

Research Article

The Role of Nurses in Preventive Dentistry in School Going Children Islamabad Pakistan: A Cross Sectional Study

Ayesha Aleem Qureshi,¹ Shahzad Inayat²

¹Department of Health Profession's Education, Isra University, Islamabad, Pakistan

²Department of Nursing, Isra University, Islamabad, Pakistan

Abstract

Objectives: The aim of this study was to explore the role of nurses in dental care awareness and the early detection of gingivitis in school children.

Methods: A cross-sectional study was conducted from June 2016 to May 2017 at a local intermediate level school in a rural area of Islamabad, Pakistan. The Census Method was used to enroll students for data collection. Gingivitis was diagnosed using a structured questionnaire. The data was analyzed using IBM SPSS Statistics for Windows, Version 21.0 (IBM Corp., Armonk, NY, USA). A p value of <0.05 was considered statistically significant. A total of 380 students participated in the study. The data was compiled by trained nurses.

Results: The results of the study showed that the overall prevalence of gingivitis in the study sample was 29%. The oral hygiene awareness assessment revealed that while 84% of the students used a toothbrush or a miswak to clean their teeth, 16% did not use any cleaning aid. The responses indicated that 71% of the students brushed their teeth once a day and 29% cleaned their teeth twice a day. Furthermore, only 19% of the students were familiar with brushing technique and only 3% had used mouthwash.

Conclusion: Nurses can play a vital role in promoting oral health in the community, as a post survey revealed 70% improvement in the oral hygiene of the students.

Keywords: Dentistry, gingivitis, nurses' role, oral hygiene, school health

Periodontal disease and caries are the most widespread oral diseases around the world. World Health Organization, (WHO) revealed that sixty percent (60%) of the population suffers from periodontal pathology and no nation, is free of gum disease.^[1-3] It has adverse effects on children's quality of life by initiating pain, early tooth-loss, under nourishment and consequently impacts their growth and development.^[4, 5] Periodontal disease is the commonest oral disease in Pakistan.^[6] Gingivitis is inflammation of the soft tissue exclusive of apical migration of the junctional epithelium redness; edema and bleeding on probing exemplify this condition. With proper treatment gingivitis can be reverted with no permanent damage. If it is left untreated it may result in a more difficult and disparaging

condition known as chronic peridontitis.^[7]

During a survey it was reported that fewer than twenty-eight percent (28%) of 12 year old children have been found to have healthy gingiva. Twenty two percent (22%) women, have bleeding gums and more than ninety-five percent (95%) of over 65 year old population has some form of gingival or periodontal disease.^[8]

Factors that impede access to dental treatment include financial and social status, graveness and dominance of oral diseases, varying disease patterns, quality of care, anxiety, increasing birth rate and elderly populations.^[8] A country like Pakistan face innumerable challenges in promoting oral health care, among individuals and society in general,

Address for correspondence: Ayesha Aleem Qureshi, DMD, Isra Universitesi, Saglik Meslek Yuksekokuulu Egitimi Bolumu, Islamabad, Pakistan

Phone: +90 3206052017 **E-mail:** drayeshafuad@hotmail.com

Submitted Date: January 12, 2018 **Accepted Date:** January 31, 2018 **Available Online Date:** February 19, 2018

©Copyright 2018 by Eurasian Journal of Medicine and Investigation - Available online at www.ejmi.org



government policies which resist change, obsolete professional philosophies, insufficient resources, irregular distribution of manpower, illiteracy, low prioritization and no political will are few of the barriers in improving dental care. Based on the latest United Nations estimates of 2016, the current population of Pakistan is 191, 718, 207 with 15, 861 registered Dental Surgeons. Hence, there is an alarming shortage of dentists with an uneven distribution throughout the country. The massive unmet dental needs, the inadequate number of dental professionals and the existing vague dental hygiene syllabus in Pakistan with lack of dental hygienist has aggravated the conditions.^[9] Although, an initiative of Dental Hygienist course has been developed but it is in infancy and has limited number as compared to the growing population of Pakistan.

Though the situation is adverse in the nursing sector as well, but nurses are much closer to the general community. There is no evidence of oral health knowledge by health care staff in Pakistan. The study in Brazil showed that the awareness of health-care workers is very limited and inadequate; as fifty-five (55.5%) of the staff believes that losing teeth is due to aging.^[10] Caries and periodontal disease are the two most frequent oral diseases; it can be avoided simply through information about its cause and progression.^[1, 11-13] Prior to consultation with the dentist, patients have their first encounter with nurses with whom they share doubts and apprehensions about their oral health. Patients can gain important information^[1] from them. Nurses in preventative health care can significantly play a role in improving the health of patients through encouraging individuals to receive preventative services such as screenings, counseling and preventive medications. Through community health education, nurses can motivate a larger group of people to engage in healthy lifestyles. Hence a dental prevention strategy can improve the current situation therefore; the purpose to this study was to determine how nurses can play their role in the field of preventive dentistry.

Methods

A cross-sectional study was conducted from June 2016 to May 2017 at a local intermediate level school in rural area of Islamabad, Pakistan. Census method was used to enroll students for data collection. Overall 380 students participated in the study. A structured questionnaire for screening the children related to oral hygiene was developed. Before developing questionnaire a thorough review of literature was done. The questionnaire contained questions pertaining demographic information, including age, gender, class grade, were included. The specific questions related to oral hygiene practices and brushing techniques, presence of

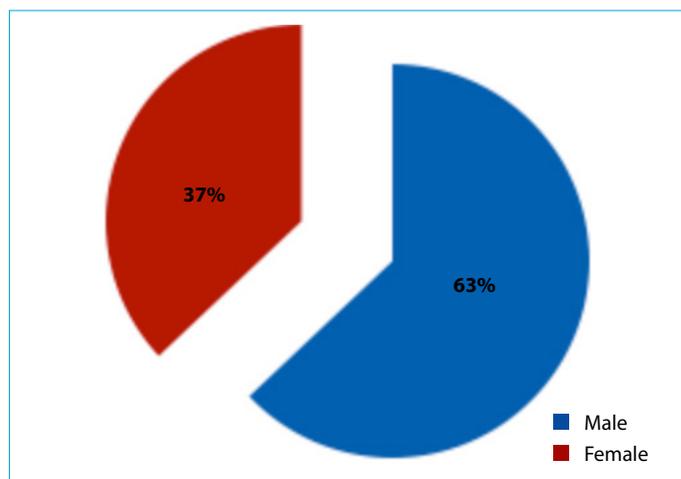
gingivitis and bad breaths from participants were also included. After compilation, the questionnaire was reviewed by a dental practitioner. Before collecting data questionnaire was piloted on 20 children of similar background. The internal consistency (cronbach alpha) of the tool was also calculated which was 0.79. A three hour session was conducted to train the nurses about filling questionnaire. All the terms in tool were discussed in details with data collector and inter rater reliability was also calculated. The nurses who were trained for screening the children made their assessment on all 380 students. For data collection the screening of the students usually started at 0830 hours in the morning and continued throughout the day. The screening process completed in the same pattern for all the participants till the nurses completed all students. After having thorough screening the preliminary analysis was done to find out the gingivitis and oral hygiene practices including mouth wash and brushing techniques. After the screening process a comprehensive session to improve the knowledge and practices of children concerning oral hygiene was also conducted. The nurses used interventions including charts, explanation of concepts orally and also shown the proper brushing techniques through demonstration. An immediate evaluation was done to assess the knowledge of students; almost ninety percent (90%) were able to demonstrate correct brushing technique. A follow-up was conducted after three months to observe any improvement in oral hygiene. To describe the data measure of central tendency was used. Frequencies and percentages of gingivitis were also calculated. To find out statistical significance a p value of <0.05 was considered as significant one. The detailed purpose of the study was explained to school authorities and students as well. The study was conducted in full accordance to World Medical Association Declaration of Helsinki. The ethical approval of the study was taken from Ethical Committee and review board of Al-Farabi school of science and technology. A written Informed consent was taken from the parents of all the participants because participants were less than 18 years of age. Benefits and risks were explained in detail. Most of the parents were present in teaching sessions, when health education was given to participants.

Results

A total of three hundred and eighty (380) school children aged 7-20 with mean age 13.07 ± 2.51 years old were examined for gingivitis, oral hygiene status and oral hygiene awareness. Sixty three percent (63%) were male while thirty-seven percent (37%) were females; these results are shown in figure 1. The frequency of signs and symptoms are represented in table 1.

Table 1. Frequencies of sign and symptoms of gingivitis. n=380

Gingivitis symptoms	Present %	Absent %
Redness in gums	8	92
Swelling	10.3	89.7
Bleeding	32.1	66.6
Bad breath	30.8	68.7

**Figure 1.** Gender distribution of participants. n=380.

The results of oral hygiene awareness revealed only eighty-four percent (84%) students used a tooth brush or misvak to clean their teeth while sixteen percent (16%) do not use any cleaning aid. Out of these eighty-four percent (84%) students seventy-one (71%) students brush their teeth once a day while twenty-nine (29%) clean their teeth twice a day. According to the results only nineteen percent (19%) of the students were familiar with the brushing technique and only three (3%) have used mouthwash. After a session of brushing techniques almost ninety (90%) students were able to demonstrate correct brushing technique. Overall there has been seventy percent (70%) improvement in dental hygiene in a post survey after three months.

Discussion

Oral health is not only imperative but is an indicator for overall wellbeing. Aim of this study was to investigate the prevalence of gingivitis and create awareness of oral hygiene through nurses among schoolchildren of Islamabad, Pakistan. The results of the study show that the overall prevalence of gingivitis in the study sample was twenty-nine (29%). This finding is comparatively in line 14.5% with a study conducted in Sargodah^[16] and a study conducted in Bangladesh which reported 17% gingivitis in primary school children of Bangladesh.^[17] On other hand it is less with studies conducted in India^[18] where the prevalence of gingivitis among school children was found to be fifty-nine

(59%). The study revealed that eighty-four (84%) of populace used tooth brush or misvak for cleaning their teeth. This evidently indicates their understanding about oral hygiene but lack of knowledge regarding proper brushing technique.

Based on the findings of the study the recommendations for future research are that studies should now be conducted in different districts of the country utilizing the nurses to promote oral hygiene programs.

Conclusion

Nurses can play a vital role in creating awareness about oral hygiene including brushing techniques. Proper education regarding gingivitis prevention through oral hygiene programs in school going children can play an eminent role in decreasing the occurrence of gingivitis in future.

Disclosures

Acknowledgement: I want to thank the school authorities for their utmost cooperation. No financial assistance was received.

Ethics Committee Approval: The ethical approval of the study was taken from Ethical Committee and review board of Al-Farabi school of science and technology.

Peer-review: Externally peer-reviewed.

Conflict of Interest: None declared.

Authorship contributions: Concept – A.A.Q.; Design – A.A.Q.; Supervision – A.A.Q.; Materials – A.A.Q.; Data collection &/or processing – A.A.Q.; Analysis and/or interpretation – S.I.; Literature search – A.A.Q.; Writing – A.A.Q.; Critical review – S.I.

References

1. Jiménez-Báez MV, Acuña-Reyes R, Cigarroa-Martínez D, Ureña-Bogarín E, Orgaz-Fernández JD. Practice of preventive dentistry for nursing staff in primary care. *Colomb Med (Cali)* 2014;45:117–21.
2. Raff A, Hunt LC. Probiotics for periodontal health: a review of the literature. *J Dent Hyg* 2012;86:71–81.
3. Kwan SY, Petersen PE, Pine CM, Borutta A. Health-promoting schools: an opportunity for oral health promotion. *Bull World Health Organ* 2005;83:677–85.
4. Sarumathi T, Kumar BS, Datta M, Hemalatha VT. Prevalence, severity and associated factors of dental caries in 3-6 year old children. *J Clin Diagn Res* 2013;7:1789–92.
5. Harchandani N. Oral health challenges in Pakistan and approaches to these problems. *Pakistan Oral & Dental Journal* 2012;32:497–501
6. Declerck D, Leroy R, Martens L, Lesaffre E, Garcia-Zattera MJ, Vanden Broucke S, et al. Factors associated with prevalence and severity of caries experience in preschool children. *Community Dent Oral Epidemiol* 2008;36:168–78.

7. Thammaiah S, Manjunath M, Rao K, Uma DH. Intraoral plexiform neurofibroma involving the maxilla - pathognomonic of neurofibromatosis type I. *J Pediatr Neurosci* 2011;6:65–8.
8. Bille K, Aslam M. Oral Health in Pakistan A Situation Analysis. Islamabad. Pakistan. Government of Pakistan-Ministry of Health D WHO-Pakistan 2003.
9. Shah MA, Darby ML, Bauman DB. Improving oral health in Pakistan using dental hygienists. *Int J Dent Hyg* 2011;9:43–52.
10. Leão MM, Garbin CA, Moimaz SA, Roviada TA. Oral health and quality of life: an epidemiological survey of adolescents from settlement in Pontal do Paranapanema/SP, Brazil. *Cien Saude Colet* 2015;20:3365–74.
11. Saliba NA, Moimaz SA, Marques JA, Prado RL. Elderly caregivers profile and oral health perception. *Interface-Comunicação, Saúde, Educação* 2007;3.
12. Offenbacher S, Katz V, Fertik G, Collins J, Boyd D, Maynor G, et al. Periodontal infection as a possible risk factor for preterm low birth weight. *J Periodontol* 1996;67:1103–13.
13. Gordon J. Christensen Provisión de atención oral al paciente anciano. *JADA* 2007;2:176–179.
14. García-Conde GG, de Santillana IA, Martínez-Arroniz F, Huerta-Herrera N, Islas-Márquez AJ, Medina-Solís CE. Periodontal treatment needs in adults from Mixteca rural area in Puebla State, Mexico. *Rev Salud Publica (Bogota)* 2010;12:647–57.
15. Duque de Estrada Riverón J, Pérez Quiñonez JA, Hidalgo-Gato Fuentes I. Caries dental y ecología bucal, aspectos importantes a considerar. *Revista cubana de estomatología* 2006;43:0-.
16. 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 Ayub Med Coll Abbottabad* 2016;28:152–6.
17. Mishu MP, Hubbard RM, Haque S, Sayeed MA, Imam ST, Khanam PA, et al. Gingivitis in Primary School Children of Bangladesh. *Ibrahim Medical College Journal* 2009;3:71–4.
18. Sharva V, Reddy V, Bhambal A, Agrawal R. Prevalence of Gingivitis among Children of Urban and Rural Areas of Bhopal District, India. *J Clin Diagn Res* 2014;8:ZC52–4.