENTH SEMESTER
Nonverbal communication	4.81±0.42
Tell-Show-Do	4.50±0.74
Voice control	3.52±1.09
Positive reinforcement	4.34±0.93
Negative reinforcement	2.56±1.26
Distraction	4.15±0.87
Stop signals	4.47±0.76
Modelling	4.01±0.93
Desensitization	3.97±1.01
Parental presence/absence	3.65±1.10
Latent inhibition	4.21±0.82
Restraint	2.38±1.30
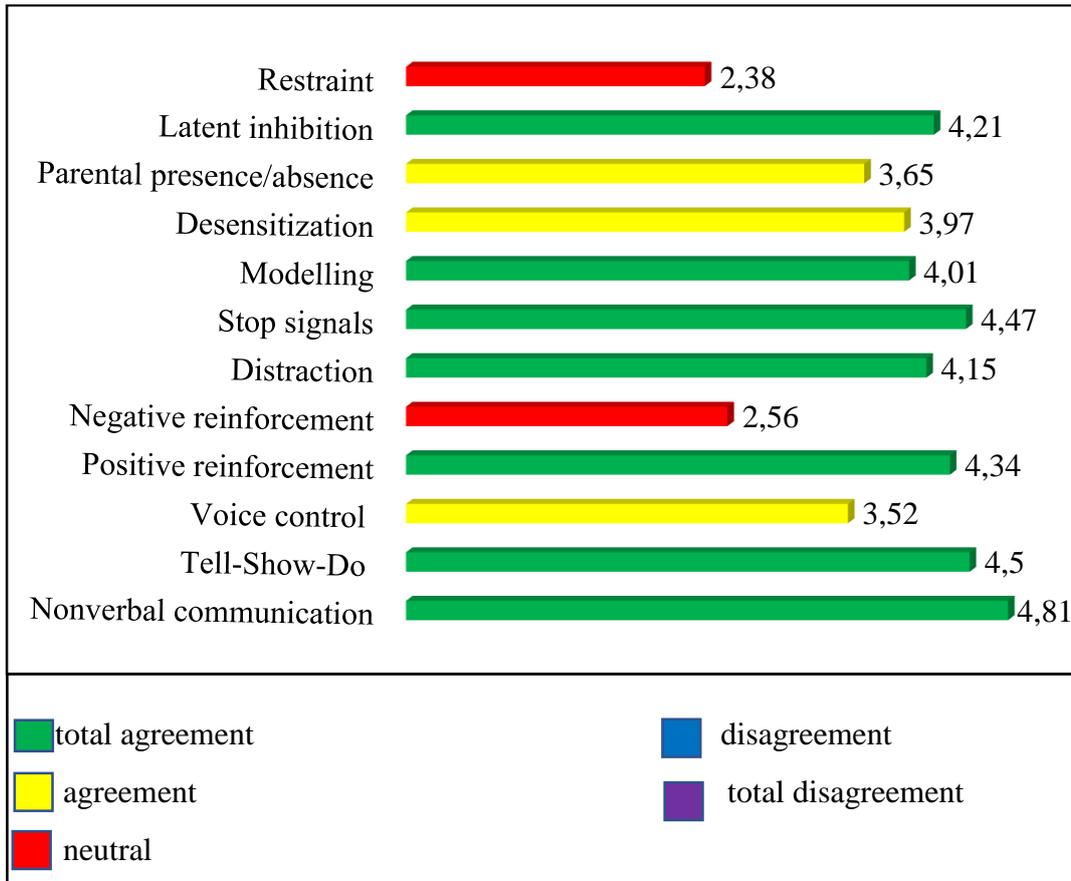
Figure 3. Students` acceptability rate of the non-pharmacological behaviour management technique

Tell-show-do is safe, non-invasive and being acceptable among practitioners and parents [3,6,10,16]. The technique involves verbal explanations of the procedures in phrases appropriate to the developmental level of the patient (tell); demonstration for the patient of the visual, auditory, olfactory, and tactile aspects of the procedure in carefully defined, non-threatening setting (show); and then, without deviating from the explanation and demonstration, completion of the procedure (do). Tell-show-do has shown to be efficacious in reducing anticipatory anxiety in new child patients and it is less useful with previous dental experience [16,19]. Similarly, in studies conducted in 2009 and 2015, high acceptability scores were given by the fourth-year students for tell-show-do. These findings are consistent with the claim that communicative techniques have become a standard of care and are included in dental curricula [4].

The other behaviour management technique, Stop signals, which took second place, is the use of signaling which gives the patient a means to communicate with the dental practitioner during the procedure to which the dentist is sure to respond. Our results confirm the findings obtained by Bimstein et al. as well as the study by Al-Jobair et al. who found a significant acceptance of this technique, more than 61 % of the fourth-year students stated that they used it in attending peaditric dental patients [4]. As benefits of its use, the authors considered the provision of control aiding patient`s active role during treatment, relief of worry, distress, and physical discomfort treatment [18].

In contrast to other basic techniques, not many students accepted the aversive methods. The analysis of the current results demonstrated a significantly lower acceptability mean score amongst clinical year students for the investigated aversive behaviour management techniques - restraint and

negative reinforcement (p<0.05). Similar results were noticed by Sotto et al., Al-Jaboir et al., Ali et al. [1, 2, 4, 17].

Restraint is the act of physically limiting the body movements of the child in order to facilitate dental procedures and to decrease possible injuries to the child and/or the dentist. In many countries, the use of physical restraint on dental patients is guided by protocols and guidelines, which highlights the need for careful consideration of patients' physical, physiological, psychological, and medical conditions [12].

Negative reinforcement is a `punishment` when behaviour is immediately followed by the removal of an unpleasant stimulus. The analysis of our study demonstrated that students initially disagreed with Negative reinforcement. Eccles explains the results with the development of the so-called by Erikson `sense of inferiority`, that end in permanent intellectual, emotional consequences, and avoidance of dental care [8].

Voice control is a punishment technique involving a controlled alteration of the voice volume, tone, or pace which, more especially, equates to issuing commands in a loud voice in order to reduce a child`s disruptive behaviour. However, Voice control as an aversive technique was defined as `acceptable` among the investigated group of students for its use in the treatment of paediatric dental patients. In contrast, our results are different from the results obtained by the study by York et al., Ali et al., Al-Jobair et al. as well as Bimstein et al. who indicated a significant positive score increase for voice control among fourth-year students in the university [1,4,19]. The perceived efficacy of this technique by students in controlling patients' behaviour is considered to be the possible reason.

Conclusion

Students' acceptance of the various techniques provides the Faculty of Dental Medicine with useful information about the students' knowledge and skills in behaviour management techniques. The analysis of the results obtained is an indication of how and to what extent this educational material can be modified in the dental programme.

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