

Research Article

Oral health knowledge, attitude and behavior among students of age 10-18 years in Pakistan: a cross-sectional study

Muhammad Waqas¹, Maimoona Zulfiqar¹,

Aroosh Ahmed¹ and Shahzada Faiz Ahmad Khan²

¹House officer at Punjab Dental Hospital, Lahore

²Dental Surgeon at Rural Health Center Qadirabad, Dera Ghazi Khan

Corresponding author: Dr Muhammad Waqas, working as House officer at Punjab Dental Hospital, Lahore, Pakistan. **Tel:** 0092- 307-2118404. **E-mail:** waqasbhutta89@gmail.com

ABSTRACT

Introduction: A good oral health is the state of mouth free of any disease affecting the oral cavity and its surrounding structures. Oral health has remained as an integral part of an individual's general health and overall well-being. **Objective of the study:** The main objective of this study is to assess the knowledge of oral health, care of dental hygiene and pattern of dental problems, attitude and behavior among students of age 10-18 years in Lahore, Pakistan. **Methodology of the study:** This cross-sectional study was conducted by the Department of dentistry, Punjab Dental Hospital, Lahore during months of November to December, 2017. A total of 200 (male 104 and female 96) school-going children from three schools located in the Lahore city was examined. All children falling between age limit 10 to 18 years and permanent residents of the area were included. **Results:** We found significant difference in brushing habit between genders ($P = 0.001$) with girls showing a better dental practice. Compared to boys, girls were more aware about bleeding gums, oral health effects general health (P value = 0.004) and importance of dental check-up. **Conclusion:** Most of our school children had knowledge of oral health below satisfactory level. The main reason of the dental problems is negligence regarding the subject and dental visits. As doctors were found the main source of awareness of oral health in children, so they may play the positive role regarding the scenario.

INTRODUCTION

Dental health care is the maintenance of teeth in order to keep the teeth clean and prevent dental disorders. Basic dental or oral care involves regular brushing and flossing the teeth, eating a mouth-healthy diet and regular dental checkups as per schedule. Hence the dental health care is essential for general health, quality of life and prevention of oral diseases. The causes of dental diseases are primarily rooted in poor socioeconomic and physical environment; unhealthy lifestyles and oral health related behaviour¹. Some scientists demonstrated that dental health is seen from a health perspective as

a balance between destructive factors such as sugar-rich diet, tobacco use and poor oral hygiene versus protective factors including good oral hygiene². A good oral health is the state of mouth free of any disease affecting the oral cavity and its surrounding structures. Oral health has remained as an integral part of an individual's general health and overall well-being.²⁻⁴ Maintaining good oral hygiene is one of the most important things for healthy teeth and gums. Good oral health not only enables a person to look and feel good, it is equally important in maintaining oral functions.^{5,6}

In spite of the great triumphs in oral health, burden of oral health diseases remains high all over the world. This could be mainly because of the lack of acceptance of healthy oral habits that are crucial in controlling the most common oral diseases like, dental caries and periodontal disease which are mainly considered as behavioral disease.⁷ Countries where the oral disease preventive programs have not been implemented still remain in the shadow of high prevalence of dental caries.

There are reports showing that a correlation exists between increased knowledge and better oral health^{3,4}. So a good dental health is the state of teeth free of any disease affecting the individual's general health and over-all well-being. In spite of the great triumphs in dental health, burden of oral health diseases remains high all over the world⁵. In our country, the prevalence rate of dental caries, gingivitis and calculus was found as 45.9 %, 14.5%, and 14.3% respectively⁶. Moreover, behaviors that promote oral health and prevent disease include brushing teeth with fluoride toothpaste, reducing the frequency of sugar-rich foods and resisting tobacco use⁷. Countries where the oral disease preventive programs have not been implemented still remain in the shadow of high prevalence of dental caries⁵. Maintaining good dental hygiene is not only important for healthy teeth but also enables a person to look and feel good, resulting better oral functions and general health³.

Besides, dental health, directly or indirectly influences the quality of life of a person. Especially in children the negative impact of oral diseases, on quality of life has been reported since many years⁸⁻¹¹. In young children the burden of oral disease restricts activities in school, work, and home leading to loss of many potential working hours¹²⁻¹⁴. A study showed that children with chronic dental pain are unable to focus, easily distracted and may have problems with school work completion. School age children represent a good ratio of population and contribute significantly to the overall health

status in our community. In addition, school-based oral health assessment ensures the timely receipt of dental care and the habit once develops at the early life is beneficial for age. Furthermore, if a disease is diagnosed at the early stage, it is cured easily and with low cost.¹⁰

Objective of the study

The main objective of this study is to assess the knowledge of oral health, care of dental hygiene and pattern of dental problems, attitude and behavior among students of age 10-18 years in Lahore, Pakistan.

MATERIAL AND METHODS

This cross-sectional study was conducted by the Department of dentistry, Punjab Dental Hospital, Lahore during months of November to December, 2017. A total of 200 (male 104 and female 96) school-going children from three schools located in the Lahore city was examined. All children falling between age limit 10 to 18 years and permanent residents of the area were included. Those children who were not willing to participate in the study and under dental treatment were excluded. The schools were randomly selected by a computer-generated list. Those schools were finalized for the study which have separate branch for boys and girls. Written permissions were obtained from the school authorities. The study was approved from the local ethical research committee of the institute. Parents of the participants were explained the objectives of the study and assured of the confidentiality. A written consent was taken from all of them. The sample size was calculated by WHO calculator. The designed questionnaire contained questions that were closed-ended and some were multiple-choice items with alternative statements. The questions asked were about demographic characteristics like age, sex, class, family income and habits like cigarette smoking and chewing tobacco. The participants were then subjected to questions like oral self-care, utilization of professional dental services, most recent dental visit and its reason, and finally

knowledge of oral health. The questionnaire was pretested for validity and respondent understanding of the questions. The dental volunteers were given training and then they asked the questions verbally from the participants in mother language (Urdu) and filled the questionnaire to assess the outcome of the study.

Statistical Analysis

The data was entered through a trained computer operator and imported into statistical package for social sciences (SPSS) version 17 for statistical

Table 1: Distribution of subjects

Name of school	Male	Female	Total
The educators school, Lahore	10	50	60
The city school, Lahore	12	18	30
The royal grammar school, Lahore	25	25	50
Dar-e-arqam school, Lahore	20	40	60
Total	67	133	200

Knowledge of the participants regarding the oral health is described in table-2. Females scored more favorably in knowledge and behaviors concerning dental health particularly a significant difference ($P < 0.05$) in brushing habit was observed between the two genders. Twenty four (06%) students mentioned that they used miswak, as believed it to be the best oral care from the religious point of view. While 27.5 % were not cleaning their teeth every day. The Interdentally cleaning habit was observed only in 03% cases. Girls were observed to consume more sweets, snacks and soft drink as compared to boys (table 2, figure 1).

Table 2: Oral health knowledge of the respondents (10-18 years)

Knowledge	Frequency (%)
Daily brushing frequency decreases the problem	
Yes	45.76
No	19.56
Do not know	33.56
High content of sugar increases the problem	
Yes	60.76
No	7.0
Don't Know	32.25
Effect of smoking on oral health	
Yes	33.45
No	16.78
Do not know	2.21
Oral problems	
Consult a physician	21.5
Consult a dentist	34.5
Consult a Hakim	5.5
Not care	34.56

analysis. Frequency distribution tables were produced with percentages.

RESULTS

In the present study, students of 06 to 10 classes were evaluated. Therefore, the socioeconomic status was considered to be homogenous. Eleven male students from high classes were found habituated to cigarette smoking. The distribution of different school children is shown Table 1.

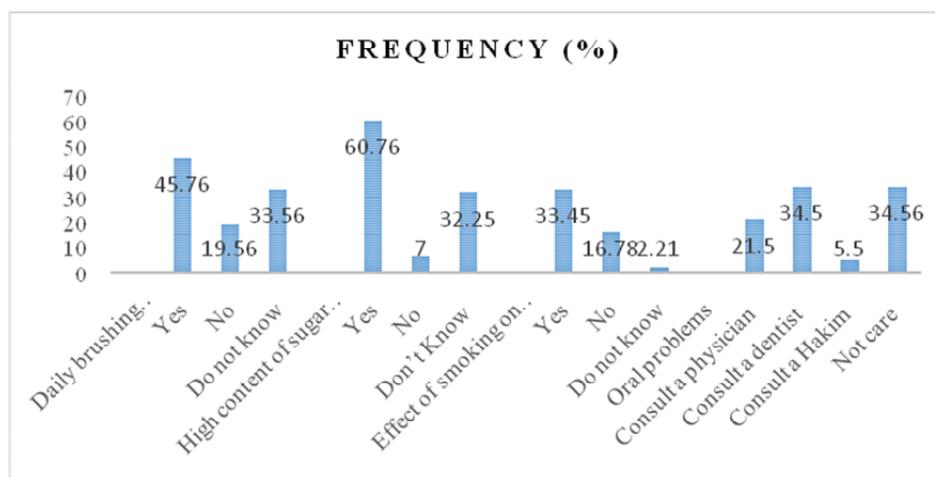


Figure 1: Shows the oral health knowledge of respondents

Out of total participants, 191 were brushing and 96 were not. Significantly more girls reported brushing their teeth. The habit of daily brushing was more prevalent in the young age group when compared to students of age 15–18 years but the difference was not significant statistically. The difference in students being enrolled in public versus private schools with respect to self-report of tooth brushing was not statistically significant (Table 3).

Table 3: Relationship between demographic variables and tooth brushing

SOCIO DEMOGRAPHIC VARIABLES	FREQUENCY (%)	BRUSHING DAILY (N = 191) (%)	P VALUE*
GENDER			
Boy	176(61.3)	101(57.4)	0.001
Girl	111(38.7)	90(81.1)	
AGE			
10-14	105(36.6)	71(67.6)	0.771
15-18	182(63.4)	120(65.9)	
SCHOOL			
Semi-private	183(63.8)	116(63.4)	0.132
Private	104(36.2)	75(72.1)	
USING TOOTH BRUSH			
Yes	251(87.5)	187(74.5)	<0.001
No	36(12.5)	4(11.1)	

*Estimated using Chi-Squared test.

DISCUSSION

The findings of the present study revealed that knowledge and practice regarding dental health among students of Lahore are not as per standard. The proportion of tooth brushing both twice and once per day in our population was considerably lower than the earlier study i.e. 38% and 83%, respectively¹⁶. Females and higher class students were strong predictors of brushing frequency

same like an early study related to dental health behavior¹⁷. Besides, the interdental cleaning which is important for proper dental practices was observed only in 12 (3%) cases.

Moreover, tobacco use makes the oral complication worse if it is not cared properly. Despite few of our participants were using tobacco, but their oral hygiene practices were same as non-tobacco users. A previous study

showed that twice-daily brushing was more frequent among smokers⁸. Both cigarette and naswar(chewing tobacco) increase the risk of developing mouth cancer, throat cancer and gum diseases¹⁷. Only 9% school children reported a dentist visit within the previous 6 months. Most of them visited the dentist only when they had a problem. The major hindrance noted is the lack of basic health knowledge regarding the subject. In Peshawar, dental caries was recorded in 45.6% school children¹⁸.

Our study reports that 66.5% of study participants were brushing daily. Knowledge related to fluoride application, bleeding from gums, general effects of oral health and importance of dental visit was comparatively higher in girls. In addition girls were more conscious about teeth color than boys. Except for the poor knowledge about the role of fluoride, more than half of the students had fair knowledge and good attitude toward healthy oral hygiene¹⁹.

In literature, knowledge and awareness about oral health is reported to be very low and marked differences in oral hygiene habits, depending on age and educational levels were observed. Studies conducted in Spain and Kuwait showed an association between increased knowledge and better oral health²⁰. Good oral health practice can be accomplished mainly through self-induced habits like maintenance of dental hygiene, restriction of diet especially reduced sugar intake, use of fluoridated products and also with the help of available dental services, which includes, regular dental checkup, utilization of primary and preventive care and dental health education.³⁰⁻³³ It is important to prevent dental problems before they start. The easiest way is to practice daily brushing and flossing that in turn will reduce the dental diseases.¹⁶ In our study the prevalence of daily brushing is reported as 66.5%. A figure which is similar to that reported in a Saudi study conducted in 2003 and found that 65% of students were doing brushing at least once.²³ The same study reported that private school students

had a better dental hygiene practice and that age was inversely related to oral health practices.¹³ While in our study, we found that both age and type of schooling were not significantly related to the habit of tooth brushing. Our results are consistent with a Chinese study that assessed oral health behavior in school children and reported that, around 22% of the 12-year-old group brushed at least twice a day, 62% reported brushing frequency to be once a day and it was observed that 16% never brushed or brushed less frequently.

CONCLUSION

Most of our school children had knowledge of oral health below satisfactory level. The main reason of the dental problems is negligence regarding the subject and dental visits. As doctors were found the main source of awareness of oral health in children, so they may play the positive role regarding the scenario.

Contribution of author

All the authors contributed equally. Dr. Waqas Bhutta conceived of the presented idea and do all the lab work and carried out the experiment with other co-authors. Dr. Faiza Farooq developed the theory and performed the computations. Dr. Aroosh Ahmed supervised the findings of this work and Dr. Waqas Bhutta and Dr. Faiza Farooq developed the theoretical formalism, performed the analytic calculations and performed the numerical simulations. All the authors contributed to the final version of the manuscript.

REFERENCES

1. Garkoti PD, Rawat CMS, Singh RK, Rawat V, Bartwal J. Pattern of dental diseases among patients attending OPD of dental: a hospital based Cross-sectional study. *NJMR* 2015; 5: 212-16.
2. M. Okada, M. Kawamura, Y. Kaihara, Y. Matsuzaki, S. Kuwahara, H. Ishidori, *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*, 12 (2002), pp. 101-108
3. Singh M, Saini A, Saimbi CS, Bajpai AK. Prevalence of dental diseases in 5- to 14-year-old school children in rural areas of the Barabanki district, Uttar Pradesh, India. *Indian J Dent Res* 2011; 22: 396-99.
 4. World Health Organization. Oral Health Promotion through Schools. WHO Information Series on School Health. Document 11. Geneva: World Health Organization 2003.
 5. Rohr IM, Bagramian RA. Oral Health-Related Quality of Life. Chicago: Quintessence, 2002.
 6. Al-Subait AA, Alousaimi M, Geeverghese A. Oral health knowledge, attitude and behavior among students of age 10–18 years old attending Jenadriyah festival Riyadh; a cross-sectional study. *Saudi J dent Res* 2016; 7: 45-50.
 7. Umer MF, Farooq U, Shabbir A, Zofeen S, Mujtaba H, Tahir M. Prevalence and associated factors of dental caries, Gingivitis and Calculus deposits in school children of Sargodha District, Pakistan. *J Arm Med Coll* 2016; 28: 152-56.
 8. Moynihan P and Petersen PE. Diet, nutrition and the prevention of dental diseases. *Public Health Nutrition* 2004; 7: 201-26.
 9. Petersen PE. The World Oral Health Report 2003: Continuous improvement of oral health in the 21st century – the approach of the WHO Global Oral Health Programme. *Commun Dent Oral Epidemiol* 2008; 31: 3–24.
 10. Scarpelli AC, Paiva SM, Viegas CM, Carvalho AC Ferreira FM, Pordeus IA: Oral health-related quality of life among Brazilian preschool children. *Community Dent Oral Epidemiol* 2013; 41: 336–44.
 11. McGrath C, Broder H, Wilson-Genderson M: Assessing the impact of oral health on the life quality of children: implications for research and practice. *Community Dent Oral Epidemiol* 2004; 32: 81-85.
 12. Kramer PF, Feldens CA, Ferreira SH, Bervian J, Rodrigues PH, Peres MA: Exploring the impact of oral diseases and disorders on quality of life of preschool children. *Community Dent Oral Epidemiol* 2013; 41:327-35
 13. Petersen PE, Peng B, Tai B, Bian Z, Fan M. Effect of a school-based oral health education programme in Wuhan City, Peoples Republic of China. *Int Dent J* 2004; 54:33-41.
 14. Nukra PD and Harikiran AG. Effectiveness of oral health education: A systematic review. *J Int Soc Prev community Dent* 2013; 3: 103-15.
 15. American Academy of Pediatrics, Section of Pediatric Dentistry. Oral health risk assessment timing and establishment of the dental home. *Pediatrics* 2003;3: 1113-16.
 16. Kari-koski A, Ilanne P, Murtomaa H. Oral self-care among adults with diabetes in Finland. *Community Dent Oral Epidemiol* 2002; 30: 216-23.
 17. Ask S, Cheung LK and Corbet EF. The effects of tobacco use on oral health. *Hong Kong Med J* 2003;9: 271-77.
 18. Makhdoom S, Ullah A. Prevalence of dental ailments in 6-12 years old school children of Peshawar district. *Pak. Oral dent J* 2010; 30: 501-05.
 19. Kasila K, Poskiparta M, Kettunen T, Pietilä I. Oral health counseling in changing school children's oral hygiene habits: a qualitative study. *Commun Dent Oral Epidemiol* 2006; 34: 419-28.
 20. Lian CW, Phing TS, Chat CS. Oral health knowledge, attitude and practice among secondary school students in Kuching, Sarawak. *Arch Orofacial Sc* 2010;5: 9-16.

21. Kalsbeek H, Verrips GH. Consumption of sweetsnacks and caries experience of primary schoolchildren. *Caries Res* 1994; 28: 477–83.
22. Hiremath A, murugobooopathy V, Ankala AV, HebbalM. prevalence of dental carries among primaryschool children of India-A cross-sectional study. *JClin Diagn Res* 2016; 10: 47-50