



## Perceptions and practices of parents regarding the oral health of their primary school children in Quetta, Pakistan: A quantitative approach

*Ashfaq Khawaja Khail PhD<sup>1</sup>, Katrina Ronis PhD<sup>2</sup>, Sheh Mureed PhD<sup>3</sup>*

### Original Article

#### Abstract

**BACKGROUND AND AIM:** The oral hygiene practices of children are dependent on their parents, so this study was performed with the aim to investigate the perceptions and practices of parents regarding their own and their children's oral health.

**METHODS:** This cross-sectional study was conducted on 374 parents and caregivers of primary school children in Quetta, Pakistan. The study population was selected using stratified random sampling technique. Data were collected through a self-administered questionnaire distributed among the parents through the teachers of their children.

**RESULTS:** Parental knowledge on "prevention of oral diseases" was found to be low compared with the "pathology of diseases". Around half of the parents were unaware of the benefits of fluoride added to toothpaste. Just over half of the parents perceived the item "Frequent bottle feeding does not affect children's oral health" negatively and over one-third of parents believed that milk teeth do not require good care, as they will fall out in later stages of life. Around two-thirds of parents reported to clean their teeth twice a day. Moreover, 77% of parents used a toothbrush and 15% used a Chewing stick for cleaning their teeth. Only 7% of parents reported that they supervise their children during tooth brushing and around one-third of parents reported that they remind their children of tooth brushing.

**CONCLUSION:** Overall, parental knowledge, perceptions, and practices regarding oral hygiene needs to be improved. Oral health awareness programs can be designed and implemented to improve the perceptions and practices of parents regarding their own and their children's oral health.

**KEYWORDS:** Oral Hygiene; Parents; Schools; Perceptions

**Citation:** Khail AK, Ronis K, Mureed S. **Perceptions and practices of parents regarding the oral health of their primary school children in Quetta, Pakistan: A quantitative approach.** J Oral Health Oral Epidemiol 2021; 10(3): 134-40.

Oral health is defined as a functional, structural, aesthetic, physiologic, and psychosocial state of well-being and is essential to an individual's general health and quality of life (QOL).<sup>1</sup> Oral health as a part of general health is an important contributor to an individual's QOL. According to the most recent World Health Organization (WHO) report, globally 5 billion people suffer from dental caries and 60 to 90% of school children have dental caries.<sup>2</sup> The most common oral diseases include dental caries, periodontal diseases, dental fluorosis, and malocclusion.

In spite of great advancements in dentistry and preventive techniques, oral diseases remain prevalent in children, especially in developing countries.<sup>3</sup>

There is sufficient scientific literature that supports the fact that children's health is influenced by parental health-related behaviors.<sup>4-6</sup> As caregivers, parents play an important role in maintaining suitable oral health in their children.<sup>5</sup> Oral health behaviors of mothers, such as tooth brushing and dietary habits have been identified to have a strong association with the oral health status of their children.<sup>7</sup> The oral health literacy (OHL) of

1- Assistant Professor, Department of Community and Preventive Dentistry, Public Health Dentistry, Bolan University of Medical and Health Sciences, Quetta, Pakistan

2- Associate Professor, Department of Nutrition, Health Services Academy, Islamabad, Pakistan

3- Assistant Professor, Department of Maternal and Child Health, Health Services Academy, Islamabad, Pakistan

Address for correspondence: Ashfaq Khawaja Khail PhD; Assistant Professor, Department of Community and Preventive Dentistry, Public Health Dentistry, Bolan University of Medical and Health Sciences, Quetta, Pakistan; Email: [phd15ashfaq@hsa.edu.pk](mailto:phd15ashfaq@hsa.edu.pk)

parents is considered to have a strong influence on the oral health of their children; understanding the perceptions of parents towards oral health is crucial in promoting positive oral health behaviors and overcoming barriers amongst their children.<sup>3,8</sup>

The social determinants of oral health such as lifestyle, socioeconomic status, oral health literacy, and environmental conditions are very complex and strong.<sup>9</sup> To prevent oral diseases, common risk factors for non-communicable diseases should be addressed particularly reducing sugar intake, eating a well-balanced nutritious diet, drinking fluoridated water, using fluoridated toothpaste, and maintaining appropriate oral hygiene.<sup>2</sup> For children, these preventive measures require supportive behaviors by their parents to ensure that positive oral health behaviors are learned and reinforced.<sup>6</sup>

Pakistan is the fifth most populous country in the world with a population over 207 million.<sup>10</sup> Pakistan's public sector spends 0.7% of its Gross Domestic Product (GDP) on its health sector, which is extremely low compared to that spent by other East Mediterranean region countries like Oman (3.4%), Qatar (2.6%), and UAE (2.5%), respectively.<sup>11,12</sup> Oral health in Pakistan is a neglected sector, which is evident from the fact that all 4 of the National Health Surveys conducted did not include indicators for oral health. Individual microstudies have revealed that dental caries and periodontal diseases burden is increasing in Pakistan. Changing lifestyle and eating behaviors such as lack of physical activity, increased stress levels, smoking, eating sweets are considered as factors contributing to oral health problems.<sup>13,14</sup> Quetta is the provincial capital of Balochistan province of Pakistan. With a population of over 1 million (1001205), Quetta hosts a diverse population of different casts and tribes of Pakistan along with Afghan refugee communities.<sup>15</sup>

The main objective of this study was to obtain baseline data on the oral health knowledge, perceptions, and practices of

parents regarding their own and their children's oral health. The results of this study can be used to design interventions, provide oral health policy direction, and prioritize future research, as well as for provincial and global comparisons.

## Methods

This study is a cross-sectional, quantitative, descriptive survey. A modified and translated version of the questionnaire on oral hygiene was used to gather data about the demographic characteristics of the parents, and their oral hygiene knowledge, perceptions, and practices. The study population included parents or guardians of primary school children enrolled in the selected public and private schools. The study was conducted in Quetta, Balochistan province, Pakistan.

The sample population was selected using stratified random sampling technique. Initially, 2 strata were formed of different types of school, i.e., public and private schools. The schools from each stratum were then selected randomly through balloting. Once the schools were selected, the students of each grade, from grade 1 to 5, were randomly selected with the help of the class in-charges.

Before conducting the study, ethical approval was obtained from the Institutional Review Committee of Health Services Academy, Islamabad, Pakistan (Ethical code: 2212-HSA/PhD-2015), as part of a PhD thesis.

The research instrument was a questionnaire developed first in English, and then, translated into Urdu (the national language of Pakistan). The questionnaire was piloted among parents with similar characteristics to that of the study population. The self-administered questionnaire included 4 sections: parents' demographic information, parental knowledge of oral health and hygiene, parental perceptions of oral health and hygiene, and oral hygiene practices of parents.

Prior to the data collection phase, the researcher explained the study objectives and the data collection procedure to the primary

school teachers. The researcher ensured that the teachers had enough information and background knowledge regarding the research instrument so that the information would be correctly transferred to the respondents. The primary school teachers distributed the self-administered questionnaire along with an information sheet among the parents through their primary school children.

Completed questionnaires were received by the teachers and handed over to the researcher in a 1-week period. Questionnaires were coded, entered into, checked, and processed using SPSS software (version 20, IBM Corp., Armonk, NY, USA) licensed to Quaid-e-Azam University Islamabad with an institutional access. Descriptive statistics (frequency, percentage, mean, and standard deviation of score of each variable) were calculated to describe the characteristics of the sample.

## Results

Data were collected from 4 primary schools (2 private schools and 2 public schools). Of the 450 questionnaires distributed among parents, 387 were returned (86% response rate). Of the total questionnaires returned, 374 were complete and considered eligible for data analysis. The main findings will be presented under the 4 section headings of the questionnaire.

**Demographic information of parents:** Study respondents included 208 fathers (56.0%), 164 mothers (44.0%), and 2 guardians of the primary school children (0.5%). Almost half of the parents (43.6%) were over 40 years of age. Regarding parents' education level, 82% (n = 307) had finished their 10<sup>th</sup> grade or high schooling or had higher education. The mean number of children was found to be 3 (min = 1, max = 7). Moreover, 54.0% (n = 202) of the respondents were employed in private (21.0%) or public (33.0%) sector organizations and 21.0% (n = 79) were housewives. Approximately half of the respondents had a total family income of less than 100000 PKR

per month. In terms of residency status, 48% (n = 180) of the respondents lived separately in their own houses while others stayed at rented houses. Over half of the respondents (n = 221, 59%) had tap water in their homes.

### Parental knowledge about oral health and hygiene

**Agent and pathology:** A majority of parents (92%) knew that eating too many sweets can cause tooth decay and over two-thirds of parents had knowledge about dental caries as a bacterial disease, and knew that dental plaque can cause tooth decay and gingival problems.

**Prevention:** Parental knowledge on 'Prevention' was found to be low when compared with 'Agent and Pathology' of oral diseases. Approximately 60% of parents were unaware of the oral habits of their children, which lead to misaligned teeth. Furthermore, 53% of parents were unaware of the benefits of fluoride toothpaste and 66% did not know when their children could start using this type of toothpaste (Table 1).

**Parental perceptions of oral health and hygiene:** Almost half (49%) of the respondents agreed strongly that their children should have regular dental checkups. However, 38% of the respondents believed that primary teeth do not require good care as they will fall out at a later age. Moreover, 46% of the respondents perceived that the cost of dental treatment was high, and hence, did not visit the dentist.

The majority of the parents (80%) agreed with the statement that the children who take care of their milk teeth will have better teeth in adulthood. The statement "Frequent bottle feeding does not harm the oral health of children" was perceived negatively by 54% of parents (Table 2).

**Parental practices regarding oral hygiene:** All the respondents reported that they cleaned their teeth once a day and 67% reported that they cleaned their teeth twice a day. The use of toothbrushes with toothpaste was the most common method of cleaning teeth (77%) followed by Miswak (15%) (Miswak or Chewing stick is a teeth cleaning twig made from the *Salvadora persica* tree).

**Table 1.** Knowledge of parents/guardians on each item (n = 374)

Item	Answered correctly
	n (%)
General physiology	
How many milk teeth (or baby teeth) are there in a child's mouth?	238 (63.6)
Agent and pathology	
Can eating too many sweets and candies lead to tooth decay?	344 (92.0)
Is tooth decay (dental caries) caused by bacteria (small bugs)?	299 (79.9)
Can chewing Betel nuts cause mouth cancer?	252 (67.4)
Can the bacteria in dental plaque cause tooth decay and gum disease?	260 (69.5)
Prevention	
Which of the following actions can lead to irregular/crooked teeth?	150 (40.1)
Does fluoride added to toothpaste make your children's teeth whiter?	175 (46.8)
Is eating less sweets/candies the only way to prevent tooth decay in children?	208 (55.6)
Children should start to use toothpaste containing fluoride at the age of 6?	166 (44.4)

It is reputed to have been used over 7000 years ago for cleaning teeth). Among the respondents, 80% reported they would visit a dentist if they encountered a problem with their teeth and only 4% reported that they would visit a Hakeem (traditional healers). Moreover, 52% of the respondents reported that their teeth have been examined by a dentist. In addition, 31% reported that they visit a dentist when they experience severe pain. Only 13% of the respondents reported that they used tobacco.

When parents were asked about their practices regarding their children's oral hygiene, only 7% reported that they supervise their young children while brushing their teeth and 32% reported that they only remind their children to brush their teeth. Furthermore, 85% of the parents reported that their children use the same toothpaste the adults use at home and only

15% reported that their children use toothpaste recommended for children (Table 3).

### Discussion

There is adequate evidence that supports the effect of the oral health habits of parents on their children's oral health outcomes,<sup>16</sup> and the improvement of children's oral health behaviors by improving parental knowledge and attitude.<sup>6</sup>

In this study, it was encouraging to know that 92% of the parents were aware of the fact that a high intake of sweets and candies in children can lead to dental caries.<sup>17</sup> However, over half of the parents were not aware of preventive measures regarding oral diseases, for example, the use of fluoride in water and toothpaste. Nearly half of the parents believed that fluoride is added to toothpaste to make teeth whiter.<sup>18</sup>

**Table 2.** Attitude of parents towards oral health and hygiene on each item (n = 374)

Item	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
	n (%)	n (%)	n (%)	n (%)	n (%)
It is important to take your child for regular dental visits.	184 (49.2)	121 (32.4)	20 (5.3)	29 (7.8)	20 (5.3)
It is necessary to clean your child's teeth after every meal.	160 (42.8)	117 (31.3)	20 (5.3)	54 (14.4)	23 (6.1)
Milk teeth (baby teeth) do not require good care as they are going to fall out.*	66 (17.6)	78 (20.9)	24 (6.4)	114 (30.5)	92 (24.6)
People do not visit a dentist because of the high cost of treatment.*	74 (19.8)	97 (25.9)	27 (7.2)	98 (26.2)	78 (20.9)
Healthy teeth as a child can help result in healthy teeth as an adult.	194 (51.9)	105 (28.1)	21 (5.6)	34 (9.1)	20 (5.3)
Frequent bottle feeding does not affect children's oral health.*	118 (31.6)	85 (22.7)	16 (4.3)	77 (20.6)	78 (20.9)

\*Negative questions

**Table 3.** Oral hygiene practices of parents on each item (n = 374)

Item	Answered correctly
	n (%)
Do you clean your teeth daily?	
Yes	374 (100)
No	0 (0)
If Yes, how often do you clean your teeth?	
Once	63 (16.8)
Twice	252 (67.4)
Three times or more	59 (15.8)
What methods do you mainly (or generally) use for cleaning your teeth?	
Toothbrush only	13 (3.5)
Toothbrush with toothpaste	289 (77.3)
Miswak/Chewing stick	56 (15.0)
Other	16 (4.3)
How often do you change your toothbrush? (n = 304)	
1 to 3 months	264 (86.8)
3 to 6 months	34 (11.2)
6 months or more	6 (2.0)
Whom do you visit if your teeth/gums have problem?	
Dentist	297 (79.4)
Hakeem	16 (4.3)
Local remedy at home	61 (16.3)
Have you ever had an examination of your teeth by a dentist?	
Yes	193 (51.6)
No	181 (48.4)
How often do you visit the dentist?	
After 3 months	5 (1.3)
After 6 months	38 (10.2)
In the case of pain	115 (30.7)
Occasionally	34 (9.1)
Have not visited a dentist at all?	182 (48.7)
Do you smoke or use tobacco?	
Yes	50 (13.4)
No	324 (86.6)
How often a day does your child brush his/her teeth?	
Once	38 (10.2)
Twice	209 (55.9)
Three times or more	18 (4.8)
Not frequently	93 (24.9)
Do not know	16 (4.3)
Do you supervise your children while they brush their teeth?	
Yes, every time	26 (7.0)
Sometime	120 (32.1)
Never	108 (28.9)
We only remind them	120 (32.1)
Do your children use the same toothpaste the adults use at home?	
Yes, the same toothpaste adults use	317 (84.8)
No, they use toothpaste recommended for children	57 (15.2)

More than half of the parents (60%) were unaware of the common causes of malocclusion or misaligned teeth in children, which is not consistent with the results of previous studies conducted in Iran, in which 72% and 75% of the parents were well aware

of the non-nutritive causes of malocclusion in children.<sup>19,20</sup>

The high cost of dental treatment is considered as one of the major barriers to the utilization of oral health services. In the present study, 46% of the parents perceived

that people do not visit dentists because of the high treatment cost, this may be because of the fact that people in Pakistan prefer to visit private clinics for dental treatment instead of public sector hospitals. The results of the present study are similar to those of a study conducted in India, where over half of the respondents believed that the high cost of dental services is a major barrier to seeking dental treatment.<sup>21</sup>

Over half of the parents (54%) believe that frequent bottle feeding has no effect on a child's teeth; this may be because of the growing trends of formula milk feeding in Pakistan. According to the UNICEF data, the prevalence of the use of formula milk in Pakistan is approximately 42% and this growing trend is usually attributed to false advertising and marketing.<sup>22</sup>

The majority of the respondents (81%) used a toothbrush for cleaning their teeth, whereas a study conducted in the northwestern province of Pakistan (Khyber Pakhtunkhwa) reported that 95% of the adult population used a toothbrush.<sup>23</sup> It was encouraging that the majority of parents (79%) knew to contact dentists for treatment of oral and dental issues. However, the remaining 21% contacted 'Hakeems' (traditional healers) (Hakeem is a practitioner of Eastern Medicine (herbal medicine), especially of Unani and Islamic medicine) or used local remedies at home; this may be due to various reasons, for example, their cultural beliefs that traditional healers are a better option, and availability or affordability of dental services because dental

treatment is usually considered as an expensive treatment.<sup>24</sup>

Around half of the respondents (51.6%) reported that they visit a dentist for oral health issues, which represents low dental service utilization by the community. A study in India's neighboring countries assessed the barriers to dental service utilization and showed that over 60% of the population do not visit dentists unless they feel pain.<sup>25</sup>

## Conclusion

This quantitative study revealed interesting data related to parental knowledge, attitudes, and practices regarding oral health and hygiene. Toothbrush with toothpaste was found to be the most common means for cleaning teeth. A majority of the parents had a low level of knowledge regarding the oral health and hygiene of their children and were unaware of the disadvantages of bottle feeding and benefits of using fluoride toothpaste. Oral health literacy and parental attitudes were found to be significantly associated with oral hygiene practices.

Oral health awareness programs can be designed and implemented to target parents of primary school children. This will eventually benefit both adults and children by improving their oral health and hygiene.

## Conflict of Interests

Authors have no conflict of interest.

## Acknowledgments

None.

## References

1. American Dental Association. ADA policy-definition of oral health [Online]. [cited 2014]; Available from: URL: <https://www.ada.org/en/about-the-ada/ada-positions-policies-and-statements/ada-policy-definition-of-oral-health>
2. World Health Organization. Oral health [Online]. [cited 2020]; Available from: URL: <https://www.who.int/news-room/fact-sheets/detail/oral-health>
3. Sami A, Fatima K, Moin H, Bashir R, Ahmed J. Relationship of Parental Knowledge and Attitude with Oral Health Status of Children in Karachi East. *J Adv Med Med Res* 2016; 14(9): 1-9.
4. Browne DT, Jenkins JM. Health across early childhood and socioeconomic status: Examining the moderating effects of differential parenting. *Soc Sci Med* 2012; 74(10): 1622-9.
5. Beljan M, Puharic Z, Zulec M, Boric D, Neumuller KR. Parent's and children's behavior and knowledge about oral health. *Acta Med Croatica* 2016; 70(3): 165-71.
6. Bozorgmehr E, Hajizamani A, Malek MT. Oral health behavior of parents as a predictor of oral health status of their children. *ISRN Dent* 2013; 2013: 741783.

7. Dye BA, Vargas CM, Lee JJ, Magder L, Tinanoff N. Assessing the relationship between children's oral health status and that of their mothers. *J Am Dent Assoc* 2011; 142(2): 173-83.
8. Virgo-Milton M, Boak R, Hoare A, Gold L, Waters E, Gussy M, et al. An exploration of the views of Australian mothers on promoting child oral health. *Aust Dent J* 2016; 61(1): 84-92.
9. da Fonseca MA, Avenetti D. Social determinants of pediatric oral health. *Dent Clin North Am* 2017; 61(3): 519-32.
10. Central Intelligence Agency. The World Factbook "South Asia: Pakistan" [online]. [cited 2021]; Available from: URL: <https://www.cia.gov/the-world-factbook/countries/pakistan/>
11. Overview of the Economy: Pakistan Economic Survey 2016-17 [Online]. [cited 2017]; Available from: URL: [http://www.finance.gov.pk/survey/chapters\\_17/overview\\_2016-17.pdf](http://www.finance.gov.pk/survey/chapters_17/overview_2016-17.pdf)
12. World Health Organization. Domestic general government health expenditure (GGHE-D) as percentage of gross domestic product (GDP) (%) Data by country [Online]. [cited 2021]; Available from: URL: <https://apps.who.int/gho/data/node.main.GHEDGGHEDGDPSHA2011?lang=en>
13. Mohiuddin S, Nisar N, Dawani N. Dental caries status among 6 and 12 years old school children of Karachi city. *J Pak Dent Assoc* 2015; 24(1): 39-45.
14. Maqsood S, Baber H, Abbas Z, Ali KJ, Khalid M. Deciphering Possible Association of Risk Factors for Dental Caries in Pakistani Population. *Int J Dent* 2018; 2018: 2842350.
15. Pakistan Bureau of Statistics. Block wise provisional summary results of 6<sup>th</sup> population & housing census-2017 [Online]. [cited 2018]; Available from: URL: <https://www.pbs.gov.pk/content/block-wise-provisional-summary-results-6th-population-housing-census-2017-january-03-2018>
16. Castilho AR, Mialhe FL, Barbosa Tde S., Puppim-Rontani RM. Influence of family environment on children's oral health: A systematic review. *J Pediatr (Rio J)* 2013; 89(2): 116-23.
17. Gupta P, Gupta N, Pawar AP, Birajdar SS, Natt AS, Singh HP. Role of sugar and sugar substitutes in dental caries: a review. *ISRN Dent* 2013; 2013: 519421.
18. Petersen PE, Ogawa H. Prevention of dental caries through the use of fluoride-the WHO approach. *Community Dent Health* 2016; 33(2): 66-8.
19. Moshkelgosha V, Kazemi M, Pakshir H, Safari R. Parental Knowledge and Attitude Towards Early Orthodontic Treatment for Their Primary School Children. *Iran J Ortho* 2017; 12(2): e7377.
20. Danaei SM, Oshagh M, Pajuhi N, Ghahremani Y, Bushehri GS. Assessment of parental awareness about malocclusion in Shiraz, Islamic Republic of Iran. *East Mediterr Health J* 2011; 17(7): 599-603.
21. Maniyar R, Umashankar GK. Knowledge and attitude towards dental insurance and utilization of dental services among insured and uninsured patients: A cross-sectional study. *J Oral Res Rev* 2018; 10(1): 1-6.
22. United Nations International Children's Emergency Fund. Infant Young Child Feeding and WASH Practices and Behaviors in Three Districts of Sindh, Pakistan-2017 [Online]. [cited 2021]; Available from: URL: <https://www.unicef.org/pakistan/reports/infant-young-child-feeding-wash-practices-and-behaviors>
23. Shah MN, Akhtar S, Khan MA, Shah F. Tooth brushing habits and knowledge among patients visiting khyber college of dentistry. *J Khyber Coll Dent* 2015; 5(2): 54-6.
24. Anwar M, Green J, Norris P. Health-seeking behaviour in Pakistan: A narrative review of the existing literature. *Public Health* 2012; 126(6): 507-17.
25. Gambhir RS, Brar P, Singh G, Sofat A, Kakar H. Utilization of dental care: An Indian outlook. *J Nat Sci Biol Med* 2013; 4(2): 292-7.