

Research Article

A Study to Evaluate the Effectiveness of Structured Educational Package on Knowledge Regarding Oral Hygiene among Primary Schoolchildren Studying in Selected Schools, Karnataka, India

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ABSTRACT

Background: The oral health is a fundamental part of the general health and well-being of an individual. It can be achieved by maintaining a good oral hygiene. Oral hygiene is the individual habit and professional methods used to control the bacterial biofilm (dental plaque) that grows on the tooth surface. If not removed regularly, dental plaque can lead to tooth decay and cause periodontal diseases. **Aim:** This study aims to evaluate the effectiveness of structured educational package on knowledge regarding oral hygiene among students in selected schools, Karnataka. **Methods:** An evaluative approach with true experimental pretest-posttest design was used for the study. Twenty-eight primary schoolchildren were selected in control group from the practicing primary school and 25 primary schoolchildren were selected in the experimental group from the Nirmala Hridaya English Medium School, Ankola. The data were collected by the structured questionnaire which is designed to assess the knowledge regarding oral hygiene. The structured questionnaire consists of two sections. Section A consists of 6 items related to demographic data and Section B consists of 25 items related to knowledge regarding oral hygiene. A structured educational package was prepared and administered regarding oral hygiene after the administration of pre-test to the experimental group and post-test was conducted after 6 days of administration of structured educational package. The data collected were analyzed using descriptive and inferential statistics. **Results:** The findings revealed that in practicing primary school, the mean knowledge pre-test score was 11.928 and the mean post-test knowledge score was 12.35. In Nirmala Hridaya English Medium School, the mean knowledge pre-test score was 8.8 and the mean post-test knowledge score was 14.24. **Conclusion:** The study findings revealed that there was a significant increase in knowledge level of primary schoolchildren after administration of the structured educational package.

Keywords: Oral hygiene, Primary school children, Structured educational package

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Introduction

Hygiene is a set of practices performed to preserve the health. According to the World Health Organization (WHO), "Hygiene refers to conditions and practices that help to maintain health and prevent the spread of diseases."^[1]

Oral health is a fundamental part of the general health and well-being of each and every individual. The purpose of oral hygiene is to prevent the build-up of plaque, the sticky film of bacteria and food that forms on the teeth.^[2]

It has been shown to be a very common transmissible bacterial infection, usually passed from primary caregiver

to child. The main bacteria responsible for dental caries are *Streptococcus mutans* and *Lactobacillus*. These bacteria readily produce organic acid from metabolism of fermentable dietary carbohydrates in the oral cavity. Bacteria synthesize insoluble plaque matrix polymers or extracellular dextran that serves to perpetuate bacterial colonization on the surface of the tooth. The resulting acidic environment or low pH in dental plaque is an ideal environment for these bacteria. Thus, the organic acids contribute to the demineralization of the tooth surface proportionally to the bacterial colonization and activity.^[3]

Good oral hygiene practices should be a part of every child's daily routine. In fact, parents should take proper care of oral hygiene from the moment of the child grows their first tooth. By cleaning a child's teeth and gums, it can help to prevent a wide range of health issues including bad breath, cavities, and heart diseases later in their life. Along with brushing, flossing, and rinsing the mouth with a mouthwash are also important. Proper brushing and flossing are a learned skill that can only be improved with practice. It is the duty of the parents to instill this important hygiene habits in children at an early stage.^[4]

About 90% of the world's population will suffer from oral diseases in their lifetime and many of them can be avoided with increased governmental, health association and society support, and finding for prevention, detection, and treatment programs.^[5] Worldwide, 60–90% of schoolchildren and nearly 100% of adults have dental caries. Dental caries can be prevented by maintaining a constant level of fluoride in the oral cavity. Severe periodontal (gum) disease which may result in tooth loss is found in 15–20% of middle-aged (35–45 years) adults. Approximately 30% of people aged 65–74 years have no natural teeth.^[6]

Materials and Methods

The true experimental pretest-posttest design was used to evaluate the effectiveness of structured educational package on knowledge regarding oral hygiene among primary schoolchildren studying in practicing primary school and Nirmala Hrudaya English Medium School, Ankola. The study was done for a period of 1 week.

Statistical method

The reliability and validity of the tool were established before data collection. The demographic data collected were analyzed and categorized into groups according to the frequency and percentage. Analysis and interpretation of the level of knowledge and attitude scores were done by calculating mean, median, and standard deviation. Paired “t”-test established at 0.05 level of significance denotes the effectiveness of structured educational package on knowledge of primary schoolchildren regarding oral hygiene. Chi-square established at 0.05 levels of significance

denotes the association between the pre-test knowledge and demographic variables such as age, gender, religion, education of parents, occupation of parents, and knowledge of the primary school oral children regarding hygiene.

Results

The study was conducted in March 2018. A total of 53 primary schoolchildren took part in the study. The level of knowledge and attitude regarding oral hygiene was assessed using structured questionnaire. The data analyzed using frequency and percentage. The details are presented in Table 1.

Section A: Demographic variables

Practicing primary school

The study shows that 39% of the primary schoolchildren are in the age group of 9–10 years and 61% of primary schoolchildren are in the age group of 11–12 years. Maximum of primary schoolchildren (61%) were male. The study showed that 22 (79%) were Hindus. Twenty-three (82%) primary schoolchildren parents were uneducated and 23 (82%) of them were employed. It showed that 39% of primary schoolchildren got information regarding oral hygiene by assessing their parents, 21% from teachers, 4% from books, and 4% from mass media.

Table 1: Finding related to sociodemographic variables of primary schoolchildren in practicing primary school, Ankola, according to the frequency and percentage

Demographic variables	Frequency	Percentage
Age (years)		
9–10	11	39
11–12	17	61
Gender		
Male	17	61
Female	11	39
Religion		
Hindu	22	79
Christian	0	0
Muslim	6	21
Education of parents		
Educated	5	18
Uneducated	23	82
Occupation of parents		
Employed	23	82
Unemployed	5	18
Knowledge of primary schoolchildren		
Yes	19	68
By assessing parents	11	39
Teachers	6	21
Books	1	4
Mass media	1	4
No	9	32

Table 2: Findings related to sociodemographic variables of primary schoolchildren in Nirmala Hridaya English Medium School children according to the frequency and percentage

Demographic variables	Frequency	Percentage
Age (years)		
9–10	2	8
11–12	23	92
Gender		
Male	14	60
Female	11	40
Religion		
Hindu	17	68
Christian	2	8
Muslim	6	24
Education of parents		
Educated	14	56
Uneducated	11	44
Occupation of parents		
Employed	11	44
Unemployed	14	56
Knowledge of primary schoolchildren		
Yes	15	60
By assessing parents	11	44
Teachers	2	8
Books	2	8
Mass media	0	0
No	10	40

Nirmala Hridaya English Medium School

The study shows that 8% of primary schoolchildren are in the age group of 9–10 years and 92% of primary schoolchildren are in the age group of 11–12 years. About 60% of the primary schoolchildren were male and 68% were Hindus. About 56% of the primary schoolchildren parents were educated and 56% were unemployed. The study showed that 44% of primary schoolchildren got information regarding oral hygiene by assessing their parents, 8% from teachers, and 8% from books. The Table 2 shows findings related to socio-demographic variables of primary school children in NirmalaHridaya English medium school children according to frequency and percentage.

Section B: Effectiveness of structured educational package

Majority of the primary schoolchildren 60% (15) having the knowledge regarding oral hygiene. Paired “*t*”-test established at 0.05 level of significance denotes the effectiveness of structured educational package on knowledge of primary schoolchildren regarding oral hygiene. The statistical analysis demonstrated an increase in knowledge level of primary schoolchildren regarding oral hygiene and it was significant with “*t*” calculated value 7.441 which is greater than “*t*” tabulated value 1.2. Hence, the structured teaching

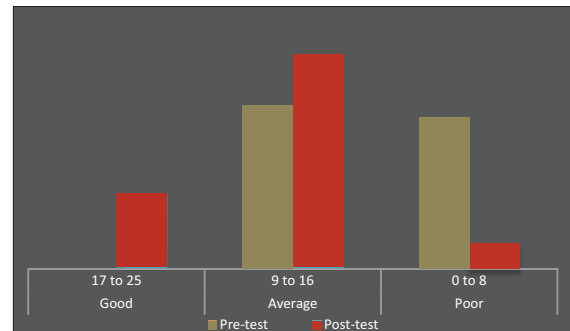


Figure 1: Bar graph showing the description between pre-test and post-test knowledge scores of primary schoolchildren regarding oral hygiene

program was effective in improving the knowledge level among primary schoolchildren regarding oral hygiene.

Section C: Association between the pre-test knowledge and demographic variables

Chi-square established at 0.05 levels of significance denotes the association between the pre-test knowledge and demographic variables such as age, gender, religion, education of parents, occupation of parents, and knowledge of primary schoolchildren regarding oral hygiene. However, the calculated value for age (0.4607), gender (0.0314), religion (0.08513), education of parents (0.0314), occupation of parents (0.0314), and knowledge of primary schoolchildren regarding oral hygiene (0.06009) was less than tabulated values; hence, there is no significant association found with these demographic variables.

Section D: Description of knowledge scores

The pre-test knowledge scores of primary schoolchildren studying in practicing primary school were 1% (good knowledge), 26% (average knowledge), and 1% (poor knowledge) and the post-test knowledge scores were 2% (good knowledge), 24% (average knowledge), and 2% (poor knowledge), respectively.

The distribution of knowledge scores for primary schoolchildren studying in Nirmala Hridaya English Medium School includes pre-test knowledge scores, i.e., 13% (average knowledge) and 12% (poor knowledge) and the post-test knowledge scores were 6% (good knowledge), 17% (average knowledge), and 2% (poor knowledge), respectively. Figure 1 shows the description between pre-test and post-test knowledge scores of primary school children regarding oral hygiene.

Discussion

Importance of the study

Oral hygiene is the practice of maintaining a clean cavity to prevent dental problems such as dental caries, gingivitis,

periodontitis, and bad breath.^[7] According to the WHO, oral diseases such as dental caries (tooth decay), periodontitis (gum disease), and oral and pharyngeal cancers are global health problem in both industrialized and increasingly in developing countries, especially among poorer communities. The WHO announced that an estimated 5 billion people worldwide had experienced dental caries.^[8]

In India, the trend indicates an increase in oral health problem, especially dental caries, which has been consistently increasing both in prevalence and in severity over the past five decades.^[9] Children of all age groups are affected by dental caries. Oral hygiene prevents oral diseases and bad breath.

The present study was conducted to evaluate the effectiveness of structured educational package on knowledge regarding oral hygiene among selected schools, Ankola, Karnataka.

Findings of the study

Practicing primary school

The study shows that 39% of primary schoolchildren were in the age group of 9–10 years and 61% of primary schoolchildren were in the age group of 11–12 years. Majority of primary schoolchildren, i.e., 61% were male. The study shows that 22 (79%) were Hindus and 23 (82%) primary schoolchildren mothers were uneducated. The study shows that 23 (82%) primary schoolchildren parents were employed. The study showed that 39% of primary schoolchildren got information regarding oral hygiene by assessing their parents, 21% of primary schoolchildren got information from teachers, 4% of primary schoolchildren got information from books, and 4% of primary schoolchildren got information from mass media.

Nirmala Hridaya English Medium School

The study shows that 8% of primary schoolchildren were in the age group of 9–10 years and 92% of primary schoolchildren were in the age group of 11–12 years. About 60% of primary schoolchildren were male and 17 (68%) were Hindus. Moreover, 14 (56%) primary schoolchildren parents were educated and 11 (44%) primary schoolchildren parents were employed. Moreover, 44% of primary schoolchildren got information regarding oral hygiene by assessing their parents, 8% of primary schoolchildren got information from teachers, and 8% of primary schoolchildren got information from books.

The investigators found that there is a gain in level of knowledge among the primary schoolchildren. The knowledge scores were independent of all the demographic variables.

Supporting studies

The present study is supported by a descriptive study which was conducted by Khanal K, Shrestha D, Ghimire N,

Younjan R, and Sanjel S. From November 2012 to January 2013, among 100 parents of pre-schoolchildren are visiting pediatrics outpatient department of Dhulikhel hospital, Nepal. This study is done to assess the level of knowledge on oral hygiene of pre-schoolchildren. Paper-and-pencil-based semi-structured questionnaire was used for collecting data. Knowledge score was categorized on four groups – exclusive intervals mainly – poor (0–40%), moderate (40–60%), well (60–80%), and excellent (80–100%). It was found that 81% had moderate knowledge, 15% had poor knowledge, and 4% had good knowledge of oral hygiene. Median knowledge score was found to be 15 with the range of 10–21. Knowledge regarding oral hygiene was found satisfactory among the parents of pre-schoolchildren.^[10]

Another supporting descriptive study was conducted by Deepa Peter, Priya Jenifer Fernandes, Lisha Jenifer Menezes, Sneha Thangachan, Sangeetha Crasta, Nivya Davy, Athira Mariat Johnson, Jincy Mariam Koshy, and Ann Mary Kurian to determine the level of knowledge regarding prevention of dental caries among schoolchildren and to find an association between the knowledge of the prevention of dental caries and the selected baseline variables. The subjects consisted of 100 higher primary schoolchildren from a government school who were selected using purposive sampling method. Data were collected by administering a structured knowledge questionnaire. Majority of the schoolchildren (50%) had average knowledge, 33% had good knowledge, 16% had poor knowledge, and 1% had very good knowledge regarding the prevention of dental caries. There was a significant association between the level of knowledge and the selected baseline variables such as age. The findings of this study revealed that a majority of the subjects had average knowledge of the prevention of dental caries, which indicates that children are at risk of developing dental caries. Hence, this study may help to develop healthy interventions about the prevention of dental caries among schoolchildren.^[11]

Conclusion

The study concluded stating an increase in level of knowledge among primary schoolchildren studying in practicing school and Nirmala Hridaya English Medium School, Ankola. Hence, research hypothesis was accepted and null hypothesis was rejected.

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