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EFFECTIVENESS OF PLANNED TEACHING ON DENTAL HYGIENE AMONG PRIMARY SCHOOL CHILDREN IN SELECTED SCHOOL: A PRE-EXPERIMENTAL STUDY

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Abstract: Dental hygiene is an essential component of overall health, and poor oral hygiene during childhood can lead to dental caries, gum diseases, and long-term oral health problems. **Objectives:** 1. To assess the pre-test level of knowledge regarding Dental Hygiene among Primary School Children in selected school. 2. To assess the post-test level of knowledge regarding Dental Hygiene among Primary School Children in selected school. 3. To evaluate the effectiveness of Planned Teaching Program on knowledge regarding Dental Hygiene among Primary School Children in selected school. 4. To associate the post-test knowledge regarding Dental Hygiene among Primary School Children in selected school with their demographic variables. **Methodology:** A quantitative pre-experimental one-group pre-test post-test research design was adopted. A total of 60 primary school children were selected using a non-probability purposive sampling technique from a selected school. Data were collected using a structured knowledge questionnaire. **Results:** In the pre-test, 28 (46.67%) primary school children had poor knowledge and 32 (53.33%) had good knowledge regarding dental hygiene. After the Planned Teaching, none of the children had poor knowledge, 41 (68.33%) had good knowledge, and 19 (31.67%) had very good knowledge. The mean pre-test knowledge score was 5.95 ± 2.23 , which increased to 9.68 ± 1.53 in the post-test. The mean difference in knowledge scores was 3.73 ± 1.74 . The calculated paired t value ($t = 16.56$) was greater than the tabulated t value (2.00) at the 0.05 level of significance, and the obtained p value (0.0001) was less than 0.05, indicating a statistically highly significant improvement in knowledge following the Planned Teaching. **Conclusion:** The Planned Teaching was effective in significantly improving knowledge regarding dental hygiene among primary school children.

Keywords: Dental Hygiene, Planned Teaching, Primary School Children, Oral Hygiene, Knowledge, Pre-Experimental Study

I. INTRODUCTION

Dental hygiene is an essential component of maintaining overall health and well-being. Childhood is an important period for developing healthy oral hygiene habits that can continue throughout life. Poor dental hygiene can contribute to dental caries, gum diseases and other oral health problems.

Primary school children may lack adequate knowledge regarding appropriate dental hygiene practices, including correct brushing techniques, frequency of brushing, oral cleaning practices and prevention of dental diseases. Therefore, appropriate health education at the school level is important for improving children's knowledge and encouraging healthy oral hygiene practices. Planned Teaching provides a structured approach to delivering health information to children. Through systematic teaching, children can gain appropriate knowledge regarding dental hygiene and understand the importance of maintaining healthy teeth and mouth.

The present study was therefore undertaken to assess the effectiveness of Planned Teaching on knowledge regarding dental hygiene among primary school children in selected schools.

II. OBJECTIVE OF THE STUDY:

1. Primary Objective:

To assess the effectiveness of planned teaching on knowledge regarding dental hygiene among primary school children in selected schools.

2. Secondary Objective:

- To assess the pre-test level of knowledge regarding Dental Hygiene among Primary School Children in selected school.
- To assess the post-test level of knowledge regarding Dental Hygiene among Primary School Children in selected school.
- To evaluate the effectiveness of Planned Teaching Program on knowledge regarding Dental Hygiene among Primary School Children in selected school.
- To associate the post-test knowledge regarding Dental Hygiene among Primary School Children in selected school with their demographic variables.

III. HYPOTHESIS :

WILL BE TESTED AT 0.05 LEVEL OF SIGNIFICANCE

Null Hypothesis (H_0): There is no significant difference between pre and post-test knowledge regarding Dental Hygiene among Primary School Children in selected school.

Alternative Hypothesis (H_1): There is significant difference between pre and post-test knowledge regarding Dental Hygiene among Primary School Children in selected school.

IV. RESEARCH METHODOLOGY:

The study was based on **Ernestine Wiedenbach's Prescriptive Theory**. A quantitative research approach was adopted. A pre-experimental one-group pre-test post-test research design was used to assess the effectiveness of Planned Teaching on knowledge regarding dental hygiene among primary school children.

4.1 Research Design

A **pre-experimental one-group pre-test and post-test research design** was adopted.

The design used was:

$$O_1 \rightarrow X \rightarrow O_2$$

Where:

O_1 = Pre test

X = Planned Teaching

O_2 = Post test

4.2 Population and Sample

The population of the study consisted of primary school children.

The target population included primary school children in the selected school. The accessible population comprised primary school children who were available at the time of data collection and fulfilled the inclusion criteria.

The sample consisted of **60 primary school children**.

4.3 Sampling Technique

A **non-probability purposive sampling technique** was used for selection of the participants.

4.4 Variables of the Study

Independent variable: Planned Teaching

Dependent variable: Knowledge regarding dental hygiene.

Demographic variables: Age, gender, educational status, parents' educational status, parents' occupation, monthly family income, place of residence and previous knowledge regarding oral hygiene.

4.5 Inclusion Criteria

The study included children who:

1. Were 6–12 years of age.
2. Were available at the time of data collection.
3. Were able to read and write Marathi, Hindi and English.

4.6 Exclusion Criteria

Children who:

1. Were not willing to participate in the study.
2. Were mentally retarded.
3. Were physically retarded.

4.7 Research Tool

A structured knowledge questionnaire was developed by the investigator.

Section A: Demographic data.

Section B: Self-structured knowledge questionnaire regarding dental hygiene consisting of 20 multiple-choice questions. Each correct response was awarded one mark and each incorrect response was awarded zero marks. The maximum possible score was 20.

4.8 Data Collection Procedure

The main study data were collected from **25/04/2026 to 07/05/2026**. Permission was obtained from the concerned school authority. The purpose of the study was explained to the participants and consent was obtained.

A pre-test was administered using the structured knowledge questionnaire. Planned Teaching regarding dental hygiene was subsequently provided to the participants. After seven days, a post-test was conducted using the same structured knowledge questionnaire.

4.9 Validity and Reliability

The research tool was validated by experts from the relevant nursing departments. Necessary corrections and suggestions given by the experts were incorporated before data collection.

Reliability of the tool was assessed and the tool was found to be reliable. The thesis reports a parallel-form reliability coefficient of **0.9674**.

4.10 Statistical Analysis

The collected data were analyzed using descriptive and inferential statistics. Frequency and percentage were used to describe demographic characteristics and knowledge levels. Mean and standard deviation were used to describe knowledge scores. A paired *t*-test was used to assess the effectiveness of Planned Teaching. Association between post-test knowledge and selected demographic variables was also assessed.

V. RESULTS AND DISCUSSION

5.1 Demographic Characteristics

Table 1. Distribution of Participants According to Selected Demographic Variables

n=60

Demographic Variables	Frequency of Primary School Children	Percentage (%)
Age(yrs.)		
5-7 years	8	13.3
8-10 years	19	31.7
11-12 years	33	55.0
>12 years	0	0
Gender		
Male	32	53.3
Female	28	46.7
Transgender	0	0
Educational Status		
1st-3rd standard	8	13.3
4-6th standard	19	31.7
7-8th standard	33	55.0
Parent's Education		
Illiterate	0	0
Primary	18	30.0
Secondary	24	40.0
Higher Secondary	8	13.3
Graduate	10	16.7
>Graduate	0	0
Parent's Occupation		
Unemployed/Homemaker	0	0
Government	18	30.0
Private	13	21.7
Business	11	18.3
Agriculture	18	30.0
Monthly Family Income		
5000-10000 Rs	18	30.0
10001-15000 Rs	13	21.7
15001-20000 Rs	11	18.3
>20000 Rs	18	30.0
Place of residence		
Urban	19	31.7
Rural	41	68.3
Semi Urban	0	0

Knowledge of oral hygiene		
Aware	38	63.3
Not Aware	22	36.7

Interpretation: The above table shows the distribution of 60 primary school children according to selected demographic variables. Regarding age, the majority of children, 33 (55.0%), were in the 11–12 years age group, followed by 19 (31.7%) in the 8–10 years age group and 8 (13.3%) in the 5–7 years age group. Regarding gender, 32 (53.3%) were male and 28 (46.7%) were female, while none were transgender. Regarding educational status, 33 (55.0%) children were studying in 7th–8th standard, 19 (31.7%) were studying in 4th–6th standard and 8 (13.3%) were studying in 1st–3rd standard. Regarding parents' education, 24 (40.0%) had secondary education, 18 (30.0%) had primary education, 10 (16.7%) were graduates and 8 (13.3%) had higher secondary education. None were illiterate or above graduate level. Regarding parents' occupation, 18 (30.0%) were engaged in government service, 18 (30.0%) in agriculture, 13 (21.7%) in private employment and 11 (18.3%) in business. None were unemployed/homemakers. Regarding monthly family income, 18 (30.0%) families had an income of Rs. 5,000–10,000, 13 (21.7%) had Rs. 10,001–15,000, 11 (18.3%) had Rs. 15,001–20,000 and 18 (30.0%) had more than Rs. 20,000. Regarding place of residence, 41 (68.3%) children belonged to rural areas and 19 (31.7%) belonged to urban areas. None belonged to semi-urban areas. Regarding previous knowledge of oral hygiene, 38 (63.3%) children were aware of oral hygiene, while 22 (36.7%) were not aware.

5.2 Distribution of Primary School Children According to Pre-Test and Post-Test Level of Knowledge Regarding Dental Hygiene

Table 2: Distribution of Primary School Children According to Pre-Test and Post-Test Level of Knowledge Regarding Dental Hygiene (N = 60)

Level of Knowledge	Pre-Test n (%)	Post-Test n (%)
Poor	28 (46.67%)	0 (0%)
Good	32 (53.33%)	41 (68.33%)
Very Good	0 (0%)	19 (31.67%)
Excellent	0 (0%)	0 (0%)
Total	60 (100%)	60 (100%)

Interpretation: The above table shows that in the pre-test, 28 (46.67%) primary school children had poor knowledge and 32 (53.33%) had good knowledge regarding dental hygiene. None of the children had very good or excellent knowledge.

In the post-test, none of the children had poor knowledge, 41 (68.33%) had good knowledge and 19 (31.67%) had very good knowledge. None of the children had excellent knowledge.

5.3 Comparison of Mean Pre-Test and Post-Test Knowledge Scores

Table 3: Comparison of Mean Pre-Test and Post-Test Knowledge Scores Regarding Dental Hygiene (N = 60)

Test	Mean	SD	Mean Difference	Paired t Value	p Value
Pre-Test	5.95	2.23	3.73 ± 1.74	16.56	0.0001
Post-Test	9.68	1.53			

Interpretation: The above table shows that the mean pre-test knowledge score was 5.95 ± 2.23 , whereas the mean post-test knowledge score increased to 9.68 ± 1.53 . The mean difference between the pre-test and post-test knowledge scores was 3.73 ± 1.74 .

The calculated paired *t* value was **16.56**, which was greater than the tabulated *t* value of **2.00** at the 0.05 level of significance. The obtained *p* value was **0.0001**, which was less than 0.05. Therefore, there was a statistically significant difference between the pre-test and post-test knowledge scores.

Hence, the **Null Hypothesis (H₀) was rejected and the Alternative Hypothesis (H₁) was accepted**. This indicates that Planned Teaching was effective in improving knowledge regarding dental hygiene among primary school children.

5.4 Association Between Post-Test Knowledge and Selected Demographic Variables

The study found a statistically significant association between post-test knowledge regarding dental hygiene and selected demographic variables, including **age, educational status, parents' educational status, parents' occupation, monthly family income, place of residence and previous knowledge regarding oral hygiene.**

There was **no statistically significant association between gender and post-test knowledge regarding dental hygiene.**

5.5 Discussion

The findings of the present study demonstrated a significant improvement in knowledge regarding dental hygiene among primary school children following Planned Teaching. In the pre-test, 46.67% of children had poor knowledge and 53.33% had good knowledge. Following the intervention, none of the children had poor knowledge, while 68.33% had good knowledge and 31.67% had very good knowledge.

The mean knowledge score increased from 5.95 ± 2.23 in the pre-test to 9.68 ± 1.53 in the post-test, with a mean difference of 3.73 ± 1.74 . The calculated paired t value was **16.56** with an obtained p value of **0.0001**, demonstrating a statistically significant improvement in knowledge.

Therefore, the findings indicate that **Planned Teaching was effective in improving knowledge regarding dental hygiene among primary school children.**

VI. CONCLUSION:

The study concluded that primary school children had inadequate knowledge regarding dental hygiene before the intervention. Planned Teaching significantly improved their knowledge, as evidenced by the increase in the mean knowledge score from 5.95 ± 2.23 to 9.68 ± 1.53 , with a highly significant difference ($t = 16.56$, $p = 0.0001$). These findings confirm that Planned Teaching is an effective educational strategy for enhancing dental hygiene knowledge among primary school children. Additionally, post-test knowledge was significantly associated with age, educational status, parents' education and occupation, monthly family income, place of residence, and previous knowledge, while no significant association was found with gender.

VII. LIMITATIONS

Despite the significant findings, the study had certain limitations:

1. **Limited Sample Size:** The study was conducted on only 60 primary school children, which may limit the generalization of findings.
2. **Restricted Setting:** The study was conducted in selected schools only, so the results may not represent all school children.
3. **Short Duration:** The study evaluated knowledge immediately after the intervention; long-term retention was not assessed.
4. **Assessment Limited to Knowledge:** The study measured knowledge only and did not assess actual dental hygiene practices of children.
5. **Non-Probability Sampling:** The sampling technique used may introduce sampling bias.
6. **Self-Structured Tool:** The knowledge questionnaire was self-structured, which may have certain limitations despite validation.
7. **No Control Group:** The study used a one-group pre-test post-test design without a control group, which may affect comparison.
8. **Environmental Factors Not Considered:** Home environment and parental supervision, which influence oral hygiene habits, were not assessed.

VIII. RECOMMENDATIONS

- A similar study can be replicated on a larger population for generalization of findings.
- A comparative study can be done to assess the knowledge on dental hygiene among primary school children in rural and urban areas.
- A Descriptive study can be conducted on awareness regarding dental hygiene among primary school children.
- A similar study can be carried out to evaluate the effectiveness of video assisted teaching program on dental hygiene of children.

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