



Planning and implementing school oral health programs: A scoping review

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ABSTRACT:

Introduction: Most school oral health programs (SOHPs) focus on either oral health education or preventive aspects of oral health. This scoping review emphasizes the significance of the knowledge application to design and implement SOHP which is more industrious and result oriented. **Aim:** To highlight, those school dental health programs which have approached the school oral health from all possible planes, i.e., education, prevention, treatment needs, and follow-up. **Materials and Methods:** Document 11 of WHO information series on school health for planning the intervention was utilized to obtain the initial benchmark for “best practices.” Electronic database MEDLINE, Cochrane central register of controlled trials, Cochrane Database of Systematic Reviews, Database of Abstracts of Reviews of Effects, and SCOPUS were searched. Our search strategy included a 3 staged extraction. The first based on the title, the second was based on abstracts and the third stage was based on the full text. Hand search of the key journals was also done. **Results:** A total of four studies were finally selected and studied to indicate the best practices of the programs. **Conclusion:** Public health dentistry should now focus on SOHP planning and implementation in terms of management. We need to expand our horizons beyond clinical outcome and short-term goals to accumulate knowledge.

Key words:

Intervention, oral health, review

INTRODUCTION

The importance of oral health during childhood and adolescence cannot be overemphasized. It is now a well-established and acknowledged fact that schools provide an ideal setting for promoting oral health.^[1]

Enough and more research has been carried out on school oral health education, what works and what does not. We also find a plethora of research on preventive aspects of school oral health programs (SOHPs). Most school health programs (as found in literature) focus

on a very small aspect of school oral health promotion, i.e., either education or fluoridation, or sealants and so forth. We have with us all the information to design most comprehensive and effective SOHPs, and yet the reports of “all-inclusive” programs are very infrequent. With aim to perform a systemic review on comprehensive SOHPs, literature search was performed, but the following gaps were revealed:

1. None of the studies were randomized control trials or cohorts
2. The studies which showed all three approaches (educational, preventive, and curative) varied

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significantly in their intervention and outcome measures.

A systemic review using existing studies could not have provided the best evidence to plan a comprehensive SOHP. A systemic review could have only established inadequacy of literature. Therefore, a scoping review was performed which could further explore the gaps.

“Scoping reviews are exploratory projects that systematically map the literature available on a topic, identifying the key concepts, theories, sources of evidence, and gaps in the research.”^[2] With the aim of this scoping study was to highlight, from the available literature, those school dental health programs which have approached the school oral health from all possible planes, i.e., education, prevention as well as treatment needs. This is to promote the application of our knowledge to design and implement school dental

health programs which are more industrious and result oriented.

MATERIALS AND METHODS

The research question we identified was, “what are the “best practices” of the SOHPs designed and implemented to provide educational, preventive, as well as therapeutic care to the school children to reduce the oral disease burden?”

To obtain the initial benchmark for “best practices,” we utilized the steps suggested in document 11 of WHO information series on school health^[1] for planning the intervention [Table 1].

Based on the methodology suggested by Levac *et al.*,^[2] we performed the scoping review. We first searched

Table 1: Data charting: Comparison of the four selected studies

Sl. No	Codes	Kuwait (Vigild <i>et al</i>) 1999	Palestine (Kateeb <i>et al</i>) 2007	Wuhang, China (Tai <i>et al</i>) 2001	Yichang city, China (Tai <i>et al.</i> , 2001)
1	Year of publication	1999	2007	2001	2009
2	Aim of the study	Outlines the programmes and evaluate its effectiveness	Outlines the programmes and evaluate its effectiveness	Highlights the effect of the Programme	Assess the outcome of the programme
3	Duration	1986-1990, 1992-1997 (still continues but reported in another paper in 2013)	1997-2007 (report drawn from 7 years)	6 years (1989-1995)	3 years
4	Establishment of School Health Team	No evidence	No evidence	No evidence	No evidence
5	Establishment of community advisory committee	No evidence	No evidence	No evidence	No evidence
6	Conduction of situational analysis	Evidence	Evidence	Evidence	Evidence
7	Collaborations	Evidence	Evidence	No evidence	Evidence
8	Parent involvement	Evidence : Oral health education	No evidence	Evidence	Evidence : Oral health education
9	Educational intervention	Evidence	Evidence	Evidence	Evidence
10	Examination/screening	Evidence : Each year before start of dental treatment	Evidence : Once every year	Evidence : Once every year	Evidence: Once every year
11	Monitored tooth brushing	Evidence: Bi-weekly supervised tooth brushing	No evidence	No evidence	No evidence
12	Preventive treatment	Evidence : Fluoride tooth paste, fluoride rinse with 0.2% NaF solution, from 1993 fissure sealant for newly erupted permanent molars	Evidence : Fluoride gel application and fissure sealant	Evidence : referred in nearby clinic	Evidence : Flouride toothpaste once every 2 months, sealants, scaling
13	Curative treatment/referral	Evidence	Evidence	Evidence	Evidence
14	Clinical outcome measures	Evidence	Evidence	Evidence	Evidence
15	Results	Decrease in mean caries experience, increase in percentage of caries free children	Coverage rate increased, decrease in DMFT score, clinical visit increased	Dental health behavior better, FT increased, CPTIN score reduced, sealant score increased	DMFT no difference, plaque and sulcus bleeding index reduced, reduced score of untreated caries, 37% decrease in net caries increment

the electronic database MEDLINE. Our search strategy included a 3 staged extraction. The first stage screening was based on titles. The studies that indicated any form of dental intervention on school children were selected at this stage. The second stage screening was based on abstracts. At this stage, those articles which included only education or prevention as intervention were excluded. At the third stage of screening, the full text of the articles was obtained, and relevant articles were selected. The search term used was, "School Oral Dental Health Program."

No new/relevant articles could be identified in the following databases-cochrane central register of controlled trials, Cochrane Database of Systematic Reviews, Database of Abstracts of Reviews of Effects and SCOPUS. We also hand searched the key journals. The electronic database search was independently conducted by reviewers. In the case of any difference in opinion at stage two screening, the article was included for full-text study, i.e., stage 3. The hand-search and reference search as performed only by one reviewer. However, gray publications were not searched.

The charting process was carried out by sifting the content of each study under the following themes: Conduction of situational analysis, political involvement, community involvement, school involvement, parent involvement, educational intervention, examination/screening, monitored tooth brushing, preventive treatment, curative treatment/referral, outcome evaluation, and results. The themes were from the steps suggested in document 11 of WHO information series on school health^[1] for planning the intervention and were also used as criteria to define the best practices of the programs.

RESULTS

At the first stage, screening produced 526 articles. At the second stage of screening, 24 studies were extracted. Moreover after the third stage of screening, only four articles were finally selected.^[3-6] With hand searching the key journals we extracted one more relevant study, which was not available in the electronic database.^[7] Nevertheless, this was a follow-up article on a program already selected^[6] and, therefore, was excluded [Figure 1]. This finally leads us to only four SOHPs described in literature which included education, prevention and well as treatment in their design and implementation. The reference list of the selected article did not lead us to any new article. Therefore, a total of four studies were finally selected and studied. It is challenging to design and implement a comprehensive, SOHP. Nevertheless, the above four programs have been reasonably successful. To analyze what could have led to their success, these programs were thoroughly studied and the "best practices" which

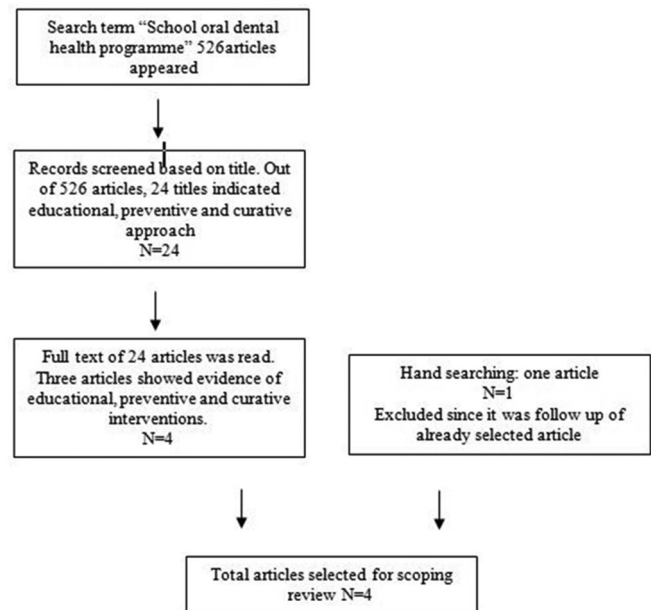


Figure 1: Literature search flowchart

could have determined their success were identified. This are:

1. Integration
2. Program management using feedback
3. Collaboration
4. Treatment venue.

DISCUSSION

There is a vast and mounting knowledge on oral health education, prevention, and treatment options. Our present challenge is how to integrate and implement the aforementioned knowledge so as to maximise its impact on oral health. Interventions are focused mostly on research and not for genuinely decreasing the oral disease burden. To make the most out of our present knowledge, we need to plan the SOHPs which are more comprehensive and challenge the oral diseases right from prevention till post-treatment follow-up. The best way is to follow steps suggested in document 11 of WHO information series on school health 2003.

Integration

The studies selected in the present scoping review have attempted to integrate and implement all forms of interventions within their respective circumstances. Of course, all the four SOHP have utilized different modes and extent of educational and preventive intervention, and we do not aim to compare them intricately.

To plan an SOHP with all forms of interventions may seem a daunting task. Nevertheless, pilot studies may be conducted by adapting the guidelines and methods of other successfully running SOHP. Vigild *et al.*^[6] have

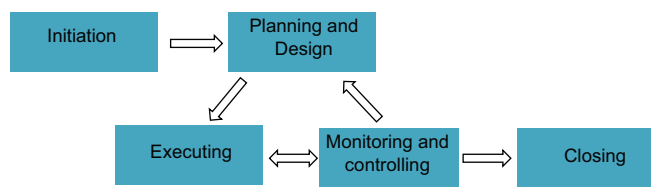


Figure 2: Process evaluation

concluded from their report on Kuwait SOHP that they were able to adapt the principles from the Danish Child Oral Health Service Program to Kuwait, a country with a very different cultural background, and with no previous systematic oral health care.

Tai *et al.*^[5] have designated preventive and curative care to be most difficult to implement. This can be a concern for many SOHP. Nevertheless, we suggest that research directed toward the best ways to channelize the available resources should be conducted. Focus should be on how to best utilize the rapidly growing private health sector wherever feasible.

Program management using feedback

Kateeb^[3] utilized this powerful tool as a 360° feedback of the SOHP in the West bank region of Palestine. Clinical outcome of any SOHP is a result of thorough planning, implementation, monitoring, and evaluating. Therefore, process/program evaluation (evaluation of planning and implementation) becomes as important as clinical outcome evaluation [Figure 2]. As suggested by Kateeb,^[3] most problems with delivery of SOHP need improvement in program management. We suggest utilizing the basic steps in project management used in business to manage SOHP as well. We also suggest conducting a basic Strength, Weakness, Opportunities, Threats analysis before designing any SOHP.^[8]

Collaboration

Funding becomes the most challenging part of any program or project. The need of sponsorships, support, and collaboration cannot be neglected. Be it government, research institutions, or healthcare sector (hospitals, pharmaceuticals, medical equipment, and medical insurance), a reasonable backing may be drawn from them on the basis of mutual benefit. SOHP, Kuwait, is a joint venture of Ministry of Health, Kuwait and Forsyth Institute, Cambridge (research institute in America specializing in oral health and its impact on overall wellness). Kateeb^[3] mention in their article that West Bank oral health screen program is conducted by Palestinian Ministry of Health in collaboration with other international organizations. Tai *et al.* also report a support from Guangzhou Colgate-Palmolive Company Ltd., in SOHP, Yichang City, China. To have more industrious SOHPs public health dentists need to explore the arena of sponsors and supports and create common grounds for the synergistic association.

Treatment venue

SOHP, Kuwait has evolved from a program involving 675 children (1987) to 280,000 children.^[7] The program made editions and additions for improvement. A very significant one, according to us, is mobile dental clinics. In this program, they are mostly used for preventive care (fluoride varnish, fissure sealants). Having preventive mobile clinics exclusively for SOHP, being operated during schools hours will be more reasonable from the patient perspective.

The drawback of the current scoping study is that it does not include the literature published in languages apart from English. Furthermore, it does not include the articles available anywhere else apart from the mentioned sourced.

CONCLUSION

The “best practices” of the comprehensive SOPH to reduce the oral disease burden were integration of educational, preventive and curative approach, effective program management, collaboration with other agencies/industries for funding and resources and making clinics more accessible using the mobile dental clinic for instance. Furthermore, a systematic review should be conducted to answer the best educational, preventive and curative approach and also the best outcome measures. This would help in more efficient designing and implementation of SOHP.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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