

## Assessing the Frequency of Dental Pain and its Associated Factors in 11-14 years Old Children

Rai Tariq Masood<sup>1</sup>, Khawaja Rashid Hassan<sup>2</sup>, Aamir Shahzad<sup>3</sup>, Shahzeb Patoli<sup>4</sup>

### Abstract

**Objective:** The purpose of this study was to assess the frequency, characteristics and other factors affecting dental pain in 11-14 years old school children in Islamabad, Pakistan.

**Methods:** A cross sectional survey was carried out in May 2015 to assess the frequency of dental pain in 11-14 years old school children attending government and private schools in Islamabad, Pakistan. Total samples consisted of 526 school children from 9 randomly selected government and 9 from private schools. Two hundred and seventy three children from government schools and 253 children from private schools participated in the study. Response rate was 83.65%. A standardised questionnaire comprised of 15 questions related to demographics and pain experience was completed by the children.

**Results:** The frequency of dental pain in 11-14 years old school children was 29.1% in Islamabad, Pakistan. The frequency of dental pain in males was 30.2% and in females it was 27.6%. In this study, dental pain in the last six months was not significantly associated with gender in children ( $p=0.618$ ). Similarly dental pain was not statistically significantly associated with the type of school in which the child was studying ( $p=0.302$ ). However dental pain was significantly related to occupation of father ( $p=0.027$ ). The children, whose fathers had jobs as labourers, had a higher frequency of dental pain than fathers with white-collar jobs. Almost 36.7% of the children reporting dental pain described the intensity of pain as discomforting and 28.1% of children had mild pain. The pain did not radiate to the surrounding area in 36.7% of the children. The pain radiated to surrounding area to mild and moderate extent in 41.4% and 13.3% of children respectively. It was found that eating from the side of mouth with dental pain had no effect on the severity of pain in 15.6% of children. Almost 13.3% of children claimed that eating made the pain moderately more severe.

**Conclusion:** Overall the frequency of dental pain in children was 29%. Dental pain was not associated with gender of the school child. Efforts should be directed to determine the cause of dental pain in school children. Prevention of dental pain can be done by promoting oral health in children to reduce the impact of dental pain on quality of life.

**Keywords:** Associated factors, demographics, dental pain, prevalence, school.

**IRB:** Approved by Ethics Committee of Rawal Institute of Health Sciences, Dated: 20<sup>th</sup> February 2015. (ASH & KMDC 21(1):37;2016).

### Introduction

Pain is "an unpleasant sensory and emotional experience associated with actual or potential tissue damage"<sup>1</sup>. Dental pain may be defined as pain originating from the pulp, periodontal tissues or in-

nervated structures within or adjacent to the tooth<sup>2</sup>. Dental pain is the most prevalent of all orofacial pain symptoms in adults<sup>3-8</sup>. People describe dental pain as throbbing, miserable and the most intense of all pain experiences<sup>9</sup>. Dental pain has considerable impacts on lives of children and their families<sup>10</sup>. Experience of dental pain is associated with gender but there are no consistent findings about this association<sup>11</sup>. Some studies report that the prevalence of dental pain is higher in females than in males<sup>12</sup> and others report that the prevalence of

<sup>1,4</sup> Rawal Institute of Health Sciences, Islamabad

<sup>2</sup> Islam Dental College, Sialkot,

<sup>3</sup> Women Medical College, Abbottabad

**Correspondence:** Dr. Shahzeb Patoli  
 Department of Community Dentistry  
 Rawal Institute of Health Sciences, Islamabad  
 Email: drshazeb@hotmail.co.uk  
 Date of Submission: 4<sup>th</sup> November 2015  
 Date of Acceptance: 20<sup>th</sup> February 2016

dental pain is not related to gender<sup>13</sup>. The prevalence of dental pain is higher in the younger age groups than in the older age groups<sup>14,15</sup>. People belonging to low socioeconomic groups have greater chances of experiencing dental pain than the people belonging to high socioeconomic status<sup>16</sup>.

In Pakistan, the prevalence of dental pain in 11-14 years old subjects was 30% in Peshawar; Pakistan<sup>14</sup>. There is no record of any previous study to assess the prevalence of dental pain in 11-14 years old in the capital city Islamabad, Pakistan. Hence, the aim of this study was to assess the frequency and associated factors of dental pain in 11-14 years old school children in Islamabad, Pakistan.

## Subjects and Methods

Ethical approval of study was obtained from Rawal Institute of Health Sciences in March 2015. A cross-sectional survey was carried out to assess the frequency of dental pain in 11-14 years old children attending government and private schools in Islamabad, Pakistan. All the students in selected class of school falling within specified age range were included in the study. Students whose parents did not consent to participate in the study were excluded. Schools in the periphery of Islamabad were excluded due to cost and time concerns.

Sample size was estimated to be 454 children (227 from government schools and 227 from private schools) and it was based on an estimated 30% prevalence of dental pain from a previous study by Pau et al<sup>14</sup> with 95% confidence interval.

This study adopted the cluster random sampling technique. Registered schools in Islamabad (110 Schools) represent the sampling frame.

The sample selection procedure first separated private schools from government schools. Nine private and nine government schools were selected randomly using a SPSS program. One class of grade seven children in each school was randomly selected containing almost 30 students on average. All the students from the selected class were in-

cluded in the study. Permission and written informed consent was taken from the parents and guardians to participate in the study.

Data was collected by a questionnaire. The questionnaire had 15 questions. There were four questions related to age, sex, class of study and father's occupation. The pain questions were taken from the validated pain inventory developed by Pau et al<sup>2</sup>. The 11 pain items assess pain duration, location, nature and aggravating and relieving factors.

The data obtained was then entered and analyzed using Statistical Package for Social Sciences (SPSS 18) software. Descriptive statistics such as frequency distribution and cross-tabulation were used to analyse the data.

## Results

A total of 18 schools (nine governments and nine private) were randomly selected for the study. The total number of children in one section of grade seven in both government and private schools was five hundred and twenty six (two hundred and seventy three and two hundred and fifty three respectively). Eighty six students did not complete the questionnaire appropriately so they were excluded from the study.

The age range in the sample was from 11 to 14 years. The sample consisted 56.4% of male students and 43.6% of female students. The selected sample consisted of two hundred and eighteen participants (49.5%) from private schools and two hundred and twenty two children (50.5%) from government schools (CI=1.46-1.55) as shown in Table1. The frequency of dental pain in last six months was 29.1%. Out of 128 children reporting dental pain, 110 children (25%) had pain at one site either tooth or gums and remaining 18 children (4.1%) reported pain in both tooth and gums. The frequency of pain in floor of mouth, tongue and palate was 4.5%, 3.6% and 3% respectively. Almost 36.7% of the children reporting dental pain described the intensity of pain as mild and 28.1% of children had moderate pain. The pain did not radi-

ate to the surrounding area in 36.7% of the children. The pain radiated to surrounding area to mild and moderate extent in 41.4% and 13.3% of children respectively, (Table 1). It was found that eating from the side of mouth with dental pain had no effect on the severity of pain in 15.6% of children with pain. Almost 13.3% of children claimed that eating made the pain moderately more severe. The results show that dental pain became worse on eating and drinking hot and cold things in 65.6% of children, 51.6% children had difficulty in swallowing due to pain and 40.6% children claimed that the dental pain lasted for more than one week. Almost one third of children with pain reported continuous pain and 28.1% children had intermittent pain.

The study showed that out of two hundred and forty eight male students, dental pain was reported by seventy-five (30.2%) of the children. In case of female children, fifty three females (27.6%) out of one hundred and thirty nine reported dental pain in previous six months. In this study dental pain in previous six months was not statistically significantly associated with gender in children ( $p>0.05$ ) as shown in Table 3.

Dental pain was reported by fifty-eight students (26.8%) belonging to private schools and by seventy students (31.5%) of government schools. In this study dental pain in the previous six months was not statistically significantly associated with type of school in which the child is attending ( $p>0.05$ ), (Table 3).

**Table 1.** Characteristics of school students enrolled in the study

Chararerstics of School Students	N (%)	
Age	11 - 12 years	81 (18.4%)
	12- 14 years	359 (81.6%)
Type of School	Private	218 (49.5%)
	Government	222 (50.5%)
Gender	Male	245 (56.4%)
	Female	195 (43.6%)

**Table 2.** Showing percentage distribution of factors affecting pain

S.No.	Pain Character	Mild	Moderate
1	Severity of pain	36.7%	28.1%
2	Radiation of pain	41.1%	13.3 %

**Table 3.** Dental Pain and Associated Factors

Gender	No Dental Pain N (%)	Dental Pain N (%)	p-Value
Male	173 (69.8%)	75 (30.2%)	0.618
Female	139 (72.4%)	53 (27.6%)	
Total	312 (70.9%)	128 (29.1%)	
Type of School	No Dental Pain N (%)	Dental Pain N (%)	p-Value
Private	160 (73.4%)	58 (26.6%)	0.302
Government	152 (68.5%)	70 (31.5%)	
Total	312 (70.9%)	128 (29.1%)	

## Discussion

The outcome of present study showed that the six-month frequency of dental pain in school children in Islamabad, Pakistan was 29.1%. This figure is comparable to previous studies done by Nalweyiso et al.<sup>17</sup> in Uganda and in Brazil by Goes et al.<sup>10</sup>, in Tanzania by Mashoto et et al.<sup>18</sup>, in India by Harikiran et al.<sup>19</sup> and in Pakistan by Pau et al.<sup>14</sup>. However, some studies reported a low prevalence of dental pain as in Peres et al.<sup>20</sup> and Vargas, Macek et al.<sup>13</sup>. The low prevalence of dental pain reported in this study may be due to the fact that only the six month frequency of dental pain was recorded. The participants might not be able to remember the dental pain experience of few months' back which might have led to low frequency of dental pain in this study. The results show that dental pain became worse on eating and drinking hot and cold things in 65.6% of children, 51.6% children had difficulty in swallowing due to pain and 40.6% children claimed that the dental pain lasted for more than one week. Almost one third of children with pain reported continuous pain and 28.1% children had mild pain. These findings are comparable to previous

study in Pakistan by Pau A et al<sup>14</sup>. in which the prevalence of dental pain was estimated to be 30.4%. Similar findings were reported by Honkala et al<sup>21</sup>. The type of school in which the child was studying was not statistically significantly associated with the dental pain experience in the last six months ( $P=0.302$ ). These findings are in contrast with previous study by Cascaes et al<sup>22</sup>.

This study has several limitations. Firstly, schools, registered with Federal Board of Intermediate and Secondary Education Islamabad were taken as sampling frame. The schools, which were not registered, were excluded from the sampling frame. So there is chance that several schools especially private schools, which do not come under Federal Board, had been missed. This study assessed the dental pain frequency and associated factors on a limited scale; however, it paves the way for future research on this subject. A study with larger sample size, including rural school children in the periphery of Islamabad and assessing the impact of dental pain on quality of life of this population will be helpful to have a broader picture of the scenario. Also detailed causes of pain and its characteristics should be determined, so that preventive measures can be taken to improve dental hygiene and subsequent health of school children in general.

## Conclusion

This study concluded that almost one third of adolescents suffer from dental pain in any form. Hence, dental pain is a very important public health problem. It has great impact on quality of life of children in terms of pain, discomfort and days off from school. Efforts should be directed to reduce the frequency of dental pain by empowering parents and children to promote oral health and prevent dental diseases, hence improving the quality of life.

## Conflict of interest

Authors have no conflict of interests and no grant/ funding from any organization.

## References

1. Merskey H, Bogduk N, editors. Classification of chronic pain. Seattle: IASP; 1994. p. 59-76.
2. Pau A, Croucher R, Marcenes W, Leung T. Development and validation of a dental pain-screening questionnaire. *Pain* 2005;119:75-81.
3. Leung WS, McMillan AS, Wong MC. Chronic orofacial pain in southern Chinese people: experience, associated disability, and help-seeking response. *J Orofacial Pain* 2008;22:323-30.
4. Jaafar N, Razak IA, Zain RB. The social impact of oral and facial pain in an industrial population. *Ann Acad Med Singapore* 1989;18:553-5.
5. Lipton JA, Ship, JA, Larach-Robinson D. Estimated prevalence and distribution of reported orofacial pain in the United States. *J Am Dent Assoc* 1993;124:115-21.
6. Luo Y, McMillan AS, Wong MC, Zheng J, Lam CL. Orofacial pain conditions and impact on quality of life in community-dwelling elderly people in Hong Kong. *J Orofac Pain* 2007;21:63-71.
7. Lahti S, Sipilä K, Taanila A, Laitinen J. Oral pain and associated factors among adolescents in northern Finland. *Int J Circumpolar Health* 2008;67:245-53.
8. Kuhnen M, Peres MA, Masiero AV, Peres KG. Toothache and associated factors in Brazilian adults: a cross-sectional population-based study. *BMC Oral Health* 2009;9:7.
9. Cohen LA, Bonito AJ, Akin DR, Manski RJ, Macek MD, Edwards RR, et al. Toothache pain: behavioral impact and self-care strategies. *Spec Care Dentist* 2009;29:85-95.
10. 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.
11. Alkhatib MN, Gilthorpe MS, McGrath C. Disparities in self reported oral health problems among a young Syrian adult population. *Int Dent J* 200;52:449-52.
12. Pau A, Croucher R, Marcenes W. Determinants of perceived need for dental pain medication. *Community Dent Oral Epidemiol* 2008;36:279-86.
13. Vargas CM, Macek MD, Marcus SE. Sociodemographic correlates of tooth pain among adults: United states, 1989. *Pain* 2000;85:87-92.
14. Pau A, Khan SS, Babar MG, Croucher R. Dental pain and care-seeking in 11-14-yr-old adolescents in a low-income country. *Eur J Oral Sci* 2008;116:451-7.

15. Oliveira MM, Colares V. The relationship between dental anxiety and dental pain in children aged 18 to 59 months: a study in Recife, Pernambuco State, Brazil. *Cad SaudePublica* 2009;25:743-50.
16. Federal Board of Intermediate and Secondary Education (FBISE). Available from: [www.fbise.edu.pk/affiliation](http://www.fbise.edu.pk/affiliation). Accessed on Feb 3, 2016.
17. Nalweyiso N, Busingye J, Whitworth J, Robinson PG. Dental treatment needs of children in a rural subcounty of Uganda. *Int J Paediatr Dent* 2004;14:27-33.
18. Mashoto KO, Astrøm 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.
19. Harikiran AG, Pallavi SK, Hariprakash S; Ashutosh, Nagesh KS. Oral health-related KAP among 11- to 12-year-old school children in a government-aided missionary school of Bangalore city. *Indian J Dent Res* 2008;19:236-42.
20. Peres KG, Peres MA, Araujo CL, Menezes AM, HallalPC. Social and dental status along the life course and oral health impacts in adolescents: a population-based birth cohort. *Health Qual Life Outcomes* 2009;7:95.
21. 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.
22. Borges CM, Cascaes AM, Fischer TK, Boing AF, Peres MA, Peres KG. [Dental and gingival pain and associated factors among Brazilian adolescents: an analysis of the Brazilian Oral Health Survey 2002-2003]. *Cad SaudePublica* 2008;24:1825-34.