PROMOTING ORAL HEALTH IN PRIMARY SCHOOLS OF QUETTA, PAKISTAN: THE CHALLENGES AND GROUND REALITIES

[1]ASHFAQ AHMED KHAWAJA KHAIL, [2]KATRINA A RONIS, [3]SHEH MUREED

ABSTRACT

Oral health is a vital part of general health.[1-2] Oral diseases result in millions of school and work hours lost each year globally.[3-5] As per WHO, sixty to ninety percent of school children have dental caries globally.[6] Schools are an important setting to impart health education and health promotion to children.[10] Aim of this study was to ascertain what oral health activities exist in primary schools of Quetta city of Pakistan. This is a cross sectional study including all the public and private schools of Quetta, the Provincial city of Balochistan, Pakistan. Principals of the public and private primary schools were interviewed regarding oral health activities in their schools.

Forty seven percent (n=29) schools had no access to tap water. Only three percent schools (n=2) reported to have their water tested for Fluoride levels. Seventy three percent (n=45) reported that oral health topics are not included in their curriculum. Ninety five percent (n=59) schools do not hold oral health awareness sessions. None of the schools (n=0) reported to have tooth brushing activity in their schools.

This study highlighted lack of knowledge and many challenges confronted by primary school authorities related to the promotion of oral health. Lack of basic amenities, unknown levels of fluoride in drinking water, deficient curriculum on oral health related materials were the main issues reported. There is a dire need for provision of basic amenities in schools, inclusion of oral health related materials in curriculum and initiation of oral health education programs in schools.

Keywords: *Oral Health Promotion, Primary School Children, Oral Hygiene Fluoricle.*

This article may be cited as: Khail AAK, Ronis KA, Mureed S. Promoting Oral Health in Primary Schools of Quetta, Pakistan: The challenges and ground realities. Pak Oral Dent J 2019; 39(4):360-364.

INTRODUCTION

Oral health is a vital part of general health and the oral cavity is considered a mirror to the health of individuals and communities.[1-3] Dental Caries and Periodontitis are the most common oral health issues in developing and developed countries globally. These conditions if initiated once, do not revert itself if left untreated and may result in severe pain, tooth loss, abscess formation and severe complications requiring surgical intervention.[4] Neglected oral health conditions can have impact on the quality of life by affecting speech, eating, education, facial appearance, confidence and social interaction.[5] Oral diseases can hamper activities at work, at school and at home resulting in millions of school and work hours lost each year globally.[4,6] As per estimates by the World Health Organization (WHO), globally five billion people suffer from dental caries, sixty to ninety percent of school children have dental caries and thirty percent of people aged 65-74 years have no natural teeth.[7] Global dietary patterns are changing from traditional diets to a more refined diet rich in carbohydrate with an excessive intake of carbonated drinks; the latter is considered one of the major reasons for increased incidence of dental caries among children and young adolescents.[8-10] In a public health context schools are an important setting to impart health education and health promotion messages to children.[11] Children and adolescents are receptive population groups during which lifelong health related behaviors, attitudes and beliefs can be developed.[12] Schools are a convenient setting to access children of all ages and offer an effective and efficient way to reach over one billion children and their families globally.[13,14]

[1] Dr Ashfaq Ahmed Khawaja Khail, BDS, MPH, PhD (Fellow), Assistant Professor, Community & Preventive Dentistry, (Dental Section), Bolan University of Medical & Health Sciences, Quetta Email: ashfaqkk@gmail.com Cell No. +92-300-9386487, Landline: +92-81-2441055

[2] Dr Katrina A Ronis, PGDip. (Nutrition), M.Sc. (PHC), DrPH, Associate Professor Adjunct Faculty, Health Services Academy, Islamabad, Email: katrina@hsa.edu.pk

[3] Dr Sheh Mureed, M.P.H, PhD (Public Health), Assistant Professor, Health Services Academy, Islamabad Email: shehdr@hsa.edu.pk

Received for Publication: June 15, 2019
First Revised: Aug 30, 2019
Second Revised: Sept 26, 2019
Approved: Sept 29, 2019

According to the World Dental Federation, School Health Programs are effective interventions to provide oral health information and to promote equity in access and benefit.[15]

Pakistan is faced with many public health challenges of which many are being addressed, however poor oral health has generally been ignored.[16] As per an estimate around ninety percent of oral diseases in Pakistan are left untreated.[17] To address this gap in public health knowledge, the objectives of this study were to ascertain what oral health preventive and promotional activities exists in primary schools (public and private) of Quetta city, Balochistan province of Pakistan.

METHODOLOGY

The study design was cross sectional with quantitative approaches. Semi-structured interviews with principals of schools were conducted via mobile phones. The data collection tool was a questionnaire comprising of three sections. The first section focused on the school and its provision for dental hygiene practices; the second section focused on the school's curriculum and dental health and the last section focused on oral health assessments within the school setting. The study setting was Quetta city.

All the public (n=36) and private (n=54) sector schools having a primary section and located in Quetta municipality were included in the study providing ninety (n=90) schools in total. The sampling technique was universal; a list of public sector schools including telephonic contacts was obtained from the Directorate of Education, Government of Balochistan at Quetta. For private schools the list was obtained from the office of the Balochistan Private Educational Institution Registration & Regulation Authority (BPEIRRA) Quetta. All the Principals (n=90) of the selected schools were contacted for individual interviews. Sixty-four (n= 64) Principals were available, twenty-four (n=24) could not be contacted and two (n=2) declined the interview.

Permission was obtained from the Provincial Directorate of Education and Ethical approval from the Institutional Review Board (IRB) Health Services Academy Islamabad. The study participants were informed of the study objectives and all data was confidential. The questionnaire was piloted before data collection and improvements to the instrument to improve clarity of each question.

All the telephone interviews with the school Principals were conducted by the Primary Researcher. Responses from the sixty two (n=64) interviews were manually recorded on a hardcopy of the questionnaire as the interview proceeded. Two questionnaires were incomplete and were dropped during the data analysis, thus responses from 62 schools were analyzed with a significance level of 5% ($p < 0.05$). Data was entered into a spreadsheet and analyzed using SPSS ver. 20 [18] licensed to Health Services Academy Islamabad.

RESULTS

The results are presented as the general profile of the schools, oral health activities within the schools and any oral health assessments undertaken in the schools.

General Profile of Schools

Both public and private sector schools were included in this study. The youngest school was established in 2016 and the oldest in 1946. Mean duration of established schools was 27 years (SD 22.3). From the thirty (n=30) public sector schools thirteen were for boys and seventeen (n=17) were for girls. All the private sector schools were co-education except two Islamic schools where separate sections were available for boys and girls.

Forty four percent of all the schools (n=27) reported to have problems with drinking water, especially shortage of supply in summers. Regarding water source; 53 percent of all schools received tap water and 47 percent received water from other sources (i.e. 26 percent from the school's tube-well and 18 percent purchased water through water-bowsers). The quality of the water being used by the students was not assessed in this study.

School authorities of half the schools (n=32) did not know whether the water (supplied to children for drinking) had been tested for fluoride; 45 percent schools (n=28) reported the water had not been tested and 3 percent of the schools (n=2) had water tested for fluoride.

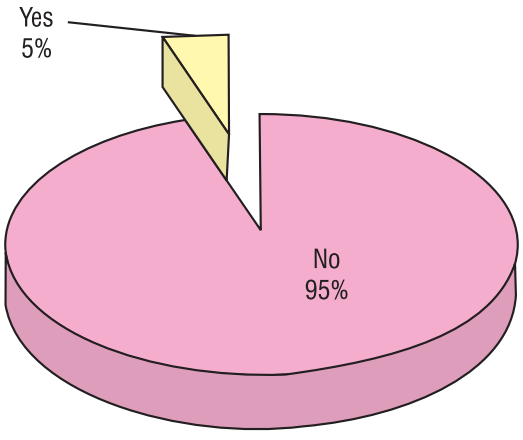

Fig 1: Oral Health Examination of Primary school children in Schools

TABLE 1: GENERAL PROFILE OF SCHOOLS LOCATED IN QUETTA CITY (N=62)

S. No	Variable	Responses	Number	Percentage
1	Type of school	Public	30	48%
		Private	32	52%
2	Gender wise distribution of primary school children	Girls	9,561	48%
		Boys	10,209	52%
		Total	19,770	100%
3	Highest level of education provided	Primary	13	21%
		Middle	10	16%
		High	39	63%
4	Parent teacher committee exists	Yes	46	74%
		No	16	26%
5	Area for Tooth brushing / Wash basins etc.	Yes	13	21%
		No	49	79%
6	Children bring Tooth brushes & Tooth pastes to school	Yes	0	0%
		No	62	100%
7	Shortage of water	Yes	27	44%
		No	35	56%
8	Water tested for Fluoride levels	Yes	2	3%
		No	28	45%
		Don't Know	32	52%

TABLE 2: ORAL HEALTH ACTIVITIES IN PUBLIC AND PRIVATE SECTOR SCHOOLS (N=62)

S No.	Variables	Responses	School Type		Total	Percentage
			Public	Private		
1	Does the primary school curriculum include Oral Health?	Yes	5	12	17	27%
		No	25	20	45	73%
		Total	30	32	62	100%
2	Do any teachers (apart from curriculum) educate children on Oral Health?	Yes	25	28	53	86%
		No	5	4	9	15%
		Total	30	32	62	100%
3	Does the school itself hold Oral Health sessions?	Yes	0	3	3	5%
		No	30	29	59	95%
		Total	30	32	62	100%
4	Has any other organization conducted Oral Health awareness session/s in the past?	Yes	6	6	12	19%
		No	24	26	50	81%
		Total	30	32	62	100%
5	Does the school observe Tooth brushing for Primary School children on a daily basis?	Yes	0	0	0	0%
		No	30	32	62	100%
		Total	30	32	62	100%

Seventy nine percent (n=49) of the all schools (public and private) had no area for tooth brushing. In public sector schools, the average number of toilets was 88 students per toilet and in private sector schools the average number of toilets was 61 students per toilet.

Seventy four percent (n=46) of all schools reported to have a "Parent-Teacher Committee" to discuss health and other issues related to their children. In the public sector schools eighty three percent (n=25) had such a committee whereas in the private sector schools this was sixty six percent (n=21).

Oral Health Activities in Schools

Thirty seven percent (n=23) of all the school Principals considered oral health as a major concern and sixty three percent (n=39) did not. Majority of schools, 73 percent (n=45) reported that oral health topics are not included in their curriculum. Twenty seven percent of schools (n=17) reported to have oral health included in

their curriculum however the majority of these schools were from the private sector (n=12).

Eighty six percent (n=53) of schools reported that their teachers impart oral health education as part of the subject. Ninety five percent (n=59) of the schools surveyed, did not hold oral health awareness sessions; the main reason for this response was:

"Lack of funds and lack of technical expertise by the teachers in the field of dentistry".

Eighty one percent (n=50) of all schools reported that their school has not conducted awareness sessions related to oral health in the last five years. Nineteen percent (n=12) reported that the Department of Community and Preventive Dentistry, Bolan Medical College, Quetta and some private companies for example "Colgate" and "Shield" have conducted oral health awareness sessions in their schools in the past five years.

Regarding tooth brushing, none of the schools (public and private) reported to have this activity in-place for primary school children.

Oral Health Assessments in Schools

When the Principals were asked about oral health assessments in their respective school the following responses were provided; ninety five percent (n=59) reported that student's teeth had never been examined and 5 percent (n=3) reported student's teeth had been examined by the Dentists of Bolan Medical College, Quetta.

When asked about the reasons for no oral health assessments in their school; the response of majority was;

"*There is no such program/activity on oral health by the government or health department".*

DISCUSSION

The World Health Organization stresses that oral health should be an integral part of non-communicable disease prevention and it provides a clear direction with practical guidance in the form of *"Basic Package of Oral Care".*[19] In Pakistan, oral health has generally been ignored in the overall health agenda. In contrast many developing countries like India, Thailand and Iran have invested in oral health and hence benefited from various school health programs. For example Kuwait's "School Oral health Program" (SOHP) covers approximately 80% of the country's school-going children. SOHP is aimed at prevention and oral health promotion and has been successful in contributing to the decline in dental caries among this population group.[20]

In 1997 WHO stated that a health promoting school can be characterized as a school constantly strengthening its capacity as a healthy setting for living, learning and working.[21] WHO health promoting schools framework recommends the availability of safe and fluoridated drinking water in all schools.[13] In this study less than a quarter of the schools (21percent) had washbasins and taps installed (for hand-washing and drinking of water).

Approximately half of all the schools (53.2 percent) received tap water supply and the remainder either purchased water via water tankers or installed tube wells in their schools. The overall quality of water being provided to the schools is an unknown entity and was beyond the scope of this research. But this is an important component of overall health and wellbeing of the students because presence or absence of micronutrients required for metabolism and in terms of safety the identification of harmful components in the water e.g. excessive amounts of fluoride.

Nearly half of all the schools identified that shortage of water was a problem especially in summer months. These findings are similar to a national survey published in 2017 by the National Education Management Information System (NEMIS) which reported 43 percent of schools in Balochistan faced shortage of drinking water, 77 percent of schools did not have electricity and 73 percent did not have toilets.[22]

Teachers are considered as the cornerstones for raising awareness and improving oral health knowledge among school children.[23,24] A two year cluster randomized control trial conducted in Pakistan concluded that teachers are an effective way to impart oral health knowledge among school children. [25] Oral health services in primary schools can include oral health education, screening and referrals for treatments such as sealants and fluoride applications.[26]

Regarding curriculum, the majority of all the schools (72.6 percent) in this study had no oral health related lessons or exercises incorporated within the school curriculum. A few private sector schools (which are using international text books) had some relevant material on oral health for children but public sector schools (which follow the local curriculum) were found deficient in terms of oral health related material. With respect to the latter a few study respondents (Principals) were of the opinion that:

"…we (the primary school teachers) are not involved in developing curriculum rather individuals/consultants who might have no experience in teaching primary school children usually make curriculum, therefore some important aspects are overlooked."

To the researcher's best knowledge both the government and non-governmental organizations (NGOs)

do not have any programs on the prevention of oral diseases in the Balochistan province and hence in the city of Quetta where the study was undertaken. This absence of prevention programs on oral health was substantiated by the data that only 5percent of all schools reported that their students had their teeth examined by local visiting dentists. In contrast, Iran, which neighbors the Balochistan border, has an established oral health care program for primary schools.[27]

Conclusion and the way forward

Collectively the findings of this study highlighted the many challenges confronted by school authorities in Quetta, Pakistan related to the promotion of good oral health amongst their primary school students. Health promotion and more specifically oral health promotion can be implemented in schools for short- and long-term benefits; the primary aim being to instill positive oral health behavior amongst school-aged children. Inclusion and uniformity of oral health and hygiene related material in primary school curriculum (public and private) is an important area to be addressed.

REFERENCES

1 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. Community Dent Oral. Epidemiol. 2003;31:3-24.

2 Li X, Kolltveit KM, Tronstad L, Olsen I. Systemic diseases caused by oral infection. Clinical microbiology reviews BDJ. 2000;13(4):547-58.

3 Rizvi KF, Bashir R. Oral Health Status in public school children. Pak Oral Dent J. 2015;35(4):649-52.

4 Petersen PE, Bourgeois D, Ogawa H, Estupinan-Day S, Ndiaye C. The global burden of oral diseases and risks to oral health. Bull World Health Organ. 2005;83(9):661-69.

5 Petersen PE. Global policy for improvement of oral health in the 21st century–implications to oral health research of World Health Assembly 2007, World Health Organization. Community Dent Oral. Epidemiol. 2009;37(1):1-8.

6 Paula JS, Lisboa CM, de Castro, Meneghim M. School performance and oral health conditions: analysis of the impact mediated by socio-economic factors. Intl. J Paed Dentistry. 2016;26(1):52-59.

7 World Health Organization. fact sheet Dental Diseases and Oral Health 2003 [cited 2018 October 22]. Available from: http://www.who.int/oral_health/publications/en/orh_fact_sheet.pdf.

8 Idris AM, Vani NV, Almutari DA, Jafar MA, Boreak N. Analysis of sugars and pH in commercially available soft drinks in Saudi Arabia with a brief review on their dental implications. J Int Soc. 2016;6(3):192-96.

9 Ozen AE, Bibiloni Mdel M, Pons A, Tur JA. Fluid intake from beverages across age groups: a systematic review. J Hum Nutr Diet: BDA. 2015;28(5):417-42.

10 Al-Ansari A. Prevalence, severity, and secular trends of dental caries among various saudi populations: A literature review. Saud J Med Sci. 2014;12(3):142-50.

11 World Health Organization. Types of Healthy Settings, Health Promoting Schools; 2017 [cited 2017 4 March]. Available from: http://www.who.int/healthy_settings/types/schools/en/.

12 World Health Organization. School health and youth health promotion; 2017 [cited 2017 6 January]. Available from: http://www.who.int/school_youth_health/en/.

13 Kwan SY, Petersen PE, Pine CM, Borutta A. Health-promoting schools: an opportunity for oral health promotion. Bulletin of the World Health organization. 2005;83(9):677-85.

14 World Health Organization. The status of school health. Global School Health Initiative. WHO, 1996 WHO/HPR/HEP/96.1.

15 The Challenge of Oral Disease – A call for global action. The Oral Health Atlas. 2nd ed. Geneva: FDI World Dental Federation; 2015. p. 51.

16 Harchandani N. Oral health challenges in Pakistan and approaches to these problems. Pak Oral Dent J. 2012;32(3):497-501.

17 Leghari MA. A pilot study on oral health knowledge of parents related to dental caries of their children-Karachi, Pakistan [Independent thesis Advanced level (degree of Masters): Umeå University, Sweden; Pak Oral Detn J 2012; 32(3):56.

18 ADA Policy--Definition of Oral Health American Dental Association; 2014 [cited 2018 30 May 2018]. Available from: https://www.ada.org/en/about-the-ada/ada-positions-policies-and-statements/ada-policy-definition-of-oral-health.

19 World Health Organization. Diet, Nutrition and the Prevention of Chronic Diseases.WHO Technical Report Series 916. Geneva: World Health Organization, 2003.

20 Ariga J, Al-Mutawa S, Nazar H. School Oral Health Program in Kuwait. Med Princ Pract. 2014;23(2):43-46.

21 World Health Organization. Promoting health through schools. Report of a WHO Expert Committee on Comprehensive School Health Education and Promotion. WHO technical report series. 1997;870:i-vi, 1-93.

22 Pakistan Education Statistics 2015-16 National Education Management Information System. Islamabad: Academy of Educational Planning and Management . Ministry of Federal Education & Professional Training, Pak Oral Dent J 2017; 35(3):30-33.

23 Preethi S. Dental health education and the role of teachers in imparting oral health education in Indian schools. J Educ Ethics Dent. 2015;5(2):57-60.

24 Sadia Sajjad SH, Rubina Mumtaz. Oral Hygiene Practices in Primary School Children and their Teachers in a Per-urban locality of Islamabad. Pak Oral Dent J. 2018;38(1):71-74.

25 Haleem A, Siddiqui MI, Khan AA. School-based strategies for oral health education of adolescents- a cluster randomized controlled trial. BMC oral health. 2012;12(1):54.

26 Jolene Bertness KH. Promoting Oral Health in Schools, A Resource Guide. Washington, DC: National Maternal and Child Oral Health Resource Center. Third ed: Washington, DC: National Maternal and Child Oral Health Resource Center.; 2016.

27 Pakshir HR. Oral Health in Iran. Int Dent J. 2004;54(6):367-72.

CONTRIBUTIONS BY AUTHORS

1 Ashfaq Ahmed Khawaja Khail:	Contributed to the concept, design, data collection and write up.
2 Katrina A. Ronis:	Contributed to the concept, supervision of the study and critical revision of the manuscript.
3 Sheh Mureed:	Contributed to design data collection tool, data analysis and proof reading of the manuscript.