

Integrated School-Based Child Oral Health Education

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ABSTRACT

Oral diseases, such as dental caries and periodontal disease are most widespread in developing countries, especially amongst children affecting their quality of life, appearance, nutritional intake and consequently their growth and development. The emphasis on oral health promotion through educational process has gained its importance to assist in the achievement of desired oral health outcomes in children. However, in Pakistani schools, oral health education is an intermittent activity provided only at few private sector schools and none in the public sector schools which may be due to lack of oral health awareness. It is suggested to endorse oral health education and promotion strategy in present schooling system in Pakistan regardless of urban or rural, public or private settings. With adequate training and education, school teachers can help in promoting oral hygiene practices amongst their students according to the principles of health education. This paper reviews the importance of oral health education and promotion of schoolchildren through schools and their teachers.

Key words: Oral health education, school-children, Pakistan.

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INTRODUCTION

Oral ailments, such as dental caries and periodontal disease are most widespread in developing countries, especially amongst children.¹ As a result of pain and tooth loss, these oral pathologies affect their quality of life in terms of physical appearance, nutritional intake and thus, consequently influencing their growth and development.² It is affirmed that poor oral health reduces the active days of affected children at schools,³ thereby restricting them from attaining formal education.

The last analyzed situation concerning oral health in Pakistan reported that in rural areas the total Decayed, Missing, Filled Teeth (DMFT) score of permanent dentition among 12-year olds was 1.59, rising to 2.26 in 15-years old children, 8.73 in 35-44 year old adults and 18.9 in individuals age 65 years and above.⁴ This rising trend in DMFT score with age may be attributed towards lack of oral health awareness and preventive education or unavailability of restorative treatment services. However, this survey did not measure the

dmft score of children aged less than 12-years having milk teeth and the matter of concern is that respective age group has not received due importance. Although, the DMFT score among 12-year olds is considerably low but it's alarming that more than 97% of teeth affected by tooth decay are untreated and to synergize that, gum diseases affect 72% of this age group.⁴ This may be partly due to neglected oral hygiene practices on the part of children or because their parents cannot afford oral hygiene aids. This indicates that our child population is suffering from poor oral health that may require appropriate attention.

As the understanding related to interaction of multi-factorial variables responsible for such oral disease has enhanced, the emphasis on oral health promotion through educational process has gained importance to aid in attaining desired oral health outcomes.⁵ Hence, oral health educational programs are now being considered as an important and integral part of health promotional policies.⁶

Oral health education and promotion may be delivered at multiple forums namely, hospitals, primary health care centers, private dental clinics as well as schools. Yet, schools remain the primary provision with most beneficial and positive outcomes demonstrating optimistic impacts on school-children.^{6,7} Although, serious arguments exist concerning unsatisfactory level of knowledge amongst children and schoolteachers in terms of common oral health problems,⁸ however, it

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is still believed that schools provide effective platform for promoting oral health since world over, one billion children gain education through schools during their developing ages.⁹

Although, the literacy rate in Pakistan is 56%, still the gross enrollment rate at primary school level is 86%, while 46% and 44% at middle and secondary level respectively and only 4.7% population acquires post-secondary education.¹⁰ Moreover, according to the Pakistan Social and Living Measurement (PSLM) Survey (2007-08)¹⁰ no matter which education level is acquired, the overall school attendance is 58%, with higher prevalence in urban (73%) compared to rural areas (51%). All these statistics signify that although, majority of children depart from education after completing their primary school and do not proceed to further levels, but still one third of the country's total population is willing to acquire formal education during their childhood.

In Economic terms, Pakistan has a Gross Domestic Product (GDP) of 5.8% and inflation rate (CPI) of more than 22.4%. The main modes of health financing in Pakistan is public sector, whereas only 0.5% of Gross National Product (GNP) is spent on health.¹¹ There are 9,012 registered dentists with a population per dentist ratio of 1: 18010. Although, the Government has taken numerous initiatives to improve the health of its population in medical aspect but oral health component has, as always, been given insufficient attention. On the other hand, the GDP allocated to education sector for 2008-2009 sessions is estimated to be 2.10% which accounts for almost half of the nation's GDP.¹² Therefore, it seems that improving and promoting oral health through education may considerably prove to be a more practical and realistic choice.

The prevalent oral conditions in Pakistan, especially amongst the rural population may outline the basis for "school-based oral health education and promotion" since these pathologies might be efficiently prevented during childhood by simply raising the standards of oral health knowledge at the school-level. From the aforementioned statistics, it is evident that an infrastructure for school education already exists in the country, but in order to evolve them as "Health-promoting schools"; it requires re-structuring and re-organization in terms of capacity, learning and working.

Several studies have been conducted which concur that educating children about oral health in schools enhance their knowledge, develop personal skills, promote positive attitudes and healthy behaviors.¹³⁻¹⁹ Schools have powerful influence on maturity and well-

being of children³ and thus prove to be an ideal premise for delivering oral health education and promotion messages as it is an environment with which the children are accustomed to and familiar with. The school years cover a period that runs from childhood to adolescence. Children are receptive during this period; the earlier the habits are established, the longer the impact lasts. It has also been suggested that oral health should be taught in schools either as a separate subject or be incorporated into regular course curriculum or as part of extra-curricular activities, addressing the underlying physical, psychological, cultural and social determinants of oral and general health.¹²⁻¹⁹

Health education may be more effective in promoting oral health among children, provided there is supportive environment.¹³ Schoolteachers may play a vital role in successful implementation of school-based oral health education programs. The school-children spend most of their school time with their teachers, ranging from course studies to extra-curricular activities. With adequate training and education, schoolteachers can help in promoting oral hygiene practices amongst their students and reinforce such knowledge throughout their school life. It has been reported that schoolteachers with their pedagogical convincing power, endurance and exemplification can play a key role in oral health education of children.²⁰ The schoolteacher approach may prove to be a cost-effective and feasible strategy. However, shortage of time and heavy work-load at schools might hinder the proficiency of teachers as health educators.²¹ Therefore, supplementary methods may be used for raising oral health awareness among school-children such as pasting pictorials regarding oral health promotion in school premises and delivering presentations on healthy oral hygiene practices by professional dentists or para-dental staff such as dental hygienist.

Alon Livny et al²² conducted a research regarding oral hygiene promotion and behavior change among first grade school-children before and after receiving instructions from a dental hygienist. They reported a significant improvement in children's diet, their brushing frequency and technique of brushing. Similarly, school-based oral health education strategies adopted in public primary schools of Brazil,⁶ China²³ and Tanzania²⁴ also resulted in significant reduction in the students' dental plaque scores and concluded that more children in experimental health promoting schools adopt positive oral health behavior such as regular tooth-brushing and use of fluoride toothpaste, with less frequent consumption of cakes/biscuits as compared to controls. In such experimental schools, not only the student themselves but their mothers as

GRADE/CLASS	ORAL HEALTH EDUCATION STRATEGY	STUDENT'S FEEDBACK	CLASS ACTIVITIES
Kindergarten/ Nursery	<ul style="list-style-type: none"> · Importance of teeth · Appropriate tooth-brushing techniques · Importance of fluoridated toothpaste and right quantity · Which food promotes dental decay · Harmful effects of sweetened /soft drinks on teeth · Name and number of milk/ baby teeth 	<ul style="list-style-type: none"> · Why is it important to brush teeth? · How many times a day should you brush your teeth? · What can happen to teeth if you do not brush them every day? 	<ul style="list-style-type: none"> · Make students demonstrate tooth-brushing technique on self (without a toothpaste) · Use brushing models for students to demonstrate tooth-brushing · Practical brushing drills every month or bimonthly · Make the students draw pictures of healthy teeth and mouth. · Make them write any song or paragraph on healthy gums and consequences of not brushing teeth.
Primary (Grade 1-5)	<ul style="list-style-type: none"> · Names and number of permanent teeth · Identification of teeth in mouth · Functions of different teeth · Incorporation of flossing technique and mouth rinses (Fl) into oral practices · Names of tooth friendly foods. · How fluoride protects teeth · Describe plaque, formation and its effects · Name of different dental diseases and their cause and effects · Importance of regular dental visits and routine check-ups. 	<ul style="list-style-type: none"> · How many teeth do you have · Name the teeth which you have and what is their function · How would you remove the food stuck between your teeth · How many times should we brush our teeth · Which parts of your teeth do you brush · If you snack on sugary foods what can happen to your teeth · Name healthy and unhealthy foods and beverages · How much toothpaste do you use at home · Why do you use toothpaste · Do you share your toothbrush with any family member · How often should we go to the dental office 	<ul style="list-style-type: none"> · Self oral examination drills · View a videotape on correct tooth-brushing · Practice dispensing pea-size toothpaste · Make them draw tooth friendly and decay promoting food products and beverages · Make them bring healthy nutritious foods for lunch/ snacks · Make them draw different permanent teeth and their functions · Invite a dentist to give a presentation on oral health issues
Secondary (Grade 6-10)	<ul style="list-style-type: none"> · Define plaque and clarify its role in gingivitis and periodontal disease. · Discuss the importance of tongue brushing · How periodontal health affects the overall health · What are different types of tobacco products and their carcinogenic ingredients? · What is the relationship of tobacco with general and oral health? · What may be the short- and long- term health issues related to tobacco use? · Explain oral cancer and its early symptoms for self diagnosis. 	<ul style="list-style-type: none"> · Why do you think brushing at the gum line is essential? · How does plaque cause gingivitis and periodontal disease? · Why does bleeding from gums occur? · What is the importance of tongue brushing and how do you clean it · What is tobacco and how is it harmful to your health · How would you explain oral cancer and its early diagnosis 	<ul style="list-style-type: none"> · Ask students to write about a healthy diet to maintain a healthy body weight and also promote good oral health. · Student's discussion on effects of smoking and tobacco use in either a family member or someone they know and their personal views about that habit. · Gather information regarding short and long-term health problems associated with tobacco and then present their information to the class. · Divide students into small groups and demonstrate an oral cancer self examination.

well as teachers showed beneficial developments in terms of oral health knowledge and more positive attitudes towards the same. Teachers' training workshops, methods applied, materials used and their involvement with children regarding Oral Health Education remain appreciably successful suggesting that schoolchildren are amenable towards oral hygiene instructions at this age and the education imparted to them will make a favorable difference in their life ahead.

It has been observed from above studies that organizing oral health training and education sessions for children were sporadic. However, the prime example of integrating oral health as regular course-curriculum appears to be reported by very few public schools such as of Virginia, Ohio and Texas where they aim to educate students about the impact of personal hygiene on oral as well as general health.²⁵ The Division of Dental Health in public schools of Virginia has developed *Saving Smiles Series*²⁵ as part of their "Health

education standards of learning (SOL)". They have designed this course individually for each class level according to the children's mental aptitude. Such an outline may serve as a conceptual model for our concerned education authorities in order to design and implement fundamentals of oral health keeping in perspective the present education set-up of Pakistan.

In schools of Pakistan, oral health education is an intermittent activity with its implementation limited to only few privileged schools which according to their own capacity arrange some sort of awareness sessions and routine dental check-ups for their school-children. However, to achieve a uniform delivery of oral health information throughout schools it needs to be regularized and consistent. Hence, it is recommended to endorse such kind of oral health education and promotion strategy in our present schooling system regardless of urban or rural, public or private settings.

Suggested Model of Integrated School Based Oral Health Education:

The role of dentistry for the above purpose has always been emphasized. It is high time that dental community must realize its responsibility to raise understanding as regards to importance of children's oral health amongst the school authorities and to integrate as well as promote oral health as a part of their formal teaching. It is also necessary to train schoolteachers for the same. This will improve their knowledge regarding common oral problems, thereby enabling them to assess children's oral health status and diagnose frequent oral ailments such as dental caries and gingival diseases faced by children that surely need referrals.

Table 1 shows a proposed strategic model that underscores a format related to dissemination of oral health education among children according to the grades.

Similarly, school authorities may be suggested to place posters and pictorials depicting proper tooth-brushing technique, information about common oral diseases and factors causing such disease, as well as consequences of neglected oral hygiene; at the focal areas within school premises so that it can be informative for each passing-by individual which might be school-staff, parents or students themselves. This will reinforce oral health messages throughout the school years of children thereby helping in the development of life-long beliefs, attitudes and skills especially during their most influential stages of life.²

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