

Schools as opportunity for oral health promotion: Existing status in India

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ABSTRACT

Childhood is a significant stage in people's lives where they are more receptive toward behavior shaping; thus, schools have been considered important foundation in addressing the health and social issues. School oral health education programs have produced affirmative results in improving the overall health of the child. The aim of the current review was to explore the history of school health, models of school health and existing efforts of School Oral Health Programs (SOHP) in India. The review identified five existing SOHP (Indian Dental Association - Colgate's "Young India" Bright Smiles, Bright Futures, Chacha Nehru Sehat Yojna - School health scheme [Government of Delhi], Neev - SOHP, Intensive Dental Health Care Program - Punjab, Trinity Care Foundation - Bengaluru, National Oral Health Program, AIIMS) which is either running or proposed. It is recommended that the upcoming SOHP should be crafted on the existing evidence-based guidelines and theoretical models of school health. Prompt execution of proposed programs should be the priority to target the optimum oral health of the children.

Key words: *India, Models of school health, Oral health promotion, School oral health*

Schools have proven to be a powerful setting for secondary socialization. An individual has a greater receptivity toward shaping the behavior during childhood. School has been considered as a foundation to address a child's health and social issues due to their ability to reach children and their families simultaneously [1]. School oral health education programs have produced affirmative results in improving the overall health of the child [2-4]. Studies have revealed an overall decrease in dental caries prevalence among children in several high-income countries. Such decline may be attributed to the combination of factors ranging from better lifestyle, oral hygiene practices, positive oral health behavior, and school oral health interventions. However, in the case of low-income countries, disparities were observed in dental caries status [5,6]. As far as the experience is concerned, Indians of all age group experience high caries; however, a huge burden of untreated decay and negligible filled teeth also exist among children [7]. The efforts for school oral health promotion in India seem to be in nascent stages; however, attempts are being made toward oral health education and promotion, prevention, and dental check-up/treatment camps at National/State and Dental Institute levels [2,8]. Therefore, the aim of the current review was to explore the history of school health, models of school health and existing effort of school oral health programs (SOHP) in India.

The concept of school health dates back to the 20th century when Benjamin Franklin advocated a "healthful situation" and promoted physical exercise as one of the primary subjects in the schools. World War I (1914–1918) marked an important turning point in the history of school health program with changing focus from inspections, hygiene, and didactic messages to broader health promotion philosophies and movements [9]. "Tokyo Declaration - 2001" (1st Asian declaration) followed by Ayutthaya Declaration (2003) and Bangalore Declaration (2005) also stressed on oral health promotion among school children [10]. School health service in India was first started in 1909, when the school children were medically examined in Baroda (Vadodara), India. However, Bhore committee in 1946 reported that school health services in India were underdeveloped and in infant stages. Persistent efforts to incorporate health services at school level lead to the development of School Health Committee in 1960 which provided useful recommendations [11]. Over the past 70 years, the school health has evolved from the narrower past concept of medical examination to a broader concept of comprehensive care.

MODELS OF SCHOOL HEALTH

Various Models of Schools health have been proposed in the past (Fig. 1), and few of them are discussed below:

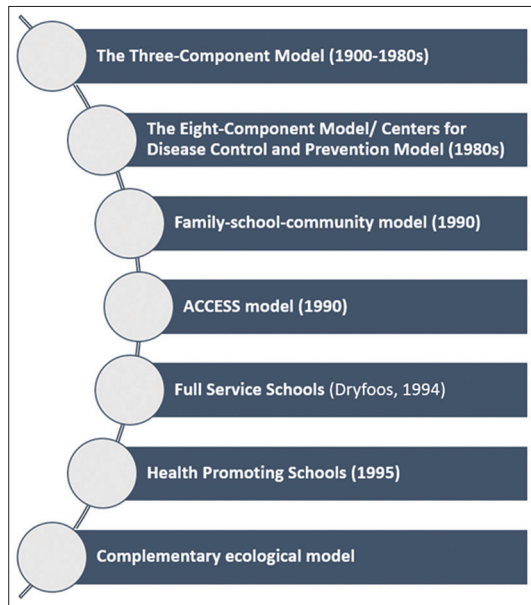


Figure 1: Models of School Health Programs

The Three Component Model (1900-1980s)

Originating in the early 1900s and evolving through the 1980s, the three component model is considered the traditional “three-legged stool” of school Health, consisting of Health education, Health services, and A healthful environment [9].

The Eight Component Model/CDC (Center for Disease Control and Prevention) Model (1980s)

In the 1980s, the three component model was extended into an eight component model referred to as a “comprehensive school health program (CSHP)” – consisting of multiple domains called Bubbles. The eight component model or CSHP has been further explored by Resnicow and Allensworth, who emphasized the role of School Health Coordinator as an essential component of the model. Three program elements; staff wellness, healthy environment, and community/family involvement, are incorporated within the coordinator’s role; thus, reducing the number of program elements from eight to five [12]. New Mexico Adapted the eight components model and represented its components as leaves of Yucca Plant (State Flower) [13].

Family-School-Community Model (1990)

Nader (1990) has proposed that the school is one locus of a broad range of health and educational activities and emphasized that the school, community, and family or friends are the three important systems supporting children’s health status and educational achievement. Further, the media—including educational, electronic, and print media – play a prominent role in influencing health-related behaviors [14].

ACCESS (Administration, Community, Curricula, Environment, School, and Services) Model (1990)

ACCESS model regard the school as an institution that is a microcosm of society, where students spend much of their developmental years (Stone, 1990). This model focuses on the development of administration and community keystones first and remaining are added later on with optimal effect [15].

Full-Service Schools (Dryfoos, 1994)

Full-service school concept has been described as a “one-stop center” for educational, physical, psychological, and social requirements of students and their families. Such services vary and are delivered through collaborative efforts of school, agencies, and the families, thus addressing multiple factors impacting the student [16].

Health Promoting Schools (HPS) (1995)

World Health Organization (WHO) school health initiative was launched in 1995 with the objective to create HPSs. Four key strategies under HPSs are: Building capacity to advocate for improved school health programs; creating networks and alliances for the development of HPSs; strengthening national capacity; and research to improve the effectiveness of school health programs [17].

Complementary Ecological Model of the CSHP

Lohrmann emphasized the role of ecology in health behavior and combined concepts from multiple ecological models with eight components to formulate complementary ecological model of CSHP. In this new model, the six components that comprise programs and services, provided to students and school employees, are located in the center circle. Further, the six components are surrounded by four concentric rings - the healthy school environment (inner ring), essential governance structures of a CSHP (second ring), local school system infrastructure within which a CSHP exists and functions (third ring), and family and community involvement (outer ring). The “chutes” are meant to convey coordination across all layers [18].

EXISTING SOHP IN INDIA

Google search Engine was used, and multiple keyword combinations were tried out (SOHP, India/School Dental Health Programs in India, etc.). First, 10 pages of Google were searched for relevant hits and relevant websites were explored. The search yielded a total of five running or proposed programs. A list of programs, running/proposed at national and state levels, is as follows (Table 1):

Table 1: Existing School Oral Health Programs in India

Program	Description	Status
“Young India” bright smiles, bright futures	A collaborative effort of IDA and Colgate-Palmolive started in 1976 to deliver oral health education to children.	Running
Chacha Nehru Sehat Yojna - school health scheme - Government of Delhi	The dental component of school health scheme is looked after by two government hospitals, namely. Maulana Azad Institute of Dental Sciences and DDU hospital which conducts regular screening programs and also serves as referral centers.	Running
Neev - School Oral Health Program	Run by Government of NCT of Delhi in Delhi State as a Pilot Project. Mobile Dental Van would be utilized after drafting a district plan, and public schools will be covered round the year.	Proposed
Intensive Dental Health Care Program - Punjab	Imparting of Dental Health Education to the School children and detailed Oral Health check-up, each child is given fluoride mouth rinses to arrest the initiation and progress of dental caries, and this process is repeated after every 6 months.	Unknown
Trinity Care Foundation - Bengaluru	Conducts outreach programs and school health programs in Bengaluru and nearby areas. It harbors the vision of Health Promoting Schools and provides pre-screening of students for height, weight, skin, eye, dental, cardiac, caries, oral lesions, facial deformities, etc.	Running
National Oral Health Program, AIIMS	Pit And Fissure Sealant Pilot Project	Running

IDA: Indian dental association

Indian Dental Association (IDA) - Colgate’s “Young India” Bright Smiles, Bright Futures School Dental Health Education Program

A collaborative effort of IDA and Colgate - Palmolive started in 1976 to deliver oral health education to children. One campaign for school oral health promotion was launched in Agra, 2001. The program is specially designed to help educate school-going children about the basic rules of oral care using professional dentists. The children were taught good oral hygiene habits, the right techniques of brushing with the use of a tooth model and a toothbrush the importance of night brushing through an interactive module, where the importance of a good mouth cleaning regimen is strongly instilled in them. Along with this, the educative module contains a distribution of “Dental Health Pack” and training of teachers to instill good oral health practices. The program until now has covered 145+ million children in urban and rural India until December 2017 [19]

(Chacha Nehru Sehat Yojna) School Health Scheme - Government of Delhi

Directorate of Health Services, Government of Delhi, started SHS in 1979 with six school health clinics, initially, to provide comprehensive health-care services to the school going children. The scheme was expanded during the 7th five-year plan, and 64 school clinics were opened. The dental component of school health scheme is looked after by two government hospitals, namely Maulana Azad Institute of Dental Sciences and DDU hospital which conducts regular screening programs and also serves as referral centers [20,21].

Among the proposed programs, “Neev-SOHP” would be initiated across government schools run by Government of NCT of Delhi, in Delhi state, as a pilot project. Mobile dental van would be utilized after drafting a district plan, and public schools will be covered round the year. At present, the project is under review by the Department of Health and Family Welfare and is supported by School Health Scheme, Government of India [22].

Intensive Dental Health Care Program - Punjab

Intensive Dental Health Care Program was launched in Punjab in the year 1989–1990. Under the current program, schools are covered sub-division wise. Each sub-division further has blocks, and after completing all the schools in the block, program moves to next sub-division. In addition to the imparting of Dental Health Education to the school children and detailed oral health check-up, each child is given fluoride mouth rinse to arrest the initiation and progress of dental caries, and this process is repeated after every 6 months. The children suffering from dental diseases are provided necessary dental treatment on the mobile dental clinic vans [23]. Although the current status of the program is not known, and no consolidated reports are published after the year 2011.

Trinity Care Foundation - Bengaluru

Trinity Care Foundation is a registered public charitable trust under the Indian Trusts Act which conducts outreach programs and school health programs in Bengaluru and nearby areas. It harbors the vision of HPS and provides pre-screening of students for height, weight, skin, eye, dental, cardiac, caries, oral lesions, facial deformities,

etc. Along with this, it also focuses on the training of teachers and imparting awareness on health issues, ill effects of tobacco and tooth brushing techniques to students in government schools [24].

Pit and Fissure Sealant Pilot Project - National Oral Health Program (NOHP), AIIMS, New Delhi

Under the central component of NOHP, the current pit and fissure sealant project have been launched, for which training of representatives from 12 dental colleges was done on May 1, 2017. The project is in the execution stages by these dental colleges, who have to seal 5000 molars per college [25].

DISCUSSION

The concept of school oral health promotion is being applied in multiple countries, and thus we would like to discuss a few successful programs.

1. Child smile Program, a child oral health program was added to the NHDP (National Health Demonstration Projects) portfolio and came to existence in 2005. Primary focus was on visitor-led health promotion, clinical prevention within primary dental care, and community development based initiatives. In 2008, the program was redesigned to include four pillars of the project - child smile practice, child smile nursery, child smile school, and child smile core. The program had revealed substantial improvement in the oral health of children with more than 2/3rd of 5-year-old children presenting no substantial decay (dmf=0, 2016). Among 11 years old, the mean D₃MFT decreased from 1.29 in 2005 to 0.49 in 2017. Health economic aspects revealed that in the 8th year of the tooth-brushing program, the expected savings were >2 and a ½ times the costs of the program implementation [26,27].
2. Fit for school program - The Fit for School Program integrates school health and water, sanitation and hygiene interventions (WASH), which are implemented by the Ministry of Education in four Southeast Asian countries. This program implements WASH in Schools and harbors daily tooth brushing with fluoride toothpaste (0.3 ml, 1450 ppm) as an oral health component. Results have been promising as in all countries, children in intervention schools had a lower prevalence of dental caries at follow-up and a lower increment in decay experience between baseline and follow-up in comparison to children in controls schools [28].
3. Kuwait's SOHP is a comprehensive program currently running in 6 governorates of Kuwait. The SOHP delivers oral health education, prevention, and treatment to almost 280,000 school-aged children in Kuwait. The delivery of care is through a network of center-based, school based, and mobile dental teams. Analyses have revealed improvements in positive consents, reduction in composite fillings and rise in pit and fissure sealants [29].

CHALLENGES AND FUTURE RECOMMENDATIONS

The current review revealed that serious efforts are being made to improve the oral health at school levels ranging from NOHP, Govt./Private Dental Institutes, NGOs, etc. However, it is required to implement the efforts at National/State level with maximum coverage. Some of the anticipated challenges may include regular follow-up care, changing cultural norms, cultivating a relationship with schools and sharing and tracking data.

Recommendations

SOHP need to take a multifaceted approach considering that the dental care is provided in varied health-care settings in the community. However, the amount and type of contribution that each stakeholder can give are different.

Governmental Sector

Primary health care is the grass root level health-care tier of Indian governmental health-care sector. There are multiple projects running under NHM such as Rashtriya Bal Swasthya Karyakram, Janani Shishu Suraksha Karyakarm (JSSK), New Born health, and Adolescent Health [30] which presents an opportunity for horizontal integration without the economic burden of starting a separate program. It is the responsibility of Government to develop evidence-based guidelines (e.g., targeted approach - providing primary care services to 20% of most deprived areas [27]) for implementation of SOHP. Along with this, regular monitoring, data maintenance, and evaluation (formative/summative) are must to predict success of the SOHP.

Non-Governmental and Private Sector

Exploring the concept of Private Public Partnership (PPP) should be the priority of government organization. Exploring the front of joint collaborations by international organization (e.g., SOHP, Kuwaitis a joint venture of Ministry of Health, Kuwait and Forsyth Institute, Cambridge [3,29]), can solve the barrier of adequate funding. Involving the dental practices of that area for curative dental component at some capitation payment/child. Adapting a multi-sectoral approach and involving other sectors such as nutrition, community and voluntary sector, and hospital dental services for wider action.

Schools

Introduction of school oral health education component in a planned and sequential manner from 1st grade to 12th grade. There should be the provision of regular sessions of health instructions, health check-ups, parents/community/staff involvement, and establishment of a health clinic at school premises. Implementing the concept of HPS (by WHO) thus, creating an ecosystem conducive to improved oral health.

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