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Effects of toothache on the educational and social status of children

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Abstract

**Background:** Untreated tooth cavities and the resulting toothaches have significant effects on children’s social and psychological development. The aim of this study was to evaluate the impact of toothache on children’s educational and social activities.

**Methods:** For this retrospective study, we issued a 15-question survey to the parents of 515 children between ages of 5–16 years in Diyarbakir, Turkey. The chi-square test was used to test the strength of the relationship between two variables (p ≤ 0.05).

**Results:** 318 (61.7%) parents reported having difficulty in feeding their children, 94 (18.3%) left a game due to toothache, 173 (33.6%) had school absences, 167 (32.4%) avoided laughing, and 439 (85.2%) parents felt that dental problems influenced their child’s success in school.

**Conclusions:** Tooth pain has a negative impact on school and the social lives of children. Families need education about this issue, and health policies should be developed to address this problem.

**Keywords:** education; pain; quality of life; toothache

Introduction

Tooth cavity is an international community health problem due to its important social influences and prevalence. Tooth cavity is one of the most common chronic illnesses throughout the world. Oral disease plays a significant role in the quality of life, and it is an important part of public health. Dental cavities are not only a problem that needs to be clinically addressed, but also an issue that may influence the child’s quality of life. Reports have noted that after removal of pain, there is a recovery in children’s eating preferences, food intake amount, and hours of sleep; these are important factors in the quality of life.

The World Health Organization has reported 60%–90% of school age children have dental cavities. It has reported toothache and tooth infection in 25% and 12% of 2–5 year-old children, respectively. Tooth cavity, the most common chronic childhood disease, is five times more common than asthma and seven times more common than seasonal allergies. Treatment to remove toothache and pulpitis is important for supporting child welfare and development. Pain, pulpitis, and dentoalveolar abscess are serious complications caused by untreated cavities. Such complications negatively impact the child’s social status.

Early Childhood Caries (ECC) is a serious public health problem both in developing and developed countries. Due to moderate or poor hygiene, children with ECC experience more pain in their physical, mental, and social functions compared to children without tooth decay. In parent evaluations of children with ECC after dental treatment, it was reported that the treatments had significant and positive impacts on their children’s physical, mental, and social functions. In addition, the impact of treating baby bottle tooth decay has been shown to affect subjective perceptions of school age children and their families about quality of life.

Treating tooth decay in school age children not only enhances their oral health, but also increases their sense of satisfaction about their teeth, smiling, and appetite. This condition has a powerful impact on their general health. Limited studies have been reported on influences of toothache on the daily, social and, psychological functioning of family life. The most common findings are the inability to concentrate in school, frequent absence from school, decreased self-respect, weak social
relations, delayed speech development, and nutritional deficiency. Cavities can decrease mastication activity, leading to the development of parafunctional habits. This, in turn, may result in loss of height. Cases influencing esthetics may generate intense psychological reflections (remaining silent and not smiling as much as they would like). A healthy smile is important in social interactions. It plays a significant role in how children are viewed, how they feel, and how they are perceived. Dentofacial esthetics are important determinants of general physical esthetics. Psychologically, a healthy smile helps a child to establish interpersonal relationships and develop him or herself.

Previous research has demonstrated that problems such as cavities, tooth injuries, toothache, and malocclusion in children can lead to a sense of guilt, anger, financial problems, and loss of time in the workforce for their parents or caretakers. Since oral and dental health might influence not only the quality of life of children but also that of their families, it is vital to raise societal awareness of the problem, enhance the availability of health services, and develop health policies in line with these aims. The aim of this study was to evaluate the impact of toothache on children’s education and social lives.

Methods

This retrospective study evaluated the parents of 515 children 5–16 years of age, who presented to the Dicle University, Faculty of Dentistry, Department of Pedodontics for tooth decay between October 2013 and June 2014. The parents answered a survey regarding information about their children’s genders, nutrition, desire for playing a game, whether they were absent from school due to toothache, and whether the toothache influenced their success at school. Informed consent was obtained from the children’s parents or caretakers. The study was carried out in accordance with the ethical standards of the Helsinki Declaration. Statistical analysis was performed with SPSS 18 software program. Along with the descriptive statistics, the chi-square test was used to test the strength of the relationship between two variables ($p \leq 0.05$).

Results

Of the 515 participants in the survey, 280 were female (54.4%) and 235 were male (45.6%). Most of the patients (94.6%) were normally developed children with the desire to play. Of these patients, acute toothache history occurred in 431 (83.7%); 173 (33.6%) were absent from school, and 94 had left a game due to toothache. 32.4% of the children reported that they avoided laughing because of their teeth, and 61.7% reported having difficulty with eating. There were 439 participants who mentioned that dental problems influenced their school success, while 76 stated that it did not.

A significant relationship was found between toothache and eating difficulty, abandonment of a game, absenteeism and falling behind in class ($p < 0.05$) (Table 1). Table 1 shows, by study, no significant relationship was found between toothache and avoiding smiling and school success.

Discussion

Tooth decay is a chronic childhood disease like obesity, asthma, and diabetes. Tooth decay has negative impacts on children’s quality of life. Previous studies have demonstrated that chronic illnesses negatively influence socio-cognitive development and, thus, may impact children’s success in school.

Table 1. Toothache-eating difficulty cross tabulation

| Variables                  | Toothache |      | Total n (%) | p    |
|----------------------------|-----------|------|-------------|------|
|                            | Yes       | No   |             |      |
| Eating Difficulty          |           |      |             |      |
| Yes                        | 303 (70.3)| 128 (29.7)| 431 (100.0)| 81.9 |
| No                         | 15 (17.9) | 69 (82.1)| 84 (100.0) |      |
| Leave The Game             |           |      |             |      |
| Yes                        | 92 (21.3) | 2 (2.4)| 94 (18.3)  | 16.9 |
| No                         | 339 (78.7)| 82 (97.6)| 421 (81.7) |      |
| Absent from School         |           |      |             |      |
| Yes                        | 171 (39.7)| 2 (2.4)| 173 (33.6) | 43.8 |
| No                         | 260 (60.3)| 82 (97.6)| 342 (66.4) |      |
| Fall Behind in The Class   |           |      |             |      |
| Yes                        | 132 (30.6)| 1 (1.2)| 133 (25.8) | 31.8 |
| No                         | 299 (69.4)| 83 (98.8)| 382 (74.2) |      |
| Refrain from Smiling       |           |      |             |      |
| Yes                        | 143 (33.2)| 24 (28.6)| 167 (32.4) | 0.7  |
| No                         | 288 (66.8)| 60 (71.4)| 348 (67.6) |      |
| School Success             |           |      |             |      |
| Yes                        | 370 (85.8)| 69 (82.1)| 439 (85.2) | 0.8  |
| No                         | 61 (14.2) | 14.8 (14.8)| 14.8 (14.8) |      |

Makara J Health Res.  
August 2019 | Vol. 23 | No. 2
Toothache negatively influences children’s ability to concentrate on their lessons, homework, and exams. It has been reported that school success and education are influenced by oral problems. However, the literature is not clear on this issue. While some studies report that oral problems influence school success, others mention that they have no influence. Studies reporting no influence emphasize that social status and general health have a greater impact on school success. Therefore, it is felt that dental problems in developed countries have a greater impact on school success of students compared to those in developing countries. In our study, 85.2% of the participants stated that they thought tooth pain would affect their success in school.

Intraoral tissue illnesses have significant impacts on physical, social, and psychological life. Previous study reported that the social communications of children with poor oral health was worse than their siblings and that they were more upset. This psychosocial aspect negatively influences oral health care and school success of the students. In our study, 32.4% of the children refrained from smiling due to their tooth decay, 18.2% had to stop playing, and 61.7% had difficulty eating due to toothache. Tooth decay, toothache, and other intraoral problems influence people’s quality of life. It also influences their need for dental services. In our country, particularly in lower socioeconomic regions, the public hospitals that provide services during school hours are considered preferable. This situation leads to student absenteeism and lost work time for parents. It may also lead to postponing dental treatment until school vacation, which exacerbates the problems. Therefore, there is a need to regulate health policies around this issue.

Since school absenteeism negatively influences the learning process, quality of life and academic performance are also negatively influenced. Healthy, well-nourished individuals have fewer problems attending school, and this impacts their school performance positively. We posit that this is related to the school attendance problem. Among our study participants, 33.6% had school attendance difficulties and 25.8% fell behind in class due to toothache. A study reported that 22.5% of their students did not attend school due to dental problems and calculated that a child was absent from school for 1.9 h on average. Although less than two hours a year for an individual, it becomes a serious problem in terms of total school attendance on a national basis. There is a need for further research on this issue.

Dental treatments in children should be used for managing pain or making their teeth functional again. Additionally, the impact of such treatments on children’s educational success and psychosocial development should be considered. A study examining the parent-child behavior model reported that parents’ oral and dental health behaviors affect children’s oral and dental behaviors. Thus, children’s dental health and tooth decay can be directly or indirectly influenced. For this reason, the awareness levels of parents and individuals caring for children should be increased.

Conclusions

We observed that dental health problems and their resulting symptoms impact the lives of children and their families. Dental disorders affect school education at an approximate rate of 34%. Of the participants in our study, 62% had problems eating and 18% had problems in social activities. In line with these data, it is important to increase the awareness of school management and family members about oral and dental health issues and to provide education about this issue. Moreover, relevant lessons on oral and dental health should be included in children’s school curriculum.

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Conflict of Interest Statement

The authors declare that they have no conflict of interest.

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References

1. Bramantoro T, Yai Suryo P, Imsalit D, Tedjosasongko U. Applying children’s quality of life assessment to promote the reliability of children dental health services quality. J Oral Health Community Dent. 2016;10:9–13.
2. Rane JV, Winner J, Bhatia R. Comparative assessment of oral health related quality of life of children before and after full mouth rehabilitation under general anaesthesia and local anaesthesia. J Clin Diagn Res. 2017;11:23–6.
3. Prasai DL, Shyaka A, Shrestha M, Shrestha A. Dental caries prevalence, oral health knowledge and practice among indigenous Chepang school children of Nepal. BMC Oral Health. 2013:13:20.
4. Ferraz NK, Nogueira LC, Pinheiro ML, Marques LS, Ramos-Jorge ML, Ramos-Jorge J. Clinical consequences of untreated dental caries and toothache in preschool children. Pediatr Dent. 2014;36:389–92.
5. Al-Darwish M, El Ansari W, Bener A. Prevalence of dental caries among 12-14-year-old children in Qatar. Saudi Dent J. 2014;26:115–25.
6. Sheiham A. Dental caries affects body weight, growth and quality of life in pre-school children. Br Dent J. 2006;201:625–6.
7. Colak H, Dülgergil CT, Dalli M, Hamidi MM. Early childhood caries update: A review of causes, diagnoses, and treatments. J Nat Sci Biol Med. 2013;4:29–38.

Makara J Health Res.

August 2019 | Vol. 23 | No. 2
8. Gurunathan D, Swathi A, Kumar MS. Prevalence of iron deficiency anemia in children with severe early childhood caries. Biomed Pharmacol J. 2019;12:219–25.

9. Cuninon DT, Spiro A, Jones JA, Rich SE, Papageorgiou CP, Tate A, et al. Pediatric oral health-related quality of life improvement after treatment of early childhood caries: a prospective multisite study. J Dent Child (Chic). 2010;77:4–11.

10. Paula JS, Sarracini KL, Meneghim MC, Pereira AC, Ortega EM, Martins NS, et al. Longitudinal evaluation of the impact of dental caries treatment on oral health-related quality of life among schoolchildren. Eur J Oral Sci. 2015;123:173–8.

11. Ramos JJ, Alencar BM, Pordeus IA, Soares ME, Marques LS, Ramos IMI, et al. Impact of dental caries on quality of life among preschool children: Emphasis on the type of tooth and stages of progression. Eur J Oral Sci. 2015;123:88–95.

12. Lisboa CM, de Paula JS, Ambrosano GM, Pereira AC, Meneghim Mde C, Cortellazzi KL, et al. Socioeconomic and family influences on dental treatment needs among Brazilian underprivileged schoolchildren participating in a dental health program. BMC Oral Health. 2013;13:56–64.

13. Bönecker M, Abanto J, Tello G, Oliveira LB. Impact of dental caries on preschool children's quality of life: an update. Braz Oral Res. 2012;26:103–7.

14. Abanto J, Paiva SM, Raggio DP, Celiberti P, Aldrigui JM, Bönecker M. The impact of dental caries and trauma in children on family quality of life. Community Dent Oral Epidemiol. 2012;40:323–31.

15. Carvalho TS, Abanto J, Mendes FM, Raggio DP, Bönecker M. Association between parental guilt and oral health problems in preschool children. Braz Oral Res. 2012;26:557–63.

16. Pourhashemi SJ, Paryab M, Kheirandish K, Kharazi-Fard MJ. Oral health and school performance in elementary students: A cross-sectional study in a group of Iranian students, Tehran, Iran. J Oral Health Oral Epidemiol. 2015;4:64–70.

17. Pongpichit B, Sheiham A, Pikhart H, Tsakos G. Time absent from school due to dental conditions and dental care in Thai school children. J Public Health Dent. 2008;68:76–81.

18. Krisdapong S, Prasertsom P, Rattanarangsima K, Sheiham A. School absence due to toothache associated with sociodemographic factors, dental caries status, and oral health-related quality of life in 12 and 15 year-old Thai children. J Public Health Dent. 2013;73:321–8.

19. Garg N, Anandakrishna L, Chandra P. Is there an association between oral health status and school performance? A preliminary study. Int J Clin Pediatr Dent. 2012;5:132–5.

20. Guarnizo-Herreño CC, Wehby GL. Children's dental health, school performance, and psychosocial well-being. J Pediatr. 2012;161:1153–9.

21. Seirawan H, Faust S, Mulligan R. The impact of oral health on the academic performance of disadvantaged children. Am J Public Health. 2012;102:1729–34.

22. Shaikh S, Siddiqui AA, Aljanakh M. School Absenteeism due to toothache among secondary school students aged 16–18 years in the Ha’il region of Saudi Arabia. Pain Res Treat. 2016;2016:7058390.

23. Provesan C, Antunes JL, Mendes FM, Guedes RS, Ar Denghi TM. Influence of children’s oral health-related quality of life on school performance and school absenteeism. J Public Health Dent. 2012;72:156–63.

24. Bianco A, Fortunato L, Nobile CG, Pavia M. Prevalence and determinants of oral impacts on daily performance: results from a survey among school children in Italy. Eur J Public Health. 2010;20:595–600.

25. Mashoto KO, Astrom AN, David J, Masalu JR. Dental pain, oral impacts and perceived need for dental treatment in Tanzanian school students: a cross-sectional study. Health Qual Life Outcomes. 2009;7:73–82.

26. Okada M, Kawamura M, Kahlara Y, Matsuzaki Y, Kuwahara S, Ishidori H, et al. Influence of parents' oral health behaviour on oral health status of their school children: an exploratory study employing a causal modelling technique. Int J Paediatr Dent. 2002;12:101–8.