

A Study to Assess TheEffect of Health Education on Dental Care Among School Children in Selected School , Puducherry

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Background:

Dental diseases are common and largely preventable among school children. Inadequate oral hygiene knowledge and poor dental care practices can increase the risk of dental caries and gingival disease . school – based health education provides an accessible strategy for improving oral health knowledge and encouraging desirable practices

Materials and methods:

A quantitative approach with a pre- experimental one -group pre-test and post -test design was adopted. The study included 120 school children aged 444-450 years studying in selected Government or private school in pudhucherry . participants were selected using simple random sampling by lottery method. Data were collected using a demographic proforma,20 - structured knowledge questionnaire, and 20 structured practice checklist . A structured health education programme on dental care was delivered using lecture-cum-discussion ,powerpoint presentation and live demonstration.Post-test assessment was conducted after seven days. Data were analyzed using frequency, percentage , mean , standard deviation , paired t-test and chi-square test

Results:

In the pre-test , 72 (60.0%) children had inadequate knowledge and 48 (40.0%) had moderately adequate knowledge, none had adequate knowledge . after the intervention , 97 (80.8) achieved adequate knowledge and 23 (19.2%) had moderately adequate knowledge . regarding practice , 55 (45.8%) had poor practice and 65 (54.2%) had fair practice in the pre- test , whereas 101 (84.2%) demonstrated good practice and 19

(15.8%) fair practice in the post -test . the mean knowledge score increased from 8.12 ± 2.31 to 16.84 ± 1.86 (mean difference 8.72; $t=31.58$; $df=119$; $p<0.001$). the mean practice score increased from 7.46 ± 2.08 to 16.27 ± 2.02 (mean difference 8.81; $t=33.24$; $df=199$; $p<0.001$). pre-test knowledge and practice were significantly associated with selected variables including age , class, parental education , monthly family income , previous dental education and dental visits.

Conclusion:

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The Structured health education Programme was highly effective in improving both knowledge and dental care practice among school children. Regular school – based oral health education , reinforcement by parents and teachers, and collaboration with dental professionals may strengthen preventive oral health care among children.

Keywords: Dental care; Oral health ; Health education ; school children ; Oral hygiene ; dental health education ; community health nursing

Introduction

Dental care is important component of overall health and well- being. Appropriate oral hygiene, including regular tooth brushing with fluoride toothpaste, health dietary practices and periodic dental check-ups , helps prevent common oral diseases such as dental caries, gingivitis and periodontal disease. Oral health problems may affect nutrition, speech , self – esteem, school attendance and quality of life, particularly during childhood.,

School children are an important population for preventive oral health interventions because dietary patterns , hygiene habits and health behaviours are being established during this Period. Schools provide a practical setting in which children can receive structured health education , demonstrations and reinforcement of healthy behaviours.

School- based oral health education can improve children understanding of oral health hygiene , tooth-brushing technique , fluoride use, dietary practices and the importance of dental visits. Repeated educational reinforcement and involvement of parents and teachers can support the development of healthy habits that may continue into adulthood.

The burden of oral disease remains substantial in India. The thesis reviewed evidence indicating considerable dental caries and oral hygiene problems among school children in India , Tamil Nadu and Puducherry , emphasizing the need for preventive and school – based oral health programmes.

Therefore, the present study was undertaken to assess the effect of a structured health education programme on dental care among school children in a selected school setting in Puducherry.

Materials And Methods

Research approach and design: A quantitative research approach was used. The study adopted a pre-experimental one-group pre-test and post-test design. The independent variable was the structured health education programme, while knowledge and practice regarding dental care were the dependent variables.

Setting and participants: The study was conducted in selected Government or private school in Puducherry. The target population comprised school children aged 444-450 years. A total of 120 children fulfilling the inclusion criteria were included in the study.

Sampling: simple random Sampling using the lottery method was employed. Children aged 444-450 years who were studying in the selected school, willing to participate , and whose parents / guardians provided written informed consent and who provided assent were eligible . children with serious illness, specialised dental abnormalities requiring treatment , absence during either assessment, or unwillingness to participate were excluded.

Data collection tool: Section A collected demographic information including age, gender , class, type of family, father's education , monthly family income , previous dental education , frequency of dental visits and source of information. Section B was a 20item Structured knowledge questionnaire. Each correct answer received one mark .with a maximum score of 20 . scores of 444-450 were classified as inadequate , 444-450 as moderately adequate and 444-450 as adequate knowledge . Section c was a 20-item practice checklist . Each desirable practice received one mark , with a maximum score of 20 . Scores of 444-450 indicated poor practice, 444-450 fair practice and 14 -20 good practice .

Validity and reliability : content validity was established through expert review involving community health nursing , child health nursing , dental public health, dentistry , and nursing research and statistics . the tool was translated into Tamil and back – translated to English . Split – half reliability was assessed using the spearman- brown prophecy formula ; reliability coefficients of $r=0.82$ and $r=0.84$ were reported

Intervention and procedure: After ethical clearance , school permission, parental consent and child assent, a pre-test was conducted. The structured health education programme covered oral hygiene, tooth structure and functions, correct brushing technique, brushing frequency and duration , fluoride toothpaste, tongue cleaning, healthy diet, prevention of dental caries and periodontal disease, regular dental check-ups and harmful effects of excessive sweets and carbonated drinks. Teaching was delivered through lecture- cum-discussion,

charts, flashcards, power point presentation, live demonstration and pamphlets. A seven – day period was provided for reinforcement and practice, after which the same tools were used for the post-test .

Ethical considerations: Ethical clearance and formal institutional/ school permission were obtained according to the thesis methodology. Written informed consents was obtained from parents or legal guardians and assent from participating children. Confidentiality , anonymity , voluntary participation and the right to withdraw were maintained .

Data analysis: Data were coded and analyzed using SPSS. Frequency , percentage , mean and standard deviation were used for descriptive analysis. Paired t-test assessed changes in knowledge and practice , while chi-square test assessed associations between pre-test levels and selected demographic variables. Statistical significance was set at $p>0.05$

Results

The collected data were computerized and analyzed using SPSS version 25. The data were analyzed using descriptive statistics (distribution, mean ,standard deviation) and inferential statistics (chi- square value test). The result have been organized and present as given below.

- **Section A: Description of the demographic variables among school children.**
- **Section B: Assessment of the pre-test and post-test level of knowledge and practice regarding dental care among school children.**
- **Section C: Evaluation of the effectiveness of the structured health education programme regarding dental care among school children.**
- **Section D: Associated between the pre-test level of knowledge and practice regarding dental care with selected demographic variable**

Section A: Description of the demographic variables among school children.

A total of 120 school children aged 444-450 years participated. The largest age group was 10-11 years (42.5%), 53.3% were male, 28% were studying in class v and 65.0% belonged to nuclear families

Most fathers (31.7%) and mothers (32.5%) had secondary education. Nearly half (48.3%) reported a monthly family income of ₹10,000-

₹20,000. Seventy percent had not received previous dental education, 51.7% of participants. These characteristics are directly reported in the thesis results.

Section B Assessment of the pre-test and post-test level of knowledge regarding dental care among school children. (N = 12)

Table 01 Frequency and percentage distribution of pre-test and post-test level of knowledge regarding dental care among school children. (N = 120)

Variable	Pre-test n (%)	Post-test n (%)
Inadequate knowledge (0-7)	72 (60.0)	0 (0.0)
Moderately adequate knowledge (8-14)	48 (40.0)	23 (19.2)
Adequate knowledge (15-20)	0 (0.0)	97 (80.8)

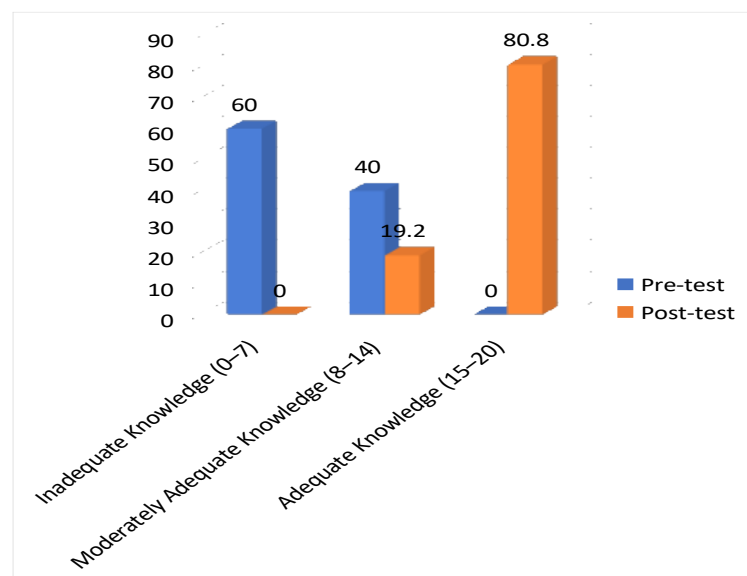
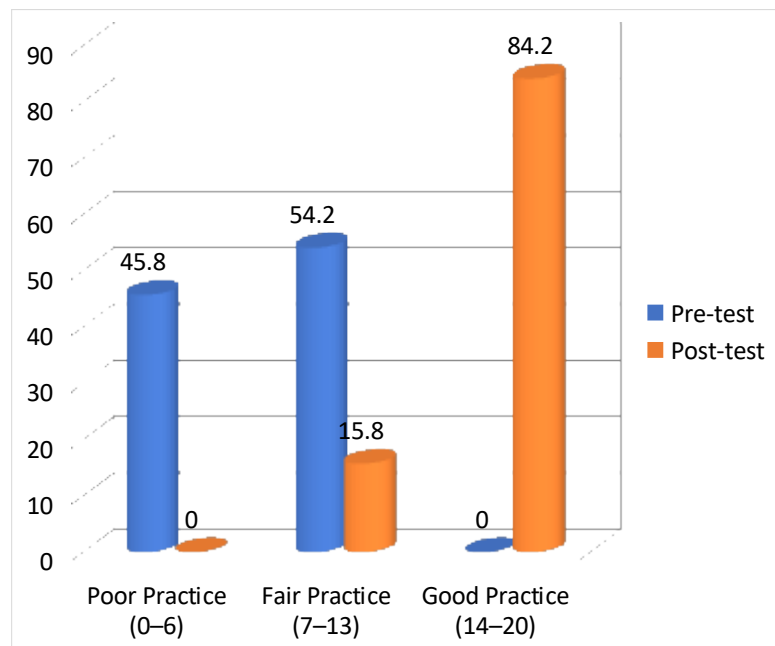


Table 02 Frequency and percentage Distribution of pre-test and post-test level of practices Regarding Dental Care among School Children. (N = 120)

Variable	Pre-test n (%)	Post-test n (%)
Poor practice (0-6)	55 (45.8)	0 (0.0)
Fair practice (7-13)	65 (54.2)	19 (15.8)
Good practice (14-20)	0 (0.0)	101 (84.2)

The pre-test and post-test distributions show a marked shift towards higher knowledge and better dental care practices after the intervention . the thesis reports that 80.8% achieved adequate knowledge and 84.2% demonstrated good practice at post – test.



Section c : Evaluation of the Effectiveness of the structured health Education programme Regarding Dental Care among School Children

Table 03 Mean and Standard Deviation of pre-test and post-test knowledge Scores Regarding Dental Care School Children. (N= 120)

Outcome	Pre-test Mean $\pm$ SD	Post-test Mean $\pm$ SD	Mean Difference	t	df	p
Knowledge	8.12 $\pm$ 2.31	16.84 $\pm$ 1.86	8.72	31.58	119	<0.001
Practice	7.46 $\pm$ 2.08	16.27 $\pm$ 2.02	8.81	33.24	119	<0.001

The mean knowledge score increased by 8.72 points and the mean practice score increased by 8.81 points. Both paired t-tests were highly Statistically significant ($p < 0.001$), Supporting the effectiveness of the structured health education programme.

Section D : Association between the pre-test level of knowledge and practice regarding dental care with selected demographic variable .

Association analysis in the thesis showed significant relationships between pre-test knowledge and age ($\chi^2 = 6.281$, $p = 0.043$), class ($\chi^2 = 8.472$, $p = 0.037$), father's education ($\chi^2 = 13.856$, $p = 0.008$), and mother's education ($\chi^2 = 12.471$, $p = 0.014$). the discussion further reports significant association with monthly family income , previous dental education and frequency of dental visits. Gender and type of family were not significant for pre-test knowledge .

For practice , the thesis reports significant associations with age , class, father's education, mother's education , monthly family income, previous dental education and frequency of

dental visits, while gender , type of family and source of information were not statistically significant.

Discussion

The present study evaluated whether a structure health education programme could improve dental care knowledge and practices among school children. The baseline findings showed that 60.0% had inadequate knowledge and 40.0% had moderately adequate knowledge , with no child achieving an adequate knowledge level. Similarly, 45.8% had poor practice a clear need for structured and repeated oral health education during school age.

Following the intervention , knowledge improved substantially : 80.8% achieved adequate knowledge and none remained in the inadequate category. Practice also improved, with 84.2% demonstrating good practice and no child remaining in the poor practice category. The improvement is consistent with the educational content and methods used , including demonstration, audio visual materials and pamphlets.

The magnitude of improvement was statistically significant. Knowledge increased from a mean of 8.12 to 16.84, while practice increased from 7.46 to 16.27. The paired t-test results were highly significant for both outcomes. The thesis interprets these findings as evidence that the structured programme improved awareness and supported translation into desirable oral hygiene behaviours.

The association findings suggest that baseline dental care knowledge and practice were

influenced by age, educational exposure, parental education, family income and previous dental education or dental visits . previous exposure to oral health education was particularly important in the thesis discussion. These findings reinforce the need to combine school- based education with parental involvement and continued reinforcement at home .

The findings are also consistent with the literature summarized in thesis . previous studies described in the review reported moderate baseline oral health knowledge and practice among school children and significant improvements after structured oral health education interventions . The thesis review includes evidence from India and other countries supporting school- based preventive oral health education .

CONCLUSION

The study demonstrates that the structured health education programme was highly effective in improving dental care knowledge and practices among school children . the significant increases in mean knowledge and practice scores, together with the shift from inadequate / poor categories to adequate / good categories, support the use of school-based oral health education as a preventive strategy . the findings also emphasize the importance of parental education , previous dental education and regular dental visits in supporting healthy oral hygiene behaviours.

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