



Influence of Dentists' Age, Gender, Working Experience, and Practitioner Type on the Use of Behaviour Management Techniques in Dental Treatment of Children

Maria Shindova¹, Ani Belcheva-Krivorova¹

¹ Department of Paediatric Dentistry, Faculty of Dental Medicine, Medical University of Plovdiv, Plovdiv, Bulgaria

Corresponding author: Maria Shindova, Department of Paediatric Dentistry, Faculty of Dental Medicine, Medical University of Plovdiv, 3 Hristo Botev Blvd., 4000 Plovdiv, Bulgaria; Email: mariya.shindova@gmail.com; Tel.: + 359 898 390 935

Received: 22 Feb 2021 ♦ **Accepted:** 15 Apr 2021 ♦ **Published:** 30 Apr 2022

Citation: Shindova M, Belcheva-Krivorova A. Influence of dentists' age, gender, working experience, and practitioner type on the use of behaviour management techniques in dental treatment of children. *Folia Med (Plovdiv)* 2022;64(2):314-320. doi: 10.3897/folmed.64.e64841.

Abstract

Aim: The objective of the present study was to investigate the influence of dentists' age, gender, working experience, and practitioner type on the use of non-pharmacological behaviour management techniques in the treatment of paediatric dental patients.

Materials and methods: An anonymous, self-completion survey was mailed to 200 randomly selected dentists. The recorded information included items on practitioner's gender, age, working experience, specialty status, and frequency of using different non-pharmacological behaviour management techniques as well as the factors influencing the choice for specific behaviour guidance techniques.

Results: Significant differences between age/gender distributions were seen in the use of the basic non-pharmacological behaviour management techniques. Younger females were more likely to indicate that they were comfortable using communicative guidance techniques. The respondents in the over-40 age group did not rely at all on negative reinforcement and parental presence/absence techniques during the dental treatment of children ($p < 0.05$). Dental practitioners with working experience of fewer than 10 years were more likely to utilize behaviour guidance techniques in attending paediatric dental patients compared to their older colleagues. No significant difference by practitioner types was seen in the use of the basic behaviour management techniques ($p > 0.05$).

Conclusions: The present study showed age, gender, working experience, and practitioner type statistically significant differences in the use of behaviour management techniques during the dental treatment of children. The choice of a technique was influenced mainly by personal factors associated with the physical and psychological health of the child.

Keywords

age, behaviour management, gender, paediatric dentistry, practitioner

INTRODUCTION

Knowledge of the behaviour management technique (BMT) utilization rates could be useful to the oral care providers desiring evidence base to change or promote their

methods in the treatment of paediatric dental patients (PDPs) within the current social and parental trends as well as legal/ethical concerns.^[1] A considerable number of studies in the contemporary scientific literature investigating the relationship between the individual covariates

of the dental practitioners (DPs) themselves and the management of children's behaviour in the dental office focuses mainly on the impact of age, gender, working experience, and practitioner type.^[1-7] A review of the literature in behavioural paediatric dentistry showed significant evidence that there were apparent differences associated with the different age groups among the dentists.^[2] Most studies investigating gender differences demonstrated contradictory results.^[2,4,5] Interestingly, in countries with different cultural modulation, it is reported that there is a statistical relationship between gender and treatment attitude of PDPs.^[8,9] The education or the presence of educated women in modern life modify the traditional structures and views. As women participated more and more actively in the family, social, and professional life, women's leadership is no longer an exception but a normal situation.^[5] A clearly distinguishable trend shows that female dentists are actively involved in the treatment of patients not only as part of the nursing team. Women's equal participation in dentistry is not only a demand for simple democracy but can also be seen as a necessary condition for women's interests to be taken into account concerning different fields of development and specialties of dental medicine. It is accepted that paediatric dentistry has the highest representation of women compared to males compared to the other advanced dental areas and predoctoral programs.^[5]

There is not enough information describing the use of different BMTs in the dental practice based on the personal factors of the dentists.

AIM

Thus, the purpose of the present study was to investigate the influence of the practitioners' age, gender, working experience, and practitioner type on the use of non-pharmacological BMTs as well as the factors influencing the choice for specific behaviour guidance techniques in the treatment of PDPs.

MATERIALS AND METHODS

The cross-sectional study consisted of an anonymous, self-completed mailed survey. Potential subjects were sent an email describing the study and inviting their participation. The participants were randomly selected from the official register of the Bulgarian Dental Association in Plovdiv, Bulgaria. Two hundred dentists were invited to participate in the study, extrapolated using a randomization program from the complete email list of the scientific society's members. 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 September 2020 and consisted of two sections, including multiple-choice and close-end

ed questions. Section I included demographic questions, including gender, age, working experience, specialty status - general practitioner versus specialist. Information concerning the use of the different non-pharmacological BMTs was collected from section II. To limit the survey to DPs who provide dental care to children, the first question was 'Do you provide dental care to children at your dental practice?' In case of a negative answer, the respondent was excluded from the study. Before circulating the questionnaires, the study was approved by the Committee for Scientific Research Ethics, Medical University of Plovdiv, Bulgaria (No. P-1371/30.04.2018).

Statistical analysis

The obtained data were tabulated, processed and analysed using SPSS version 21.0 (IBM, USA). Descriptive statistics were generated to estimate demographic data and the frequency of using BMTs. Chi-square analysis was employed to analyse the percentage distribution of the respondents for each variable. The level of significance was set at $p < 0.05$.

RESULTS

Out of the 200 surveys that were mailed, 118 subjects (59% response rate) were included in the statistical analysis for this study. The sample size was $N=118$ dentists. The demographic information about the responders is shown in **Table 1**. Overall, the mean age of 118 subjects responding to this item was 36.75 ± 9.16 years. The subjects were asked to indicate one of the two categories of total years in practice (0-10 years and over 10 years). The larger group had 0-10 years of clinical experience (65.3%). Female respondents outnumbered male respondents (ratio 1.5:1).

Age categories were dichotomized as < 40 years and ≥ 40 years. Four age/gender categories were used (**Table 2**). No significant difference by groups was seen in the use of

Table 1. Demographic and practice information of the investigated practitioners (N=118)

Factors	N	Percentage of responders
Sex		
Male	47	39.8%
Female	71	60.2%
Total years in practice		
< 10 years	77	65.3%
> 10 years	41	34.7%
Specialty status		
General practitioner or other specialty not including paediatric dentistry	69	58.5%
Paediatric dentist	49	41.5%

distraction and stop signals ($p>0.05$). No one reported that he/she used modelling as a BMT. A significant difference between age/gender distributions was seen in the use of the basic non-pharmacological BMTs. Younger females in the present investigation were more likely to indicate that they were comfortable in using communicative BMTs – voice control (VC) and positive reinforcement (PR).^[4]

Tell-show-do (TSD) was the most frequently employed technique by the age group of DPs younger than 40 years (male 33.7% and female 42.4%) and the least employed by the male over-40 age group (4.3%) ($p<0.05$). The results concerning negative reinforcement (NR) and parental presence/absence (PPA) showed that the over-40 age group did not rely at all on these BMTs during the treatment of PDPs ($p<0.05$). The respondents in the group of the older females indicated no use of nonverbal communication (NC), (0%), while in the other groups the use of this BMT was reasonably well distributed.

The results about the influence of practitioner type on the use of BMTs are shown in **Table 3**. There were significant practitioner type differences for the less frequently used BMTs (except for TSD) during the dental treatment of children. The use of NC, TSD, NR and PPA for behaviour guidance was reported by more than 60% of the DPs and other specialists not including paediatric dentistry and less than one-third of the paediatric dentists ($p<0.01$). No significant difference by practitioner types was seen in the use of the basic BMTs ($p>0.05$).

The attitudes of respondents to the use of non-pharmacological BMTs associated with their working experience are shown in **Table 4**. Except for NC, significant working experience differences were observed regarding all investigated BMTs ($p<0.01$). DPs with working experience of fewer than 10 years were more likely to utilize behaviour guidance techniques in attending PDPs compared to their older colleagues. The respondents with more than 10 years

Table 2. Percentage of the respondents reporting the use of BMTs by age and gender, N=118

Techniques	Sex/age groups				p
	Females<40	Males<40	Males>40	Females>40	
1 Nonverbal communication (NC)	30.8%	30.8%	38.5%	-	<0.05*
2 Tell-show-do (TSD)	33.7%	42.4%	4.3%	19.6%	<0.05*
3 Voice control (VC)	26.3%	50%	5.3%	18.4%	<0.05*
4 Positive reinforcement (PR)	21.7%	50.7%	11.6%	15.9%	<0.05*
5 Negative reinforcement (NR)	33.3%	66.7%	-	-	<0.05*
6 Distraction	20.8%	50%	12.5%	16.7%	>0.05
7 Stop signals	34.5%	37.9%	17.2%	10.3%	>0.05
8 Modelling	-	-	-	-	-
9 Parental presence/absence (PPA)	50%	50%	-	-	<0.05*

*refers to statistically significant as $p<0.05$

Table 3. Percentage of the respondents reporting the use of BMTs by practitioner type (N=118)

Techniques	General dentists and other specialty not including paediatric dentistry		Paediatric dentist		p
	N	%	N	%	
1 Nonverbal communication	90	76.9%	28	23.1%	<0.01**
2 Tell-Show-Do	72	61.7%	46	38.3%	<0.01**
3 Voice control	68	58.1%	50	41.9%	>0.05
4 Positive reinforcement	68	57.7%	50	42.3%	>0.05
5 Negative reinforcement	78	66.7%	40	33.3%	<0.01**
6 Distraction	59	50.0%	59	50.0%	>0.05
7 Stop signals	65	55.2%	53	44.8%	>0.05
8 Modelling	-	-	-	-	>0.05
9 Parental presence/absence	88	75.0%	30	25.0%	<0.01**

**refers to statistically significant as $p<0.01$

Table 4. Percentage of the respondents reporting the use of BMTs by working experience

Techniques	< 10 years		> 10 years		p
	N	%	N	%	
1 Nonverbal communication	54	46.2%	46	53.8%	>0.05
2 Tell-show-do	75	63.8%	25	36.2%	<0.01**
3 Voice control	72	61.3%	46	38.7%	<0.01**
4 Positive reinforcement	75	63.9%	25	36.1%	<0.01**
5 Negative reinforcement	118	100%	-	-	<0.01**
6 Distraction	78	66.7%	40	33.3%	<0.01**
7 Stop signals	82	70.0%	36	30.0%	<0.01**
8 Modelling	-	-	-	-	-
9 Parental presence/absence	118	100%	-	-	<0.01**

**refers to statistically significant as $p < 0.01$

working experience indicated NR and PPA as totally ineffective in the management of children's behaviour.

Almost all DPs who participated in the study reported that they were influenced by children's emotional state, their past dental experience, and age in the selection of a BMT during handling of a particular child. Parents' preferences were reported by only 2.54% of the DPs to influence their choice of a BMT (Table 5).

DISCUSSION

The response rate to this survey (59%) is an indication of the considerable interest that DPs have in the topic of behaviour management of PDPs. The gender differences in BMTs were apparent. The present study found that, regardless of age, female dentists used more frequently BMTs during the treatment of PDPs compared to male DPs. Women were more comfortable in using communicative BMTs (TSD, VC, and PR/NR). Interestingly, a lack of NC as a particular BMT was seen in the answers of the female dentists older than 40 years. It is suggested that the aging experience in women in taking care of their children

and grandchildren has become a part of their everyday behaviour. In comparison to males, they do not treat NC as a special BMT and this is considered to be the possible reason for our results. In a study among the members of the American Academy of Pediatric Dentistry (AAPD) in 2014, both genders reported that parenthood affected their behaviour guidance styles.^[10] As less talkative, almost 40% of male GPDs over 40 years old indicated that they were more likely to use 'body language' and rely on the non-verbal cues in attending children. The results of our investigation demonstrated that older DPs were more likely to exclude all parents in general compared to younger colleagues. This is in line with a reported survey in the USA and Canada, where paediatric dentists over 46 years were significantly less likely to allow parental presence for dental procedures.^[4] However, other studies indicated that DPs of almost all age groups utilized parental presence to respond to the parental demand for presence in the operator.^[5,6,10] Also, DPs find this technique as a useful alternative to more aversive options.^[6,11] None of the respondents older than 40 years in our study reported using NR in the treatment of their PDPs. Our study corresponds with the clear trend indicating a decline in the use of this BMT. It was demonstrated by research from 2000 investigating dental anxiety among children in London. The authors indicated an increase in anxiety and avoidance of dental treatment as a result of the use of the technique NR.^[12] Eccles explains the results with the development of 'sense of inferiority', as Erikson called it, that ends in permanent intellectual, emotional consequences and avoidance of dental care.^[13] In contrast, in past studies, Allen et al., Ilieva et al., and Peretz et al. found that NR results in reducing dental anxiety, but it showed low acceptability by parents.^[14-16] The results of the present study demonstrated that the respondents under 40 years of age were more likely to use BMTs in their practice and no significant difference by gender in the under-40-year group was reported. Wells et al. also reported that DPs of both genders utilized BMTs at approximately equal rates.^[1,10]

Table 5. Factors influencing the choice of particular BMTs while handling a PDP

Influencing factors	%	N
Past dental experience	77.97%	92
Oral health	22.03%	26
Emotional state	82.20%	97
Social status	16.95%	20
Medical history	15.25%	18
Child's age	73.73%	87
Parents' dental anxiety	33.89%	40
Parents' preferences for a BMT	2.54%	3

Our study showed that there were practitioner type-related differences in the behaviour management methods employed. The present results showed that general DPs and specialists not including paediatric dentistry more frequently used non-pharmacological BMTs than the paediatric dentists themselves. A significant difference by practitioner types was seen in the use of several less frequently used BMTs ($p < 0.01$). The reported use of NR was low for paediatric specialists (33.3%). This is not surprising as they follow the clear trend indicating NR as an aversive technique and the debate on the efficiency of its use.^[12,13] As to NC and TSD, the additional training and acknowledgement of paediatric specialists are considered as a possible reason for the lower indication of their use (23.1%). These two BMTs are the most successful yet simple basic BMTs which can be used with all PDPs regardless of their cooperation level.^[17] Thus, paediatric specialists do not treat them as an additional effort but as a normal start of the treatment process. Further exploration of the use of the pharmacological BMTs trends will be interesting as the specialists in paediatric dentistry are considered to be more confident in their sedation training and obtain hospital privileges. In a study among 3000 members of the American Dental Association, significant differences between general DPs and paediatric specialists were found concerning the use of the pharmacological, aversive, and restraint techniques.^[2]

DPs with more years of working experience reported changes in their use of BMTs over time. The paternalistic approach has been more evident in the techniques used more frequently 30 years ago – PPA, VC, restraint, hand over mouth.^[2] Contemporary parents and the immediate access they have to the health care information result in changes occurring during the career even of the most experienced DPs. In the present study, significant differences were apparent in the frequency of usage of the non-pharmacological BMTs reported across the different practitioner experience groups ($p < 0.01$). The group with less than 10 years of working experience indicated that they use various BMTs two times more frequently compared to the more experienced dentists. Possibly, this group has fewer patients, more time for the treatment procedures and a desire to meet the needs of the individual child. The second group represents DPs who have attained more training and experience parallel to their busy schedule full of diverse patients with different requirements.^[2] Thus, they reported a lower frequency of usage of the investigated non-pharmacological BMTs. The results of the present study confirm those of McKnight-Hanes et al. who found an inversely proportional relationship between the usage of BMTs and the working experience of DPs.^[2] The authors interpreted the results with the busiest time of the professional career, fewer younger patients and received little training in their educational programs. However, dentists who participate in postdoctoral programs and scientific events have greater involvement in paediatric dental treatment and seek to remain up-to-date about the latest and effective techniques regardless of their age and working experience.

The analysis of the results demonstrates that personal factors associated with the physical, emotional and psychological health of the child mainly influence the dental practitioner's choice of BMT to be used in a particular PDP. This indicates that the child's emotion and presenting behaviour in the dental setting are important. Of the individual-level factors of the children, the previous dental experience was reported by the majority of authors to influence their choice that underlines the importance of proper child management in pediatric dentistry.^[9] In line with the present findings, Oredugba et al. and Kawia et al. reported that a major factor influencing the choice of BMT was also the child's age.^[9,18] Unlike the present results, Carr et al. reported the reason for the use of most BMT to be parental influence.^[7] Generally, the personal factors of the child were reported by more dentists than socioeconomic status and medical history to influence their choice for a BMT to be applied.

CONCLUSIONS

The present study showed age, gender, working experience, and practitioner type statistically significant differences in the use of BMTs during dental treatment of children. There were considerable variations in the reported use of non-pharmacological BMTs in practice. The choice of a technique was mainly influenced by personal factors associated with the physical and psychological health of the child. Future exploration of the pharmacological BMTs trends will be interesting as the profession begins responding to the loss of the aversive techniques with increases in pharmacological management.

REFERENCES

1. Wells MH, McCarthy BA, Tseng, et al. Usage of behavior guidance techniques differs by provider and practice characteristics. *Pediatr Dent* 2018; 40(3):201–8.
2. McKnight-Hanes C, Myers DR, Dushku JC, et al. The use of behavior management techniques by dentists across practitioner type, age, and geographic region. *Pediatr Dent* 1993; 15(4):267–71.
3. Adair SM, Waller JL, Schafer TE, et al. A survey of members of the American Academy of Pediatric Dentistry on their use of behavior management techniques. *Pediatr Dent* 2004; 26(2):159–66.
4. Adair SM, Schafer TE, Waller JL, et al. Age and gender differences in the use of behavior management techniques by pediatric dentists. *Pediatr Dent* 2007; 29(5):403–8.
5. Peretz B, Glaicher H, Ram D. Child-management techniques. Are there differences in the way female and male pediatric dentists in Israel practice? *Braz Dent J* 2003; 14(2):82–6.
6. Williams KA, Lambaria S, Askounes S. Assessing the attitudes and clinical practices of Ohio dentists treating patients with dental anxiety. *Dent J (Basel)* 2016; 4(4):33.
7. Carr KR, Wilson S, Nimer S, et al. Behavior management techniques among pediatric dentists practicing in the south-eastern United

- States. *Pediatr Dent* 1999; 21(6):347–53.
8. Nazzal H, El Shahawy OI, Al-Jundi S, et al. The use of behaviour management techniques amongst dentists working in the Arabian region: a cross-sectional survey study. *Eur Arch Paediatr Dent* 2020:1–1.
 9. Kawia HM, Mbawalla HS, Kahabuka FK. Application of behavior management techniques for paediatric dental patients by Tanzanian dental practitioners. *Open Dent J* 2015; 9:455–61.
 10. Wells M, McTigue DJ, Casamassimo PS, et al. Gender shifts and effects on behavior guidance. *Pediatr Dent* 2014; 36(2):138–44.
 11. Shroff S, Hughes C, Mobley C. Attitudes and preferences of parents about being present in the dental operatory. *Pediatr Dent* 2015; 37(1):51–5.
 12. Cohen SM, Fiske J, Newton JT. Behavioural dentistry: The impact of dental anxiety on daily living. *Br Dent J* 2000; 189(7):385–90.
 13. Eccles JS. The development of children ages 6 to 14. The future of children 1999; 9(2):30–44.
 14. Peretz B, Zadik D. Attitudes of parents towards their presence in the operatory during dental treatments to their children. *J Clin Pediatr Dent* 1998; 23(1):27–30.
 15. Allen KD, Barone VJ, Kuhn B. A behavioral prescription for promoting behavior analysis within pediatrics. *J Appl Behav Anal* 1993; 26:493–502.
 16. Ilieva E. [The child as a dental patient.] Sofia; 2000 [in Bulgarian].
 17. American Academy of Pediatric Dentistry. Behavior guidance for the pediatric dental patient. Chicago, Ill.: American Academy of Pediatric Dentistry 2020:292–310.
 18. Oredugba A, Sanu OO. Behavior management techniques employed by Nigerian dentists for their child patients. *PBOCI* 2009; 9(3):271–6.

Влияние возраста, пола, опыта работы и типа врача-стоматолога на использование методов управления поведением при стоматологическом лечении детей

Мария Шиндова¹, Ани Белчева-Криворова¹

¹ Кафедра детской дентальной медицины, Факультет дентальной медицины, Медицинский университет – Пловдив, Пловдив, Болгария

Адрес для корреспонденции: Мария Шиндова, Кафедра детской дентальной медицины, Факультет дентальной медицины, Медицинский университет – Пловдив, бул. „Христо Ботев“ № 3, 4000 Пловдив, Болгария; Email: mariya.shindova@gmail.com; Тел.: + 359 898 390 935

Дата получения: 22 февраля 2021 ♦ **Дата приемки:** 15 апреля 2021 ♦ **Дата публикации:** 30 апреля 2022

Образец цитирования: Shindova M, Belcheva-Krivorova A. Influence of dentists' age, gender, working experience, and practitioner type on the use of behaviour management techniques in dental treatment of children. Folia Med (Plovdiv) 2022;64(2):314-320. doi: 10.3897/folmed.64.e64841.

Резюме

Цель: Целью настоящего исследования было изучить влияние возраста, пола, опыта работы и типа врача-стоматолога на использование немедикаментозных методов управления поведением при лечении стоматологических пациентов детского возраста.

Материалы и методы: Анонимный опросник для самостоятельного заполнения был разослан по почте 200 случайно выбранным стоматологам. Регистрируемая информация включала данные о поле, возрасте, опыте работы, статусе специальности, частоте использования различных немедикаментозных методов управления поведением практикующего врача, а также факторы, влияющие на выбор тех или иных методов управления поведением.

Результаты: Значительные различия между возрастными/половыми распределениями наблюдались при использовании основных немедикаментозных методов управления поведением. Молодые женщины чаще указывали, что им удобно использовать коммуникативные методы руководства. Респонденты возрастной группы старше 40 лет вообще не полагались на методики отрицательного подкрепления и присутствия/отсутствия родителей при лечении зубов у детей ($p < 0.05$). Практикующие стоматологи со стажем работы менее 10 лет с большей вероятностью использовали методы управления поведением при лечении детских стоматологических пациентов по сравнению со своими старшими коллегами. Существенной разницы между типами практикующих в использовании основных техник управления поведением не наблюдалось ($p > 0.05$).

Заключение: Настоящее исследование выявило статистически значимые различия в использовании методов управления поведением при стоматологическом лечении детей по возрасту, полу, опыту работы и типу практикующего врача. На выбор методики повлияли в основном личностные факторы, связанные с физическим и психологическим здоровьем ребёнка.

Ключевые слова

возраст, управление поведением, пол, детская дентальная медицина, практикующий врач
