

Complementary and Supportive Practices Used for Children with Dental Pain by Parents

Çocuklarda Diş Ağrısı ile Baş Etmede Ebeveynlerin Kullandıkları Tamamlayıcı ve Destekleyici Uygulamalar

Sevinç Polat¹, Ayşe Şener Taplak¹, Ayşe Gürol²

¹Yozgat Bozok University Faculty of Health Science, Department of Nursing, Yozgat, Turkey
²Erzurum Technical University Faculty of Health Science, Department of Nursing, Erzurum, Turkey



Keywords

Child, dental pain, parent, complementary and supportive practices

Anahtar Kelimeler

Çocuk, diş ağrısı, ebeveyn, tamamlayıcı ve destekleyici uygulama

Received/Geliş Tarihi : 19.06.2022

Accepted/Kabul Tarihi : 01.09.2022

doi:10.4274/meandros.galenos.2022.35693

Address for Correspondence/Yazışma Adresi:

Asst. Prof., Ayşe Şener Taplak, PhD., RN, Yozgat Bozok University Faculty of Health Science, Department of Nursing, Yozgat, Turkey
Phone : +90 354 242 10 34
E-mail : ayse.taplak@yobu.edu.tr
ORCID ID: orcid.org/0000-0002-4229-038X

©Meandros Medical and Dental Journal, Published by Galenos Publishing House.
This is article distributed under the terms of the Creative Commons Attribution NonCommercial 4.0 International Licence (CC BY-NC 4.0).

Abstract

Objective: This study aimed to determine the complementary and supportive practices used by parents for their children with dental pain.

Materials and Methods: The sample of this cross-sectional study consisted of 1,551 parents who had 6–12-year-old children, and whose children had previously experienced dental pain. The data were collected using questionnaires prepared by the researchers. Data were analyzed by descriptive statistics and regression analysis.

Results: In all, 61.7% of parents used only complementary, 18.4% only supportive, and 19.9% both complementary and supportive practices to deal with their children dental pain. Child age, previous dental experience, age at developing the habit of tooth brushing, fear of the dentist, father's employment status, and number of children in the family were statistically significant predictive factors on using only complementary practices by parents.

Conclusions: Parents should be informed about the harmful practices that their children use to cope with dental pain and should be directed to methods whose benefits have been proven by evidence-based studies.

Öz

Amaç: Bu araştırma, çocuklarının diş ağrısı ile baş etmede ebeveynlerin kullandıkları tamamlayıcı ve destekleyici uygulamaları belirlemek amacıyla yapıldı.

Gereç ve Yöntemler: Kesitsel tipteki araştırmanın örneklemini, 6–12 yaş grubu çocuğu olan ve çocuğu daha önce diş ağrısı deneyimleyen 1.551 ebeveyn oluşturdu. Veriler, araştırmacılar tarafından hazırlanan anketler kullanılarak toplandı. Tanımlayıcı istatistikler ve regresyon analizi verilerin değerlendirilmesinde kullanıldı.

Bulgular: Çocuklarının diş ağrısı ile baş etmede ebeveynlerin %61,7'sinin yalnızca tamamlayıcı, %18,4'ünün yalnızca destekleyici ve %19,9'unun hem tamamlayıcı hem de destekleyici uygulamaları kullandığı saptandı. Çocuğun yaşı, önceki dental deneyimleri, diş fırçalama alışkanlığı kazanma yaşı, diş hekimi korkusu, babanın çalışma durumu ve ailedeki çocuk sayısı ebeveynlerce sadece tamamlayıcı uygulamaların kullanılmasında istatistiksel olarak anlamlı yordayıcı faktörler olarak tespit edildi.

Sonuç: Ebeveynler çocuklarının diş ağrısı ile baş etmede kullandıkları zararlı uygulamalar konusunda bilgilendirilmeli ve yararı kanıta dayalı çalışmalarla kanıtlanmış yöntemlere yönlendirilmelidir.

Introduction

Dental pain is one of the common causes of pain during childhood that negatively affects the performance of activities of daily living and the quality of life in children and adolescents (1,2). Uncontrollable pain leads to deterioration in sleep quality, psychological problems, suppression of the immune system, and prolonged recovery time (3,4). Additionally, dental pain experienced by children negatively affects their families and leads to disruptions in the parents' physical, social, and psychological activities, and has a negative effect on the financial status of the family (5). Therefore, keeping the pain experienced due to orodental problems under control is important for both the child and the family.

In recent years, interest in complementary or supportive methods to protect health and remedy health problems has also been increasing in the field of orodental health (6). However, when not followed responsibly, these methods may exert more harmful than beneficial effects on children's health (7). For parents, the pain, anxiety, and fear experienced by their children are alarming. Therefore, parents resort to various methods that mostly are not based on a scientific basis, and that they know of based on their culture, see in their families, or are recommended by their immediate friends' circle to reduce their children's pain (8).

Management of dental pain among school-age children is crucial for the protection and development of children's health. One of the primary roles of nurses is to identify practices that directly affect children's health and to instill healthy lifestyle behaviours among children. Therefore, it is very important that nurses recognize such methods used by society and know the practices that will affect the health behaviour of individuals so that they can provide effective healthcare services (9,10). To the best of our knowledge, there is a gap in the literature that investigate complementary and supportive care practices used for the management of dental pain among children. This research aimed to determine the complementary and supportive practices used by parents for coping with dental pain of their children.

Materials and Methods

Participants

This study was carried out as a cross-sectional study in 2017-2018 and 2018-2019 academic years. Before starting the study, approval was obtained from the institution, Bozok University Non-Invasive Clinical Research Ethics Committee (date and decision number: 2017-04/01), and written consent from the participants.

The population of the study consisted of 1,600 parents who were registered in the 10 Family Health Centers (FHCs) in a provincial center, and who applied under the school health screening program to FHCs on the specified dates. The parents who had 6-12 year old children, whose children had previously experienced dental pain, and who agreed to participate in the study were included in the sample. In this regard, 49 parents who did not meet the inclusion criteria, were excluded from the study and the sample of the study occurred of 1,551 parents.

Data Collection

The questionnaires were prepared by researchers in accordance with the relevant literature (7,11). Firstly, a pilot study was conducted with participants who were not included in the study, and the questionnaires were finalized. Afterward, questionnaires were filled out during face-to-face interviews, and the interviews took a median of 20 minutes. The data collection tools were following;

Introductory information form: The form consisted of questions regarding the sociodemographic characteristics of parents, and childrens' orodental health and dental pain history, etc.

Complementary and supportive practices form: The form included questions on complementary and supportive practices used for the management of dental pain among children, whether they received information from health personnel before using it, whether they found the practice useful, etc.

Statistical Analysis

IBM SPSS Statistics 22.0 (IBM Corp., Armonk, New York, USA) package program was used to evaluate the data. Number and percentage values were used to assess the descriptive data. Factors that were considered to influence using only complementary practices were evaluated using simple binary logistic regression analysis. Hosmer and Lemeshow test was

used in the final model (chi-square=6.843, df=8, p=0.554). Significant variables were evaluated using multiple binary logistic regression analysis with backward wald elimination. P<0.05 was considered statistically significant in all the analyses.

Limitation of the Study

The data obtained is limited to the questions asked in the questionnaires. The methods used are limited to children aged 6-12 years.

Results

According to the introductory characteristics of parents, the age distribution of mothers and fathers was 28 years and under (n=292, 18.8%; n=137, 8.8%), 29-39 age group (n=745, 48.0%; n=615, 39.7%), and 40 years and above (n=514, 33.2%; n=799, 51.5%). The educational status of mothers and fathers was literate (n=55, 3.5%; n=19, 1.3%), primary school (n=443, 28.6%; n=255, 16.4%), secondary school (n=300, 19.4%; n=272, 17.5%), high school (n=438, 28.2%; n=580, 37.4%), university (n=315, 20.3%; n=425, 27.4%). In all, 31.6% of the mothers (n=490) and 92.6% of fathers (n=1436) were employed, and 68.4% of the mothers (n=1061), and 7.4% of fathers (n= 115) were unemployed. Number of children in the family were one child (n=385, 24.8%), two children (n=652, 42.0%), and three children and above (n=514, 33.2%). Further, a total of 41.2% of the children were between 6-9 and 58.8% of them were between 10-12 years included in this study.

In all, 45.1% developed the habit of brushing their teeth between the ages of 4 and 6 years. Moreover, 51.7% feared the dentist and 50.5% had previous dental experience. The cause of dental pain was tooth eruption in 46.2%, tooth decay in 32.0%, tooth abscess in 8.3%, and unknown in 13.5% of the children (self-reported). In this sample, 61.7% of parents used only complementary, 18.4% followed only supportive, and 19.9% used both complementary and supportive practices together (mixed methods) for managing dental pain (Table 1).

As an only supportive practice, 50.2% of parents used mouthwash, 26.7% increased their child's tooth-brushing frequency, and 23.1% used floss for their children. In terms of complementary practices, rubbing poppy (*Papaver somniferum*), onions, garlic, potatoes, and cloves on the tooth, and using saltwater mouthwash were most commonly used methods. Further, 30.5% of the parents obtained the

result they expected from the practice, whereas two-thirds did not see any benefit or did not obtain the expected result, and the rate of the side effects were 1.4% (Table 2).

Table 1. Oral-dental health and dental pain history of their children of parents

Features	n	%
Having a separate toothbrush		
Yes	1435	92.5
No	116	7.5
Having a separate toothpaste		
Yes	1160	74.8
No	391	25.2
Age at developing the habit of tooth brushing		
2-3 years	434	28.0
4-6 years	700	45.1
7-12 years	417	26.9
Number of times the child brushes the teeth		
1 time a day	798	51.5
2 times a day	328	21.1
3 times a day	122	7.9
Once a week	14	0.9
Occasionally	289	18.6
The child's fear of the dentist		
Yes	802	51.7
No	749	48.3
Having previous dental experience		
Yes	784	50.5
No	767	49.5
Reason for dental pain		
Tooth eruption	717	46.2
Tooth decay	496	32.0
Tooth abscess	128	8.3
Unknown	210	13.5
Use of pharmacological methods to deal with dental pain of child without consulting a physician		
Yes	540	34.8
No	1,011	65.2
Practices followed by parents to deal with dental pain		
Following only complementary practices	957	61.7
Following only supportive practices	285	18.4
Following mixed practices	309	19.9
Total	1,551	100.0

Table 2. Complementary and supportive practices used for managing dental pain of their children by parents

Features	n	%
Using only supportive practices (n=285)		
Using a mouthwash	143	50.2
Increasing tooth-brushing frequency	76	26.7
Flossing	66	23.1
Using only complementary practices* (n=957)		
Rubbing poppy	478	49.9
Rubbing onion	144	15.0
Rubbing garlic	126	13.2
Rubbing potatoes	130	13.6
Rubbing cloves	128	13.4
Mouthwash with salt	102	10.7
Rubbing olives without seeds	68	7.1
Mouthwash with carbonate	64	6.7
Rubbing cucumbers	45	4.7
Chewing black cumin	43	4.5
Rubbing carrots	40	4.2
Pressing with cologne-soaked cotton	19	2.0
Applying fluorine	18	1.9
Pressing with alcohol-soaked cotton	17	1.8
Rubbing soda	15	1.6
Applying cold	15	1.6
Vinegar water	10	1.0
Using both complementary and supportive practices/mixed methods (n=309)		
Increasing tooth-brushing frequency + rubbing poppy	50	16.1
Flossing + mouthwash with carbonate	46	14.9
Increasing tooth-brushing frequency + mouthwash with salt	159	51.5
Using a mouthwash + applying cold	54	17.5
Reason for using only complementary care practices to deal with dental pain of child* (n=957)		
To support the treatment	595	62.2
Thinking it is safer	219	22.9
Thinking it is natural	171	17.9
Thinking it is more useful	127	13.3
As it is easier to obtain	90	9.4
As such treatments are common	80	8.4
Ensuring everything is done to relieve the pain	65	6.8
Out of desperation	42	4.4

Table 2. continue

Because it has fewer side effects	40	4.2
To relax psychologically	39	4.1
Because of fear of the side effects of medication	25	2.6
Due to lack of money	21	2.2
Time and frequency of following complementary/supportive care practices		
Once a day	154	9.9
2 times a day	161	10.4
3 times a day	62	4.0
When it hurts	1,118	72.1
After each tooth-brushing session	56	3.6
Receiving information from health professionals before/while using complementary/supportive practices		
Yes	333	21.5
No	1218	78.5
Outcome of the method used		
I obtained the expected result	473	30.5
There was no improvement, but I was relieved to think I was doing my best	608	39.2
I didn't obtain the expected result	93	6.0
I didn't see any benefit or harm because I didn't practice it regularly	96	6.2
I didn't see any benefit	281	18.1
Side effects of complementary/supportive practices		
Yes	22	1.4
No	1,529	98.6
Recommending complementary/supportive practices to others		
Yes	297	19.1
No	660	42.6
Partly	594	38.3
Total	1,551	100.0
*Multiple responses were given, n: Number		

Table 3 shows the results of multiple binary logistic regression analysis. In the final model, child age, previous dental experience, age at developing the habit of tooth brushing, fear of the dentist, father's employment status, and number of children in the family were statistically significant predictive factors on using only complementary practices. According to wald statistics, the most important factor influencing the practice of using only complementary practices was developing the habit of brushing teeth between the ages of 7 and 12 years (Table 3).

Table 3. Multiple logistic regression analysis results on factors influencing the practice of using only complementary practices

Variables	β	SE	Wald statistics	p	Exp (β)	95% CI for exp (β)	
						Lower	Upper
Age of children							
6-9 years	Ref						
10-12 years	0.378	0.124	9.234	0.002	1.460	1.144	1.863
Previous dental experience							
No	Ref						
Yes	0.334	0.117	8.168	0.004	1.397	1.111	1.757
Age at developing the habit of tooth brushing							
2-3 years	Ref						
4-6 years	0.400	0.129	9.543	0.002	1.492	1.157	1.923
7-12 years	0.539	0.160	11.312	0.001	1.714	1.252	2.346
Dentist fear							
No	Ref						
Yes	0.280	0.110	6.537	0.011	1.323	1.068	1.641
Father's employment status							
Employed	Ref						
Unemployed	0.601	0.236	6.471	0.011	1.824	1.148	2.899
Number of children in the family							
One	Ref						
Two	0.214	0.140	2.317	0.128	1.238	0.940	1.631
Three and above	0.404	0.155	6.805	0.009	1.498	1.106	2.029
Constant	-0.678	0.144	22.231	<0.001	0.508		
SE: Standart error, CI: Confidence interval, Ref: Reference/comparation group							

Discussion

This study was conducted to determine the complementary and supportive practices employed by parents to deal with dental pain in their school-age children. The results showed that the most common causes of dental pain were tooth eruptions and decay (dental caries) (Table 1). A systematic review and meta-analysis emphasized that dental pain could occur among children and adolescents because of various reasons such as eruption, exfoliation, carious teeth, dentinal hypersensitivity, and abscess (12). In another study, dental caries was detected in 2,218 of 2,358 children aged 4-15 years (13).

In this study, mouthwash and floss were used as supportive practices for dental pain among children (Table 2). Mouthwashing, flossing, and tooth brushing to improve oral hygiene are recommended as supportive oral care practices, as they help with

mechanical cleaning, such as tongue cleaning (14). In the present study, increasing the frequency of tooth brushing was another supportive care practice employed by the parents. Regarding oral health habits and behaviors, Honkala et al. (15) observed that toothbrushing less than once a day increases the likelihood of dental pain.

In the present study, the complementary practices most used to deal with dental pain among children included applying poppy (*Papaver somniferum*), onions, garlic, potatoes, and cloves on the tooth and using saltwater mouthwash (Table 2). Some practices reported in the previous studies were similar to those in the present study. Efe et al. (7), found that mothers rubbed aspirin on the aching teeth; used mouthwash with salt or lemon salt; put cotton soaked with vinegar, alcohol, or cologne; or placed raw garlic or onions on the aching tooth to alleviate dental pain.

Gürsoy and Gürsoy (16) reported the widespread use of thyme, garlic, mint, sage, chamomile, and cloves for a toothache. Owing to its antibiotic or anti-inflammatory properties, garlic and clove may have been used reducing the bacteria causing incidence of tooth decay and periodontal disease activities (17-19). However, further studies are needed before toothpaste or dental preparations containing herbs can be used among children (20).

Some methods used by parents can have harmful effects. In the present study, 1.4% of the parents reported side effects (Table 2). Especially, as plants contain active substances with very different and significant pharmacological effects, there is a serious risk of toxicity because of the variety of active substances and the possibility of drug-drug interactions when mixed with other plants (21,22). Some plants interact with certain drugs through various mechanisms, causing hepatotoxicity, renal toxicity, abnormal bleeding, and circulatory system problems. The use of garlic increases the risk of bleeding among people using aspirin (22). Therefore, parents should not follow complementary care practices without the advice of health professionals. Doing so without professional advice may put their children in danger.

In this study, the previous dental experience, and fear of dentists were predictors of following complementary care practices to alleviate dental pain (Table 3). Dental anxiety among children with previous dental experience or fear of dentists may delay seeking medical help and lead the family to consider using alternative methods. In a study conducted in Brazil with children aged 8-11 years, children with toothache had significantly higher levels of dental anxiety than children without toothache (23). Dental anxiety observed during childhood can persist until adulthood, causing people to avoid dental treatments and, as a result, may negatively affect oral dental health. In addition, having more children and father's employment status were found to be predictors of following complementary care practices to alleviate dental pain. It was attributable to the fact that families have insufficient finances to go to the dentist and thus resort to complementary methods initially.

Conclusion

This study is important in terms of revealing the individual methods used by parents in coping with

the dental pain of their children. To protect and improve children's health, parents should be directed to evidence-based methods when dealing with dental pain and problems. In line with the results of this study, identifying risk groups through organized home visits by family nurses and increasing the awareness and knowledge levels of both parents and school-age children regarding dangerous and harmful practices are recommended.

Ethics

Ethics Committee Approval: The study was approved by the Bozok University Non-Invasive Clinical Research Ethics Committee (date and decision number: 2017-04/01).

Informed Consent: Cross-sectional study.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: S.P., A.G., Design: S.P., A.G., Data Collection or Processing: S.P., A.Ş.T., A.G., Analysis or Interpretation: S.P., A.Ş.T., Literature Search: S.P., A.G., Writing: S.P., A.Ş.T., A.G.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: This study was supported by Yozgat Bozok University Project Coordination Application and Research Center with the project code 6602a-SY/17-101.

References

1. Freire MCM, Nery NG, Jordão LMR, Abreu MHNG. Individual and contextual determinants of dental pain in adolescents: Evidence from a national survey. *Oral Dis* 2019; 25: 1384-93.
2. Santos PS, Martins-Júnior PA, Paiva SM, Klein D, Torres FM, Giacomini A, et al. Prevalence of self-reported dental pain and associated factors among eight- to ten-year-old Brazilian schoolchildren. *PLoS One* 2019; 14: e0214990.
3. Clementino MA, Pinto-Sarmiento TC, Costa EM, Martins CC, Granville-Garcia AF, Paiva SM. Association between oral conditions and functional limitations in childhood. *J Oral Rehabil* 2015; 42: 420-9.
4. Corrêa-Faria P, Daher A, Freire MDCM, de Abreu MHNG, Bönecker M, Costa LR. Impact of untreated dental caries severity on the quality of life of preschool children and their families: a cross-sectional study. *Qual Life Res* 2018; 27: 3191-8.
5. Goes PS, Watt RG, Hardy R, Sheiham A. Impacts of dental pain on daily activities of adolescents aged 14-15 years and their families. *Acta Odontol Scand* 2008; 66: 7-12.
6. Ghaderi F, Solhjoui N. The effects of lavender aromatherapy on stress and pain perception in children during dental treatment:

- A randomized clinical trial. *Complement Ther Clin Pract* 2020; 40: 101182.
7. Efe E, Öncel S, Yılmaz M. Women' approach to child that teeth, abdomen and earache. *Agri* 2012; 24: 69-76.
 8. Vlieger AM, Blink M, Tromp E, Benninga MA. Use of complementary and alternative medicine by pediatric patients with functional and organic gastrointestinal diseases: results from a multicenter survey. *Pediatrics* 2008; 122: e446-51.
 9. Cırık V, Efe E. The importance of complementary health approaches in pediatric nursing. *Journal of Education and Research in Nursing* 2017; 14: 144-9.
 10. Kahraman A, Kırkan Ç. Investigation of knowledge and attitudes of pediatric nurses toward traditional and complementary medicine practices. *J Tradit Complem Med* 2020; 3: 32-9.
 11. Kumarswamy A. Multimodal management of dental pain with focus on alternative medicine: A novel herbal dental gel. *Contemp Clin Dent* 2016; 7: 131-9.
 12. Pentapati KC, Yeturu SK, Siddiq H. Global and regional estimates of dental pain among children and adolescents-systematic review and meta-analysis. *Eur Arch Paediatr Dent* 2021; 22: 1-12.
 13. Öztürk AB, Sönmez B. Assessment of oral and dental health in children living in southeast Anatolia rural: cross-sectional field results. *Konuralp Tıp Dergisi* 2016; 8: 195-201.
 14. Kılıçkaya MM. Current diagnosis and treatment of halitosis. *Düzce Tıp Dergisi* 2015; 17: 85-8.
 15. Honkala E, Honkala S, Rimpelä A, Rimpelä M. The trend and risk factors of perceived toothache among Finnish adolescents from 1977 to 1997. *J Dent Res* 2001; 80: 1823-7.
 16. Gürsoy OV, Gürsoy UK. Anadolu'da diş ve dişeti ile ilgili hastalıkların tedavisinde halk arasında yaygın olarak kullanılan bitkiler, kullanım şekilleri ve bitkisel özellikleri. *Cumhuriyet Üniversitesi Diş Hekimliği Fakültesi Dergisi* 2004; 7: 64-7.
 17. Houshmand B, Mahjour F, Dianat O. Antibacterial effect of different concentrations of garlic (*Allium sativum*) extract on dental plaque bacteria. *Indian J Dent Res* 2013; 24: 71-5.
 18. Pulikkotil SJ, Nath S. Potential of clove of *Syzygium aromaticum* in development of a therapeutic agent for periodontal disease. *South African Dental Journal* 2015; 70: 108-15.
 19. Tjandrawinata R, Widayarmas AS, Liliany D. Effectiveness of *Eugenia caryophyllus* in toothpaste against oral microbial in the saliva of healthy subjects in Indonesia. *Sci Dent J* 2019; 3: 56-60.
 20. Tekin H, Kırzioğlu Z. Herbal toothpastes and their use in children. *BAUN Health Sci J* 2021; 10: 63-72.
 21. Ergün G, Şahin Z, Kara İ. Complementary herbal treatments in dentistry. *Akd Med J* 2020; 6: 145-53.
 22. Tuncer K. Bitkisel ürünlere bağlı hepatotoksosite. In: Tütüncü S, Etiler N, editors. *Tıbbın alternatifi olmaz! Geleneksel alternatif ve tamamlayıcı tıp uygulamaları*. Türk Tabipler Birliği Yayınları, Ankara, 2017: 251-71. Available from: https://www.ttb.org.tr/kutuphane/gatt_2017.pdf.
 23. Ramos-Jorge J, Marques LS, Homem MA, Paiva S, Coelho Ferreira M, Ferreira FO, et al. Degree of dental anxiety in children with and without toothache: prospective assessment. *Int J Paediatr Dent* 2012; 23: 125-30.