

A Pre Experimental Study to Assess the Effectiveness of Video Assisted Teaching on Knowledge Regarding Causes and Prevention of Preschooler Dental Caries among Preschooler Mothers' in Selected Rural Area

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Abstract: A evaluative study regarding causes and prevention of preschooler dental caries to assess the knowledge among the mothers of preschooler. The research approach used was evaluative approach. Total 60 samples are selected for the study. The research design selected for the study was one group pretest posttest research design. The setting was selected rural area. The samples include mothers' of preschooler; sampling technique was used non probability convenient sampling. The structured knowledge questionnaire was used to collect data from samples. Pre-test was taken on first day followed by video assisted teaching to group and then post-test was taken after seven days. The pilot study was conducted with 6 samples. Reliability was established by Guttman split-half method. Data was analysed by using descriptive and inferential statistics. Overall mean knowledge score of pre-test was 14.51 and the overall mean knowledge score of post-test was 18.63. There was significant difference between the mean pre-test and post-test knowledge score ($t=19.47$, $p=0.00$) at $p<0.05$ level. It concludes that video assisted teaching used for the study was effective in enhancing the knowledge of cause and prevention of preschooler dental caries.

Keywords: Mothers' of Preschooler, Dental Caries, Video Assisted Teaching

1. Introduction

“SMILE”

Because you are gifted with a very good toothbrush & toothpaste, all resulting in health teeth to show without fear.

Guhar

It is essential that the common man is made aware of the methods of proper health care and also should be educated regarding the consequences of the lack of oral health. The dental diseases usually start in childhood and leading to complications and tooth mortality. It is thus essential that to detect and treat this dental problem at the earliest and also very important to prevent, by educating the children and parents. Dental caries is the single most common chronic childhood disease affects children ages five through seventeen years. Prevalence of dental caries five times more common than asthma and seven times more common than hay fever.

Tooth decay is caused by biofilm (dental plaque) lying on the teeth and maturing to become cariogenic (causing decay). Certain bacteria in the biofilm produced acid in the presence of fermentable carbohydrate such as sucrose, fructose, and glucose.

According to WHO a national focus and oral health with initiation of healthy people by 2010. Of the WHO goals for the global oral health, the first goal is the 50 percentage of the five to six years old children should be caries free and the second goal is that the global average should not be more

than three decayed, missing or filled teeth at twelve years of age. Prevention and early diagnosis are just as important in managing dental diseases, specifically dental caries as in managing any other infectious diseases.

Healthy, clean, strong and good teeth are like a valuable possession. Therefore attention should be paid to the dental care. Broadly speaking oral hygiene is an important aspect of personal health of an individual.

Dental caries is a leading dental problem of children. 90% of all children have some tooth decay by 12 year of age. Children from socioeconomically deprived areas have more dental caries than those from other groups. Tooth brushing, use of fluorides regular dental check-up, diet and habits are important in prevention of dental caries.

A higher percentage of children do not receive dental supervision and significant number reach adulthood without having been examined or treated. Many dental problems can be prevented if children and parents are well informed of the causes of dental diseases, prevention and aware of the importance of regular dental care.

2. Review of Literature

Nanda G Pai, et. al. (2018) Prevalence and risk factors of dental caries among school children from a low socio-economic locality in Mumbai, India. The present cross-sectional study was conducted among 299 school children of the age 9 to 13 years using a pre-tested semi-structured questionnaire for face to face interview followed by oral

examination by trained dental experts. The result showed that the prevalence of dental caries was found to be 78.3%, higher among 10-11 years and among boys. Mean DMFT index was found to be 1.94 ± 1.70 . Statistically significant association was found among the oral hygiene practices and dental caries for daily brushing ($p < 0.001$), rinsing mouth after meals ($p < 0.0001$) and frequency of sweets consumption ($p < 0.0001$). The study concluded that the high prevalence of dental caries warrants an urgent need for inculcating better oral hygiene practices among school children through active involvement of parents and teachers.

T Sridevi, et. al. (2018) A study conducted on Factors associated with early childhood caries among 3 to 6 year old children in India: A case control study in this cross sectional study 690 school children aged 3-6 years were included from five government and primary schools among them 345 were suffering from ECC. Data acquisition involved an oral clinical exam, anthropometric measures and a questionnaire administered in interview form to acquire information on socio-demographic data and Gestational age; mode of delivery; birth weight and socio-economic status. Chi-squared test was used to test the association between categorical variables. Multiple logistic regression analysis used to assess strength of association between risk factors and ECC while controlling known confounders. The results showed that the multiple logistic regression analysis revealed that male children, increasing age, preterm birth and cesarean section are associated with increased risk of developing ECC. A study concluded that perinatal factors play a vital role in determination ECC burden. Early life interventions and precautions can be useful strategy to control and prevent ECC.

Ghanghas M, et. al. (2017) A study was conducted on Dental Caries Experience among 3-5 Years Old Preschool Children in India. A descriptive cross-sectional study was carried out among 489 preschool children aged 3-5 years in Rohtak city, Haryana, India. Children were randomly selected from preschools of Rohtak. Dental Caries experience was recorded using 'def' index Gruebbel A.O, 1944 and questionnaire comprising socio-demographic details and oral hygiene practices was also used. Results were shows that the overall prevalence of ECC was found to be 32 % with mean def t 1.085 ± 2.27 . No significant association of dental caries was found with socio-demographic factors like gender, parental education, parental occupation, socio-economic status, no. of children, birth order, type of family and oral hygiene practices. The study was concluded that the dental caries experience was significantly high among girls when compared to boys with direct relationship with age. Demographic factors did not play a significant role in the occurrence of dental caries.

Laila A. Al-Meedani, et. al. (2016) A study was conducted on Prevalence of dental caries and associated social risk factors among preschool children in Riyadh, Saudi Arabia. The study consisted of a random sample of 3 to 5 years- old preschool children who were examined in Riyadh, Saudi Arabia; 388 children (184 boys and 204 girls) were examined from 10 different preschools. About 69% of children had dental caries with dmft score of $3.4 (\pm 3.6)$ and dmfs of $6.9 (\pm 9.9)$. Result showed that there was no

statistically significant difference between boys and girls. Less caries was observed among children whose parents worked and it was statistically significant as well as whose mothers had high or low educational level. Increased number of family members appeared to have a high incidence of dental caries which was also statistically significant. There was no significant difference in dental caries prevalence with birth order. A study conducted on Dental caries among preschool children in Saudi Arabia was still very common. Improvement of preventive measure at early age should be emphasized by parents and dental health professionals. More attention is required for Non-working parents telling them about the risk of dental caries affecting their children and the awareness of preventive care of dental health.

Sobha Kuriakose, et. al. (2015) Prevalence of early childhood caries among preschool children in Trivandrum and its association with various risk factors. A sample size of 1329 preschool children of <60 months of age was randomly selected from rural and urban areas of Trivandrum and decayed missing filled teeth indices were recorded. A standardized questionnaire was distributed to the parents. The data were subjected to SPSS version 16 and statistically analyzed with Chi-square test. The results showed that Prevalence of ECC in the study sample was found to be 54%. Furthermore, a positive association was obtained between ECC and age of the child, location of residence, dietary habits, and oral hygiene habits. The study concluded that there is an urgent need to implement preventive and curative oral health programs for preschool children in rural and urban areas.

3. Problem Statement

A Pre-experimental study to assess the effectiveness of video assisted teaching on knowledge regarding causes and prevention of preschooler dental caries among preschooler mothers' in selected rural area.

4. Objective of the Study

- 1) To assess the existing knowledge among mothers' of preschooler regarding the causes and prevention of preschooler dental caries.
- 2) To evaluate the effectiveness of video assisted teaching on knowledge regarding the causes and prevention of preschooler dental caries.
- 3) To find out the association between the posttest knowledge score of mothers' of preschooler with their selected demographic variables.

Hypothesis

H₁: There will be significant difference between the pre and posttest Knowledge score among the mothers' of preschooler regarding causes and prevention of dental caries.

H₂: There will be significant association between the pre test knowledge score of mothers' of preschooler with their selected demographic variable.

5. Methodology

Research Approach: Quantitative Evaluative research approach.

Research design: pre-experimental and one group pretest posttest research design.

Variables under study:

- 1) Independent variable: is video assisted teaching regarding preschooler dental caries.
- 2) Dependent variable: Knowledge of mother of preschoolers on causes and prevention of dental caries.

Setting: The study was conducted in selected rural area of Jalgaon district.

Population: In this study, the population includes mothers' of preschoolers.

Target population consists of mothers' of preschooler in selected rural area.

Accessible population mothers' of preschooler present at the time of data collection.

Sample and sampling technique

Sample: In the present study sample is mothers' of preschooler from selected rural area.

Sample size: The sample size for the present study is 60 mothers' of preschooler who fulfill the set inclusion criteria.

Sampling technique: A non-probability convenience sampling technique.

Inclusion criteria-

- Mothers' who are having preschooler age child.
- Mothers' who are willing to participate in study and ready to sign consent.
- Mothers' who are able to read, write and understand Marathi language.

Exclusion criteria-

- Mothers' who are health team member or Anganwadi sevika.
- Mothers' who are mentally challenged.
- Mothers' who are blind and deaf.
- Mothers' who have attended similar studies within 06 month.

Tool preparation: Tool used for research study was structured questionnaire and video assisted teaching, which was prepared the assess to effectiveness of video assisted teaching on knowledge regarding cause and prevention of preschooler dental caries in selected rural area.

Development of tool:

The research instrument consists of two parts:

Part I-Demographic data –This section consist of 9 items seeking information about demographic variable about preschooler mothers' such as age of mothers, religion, education of mothers', occupation family income, type of

family, number of children, frequency of preschooler brushing, previous knowledge regarding dental caries, source of knowledge and information.

Part II Structured questionnaire –

It consists of 28 multiple choice questions related to preschooler dental caries.

Validation of the tool: Content validity refers to the degree to which an instrument measures what it is supposed to measure. Validity of the tool was established after consultation with 9 child health nursing experts who are experts in their respective fields. These were critically reviewed by experts and research guide. Their opinions and suggestions were considered to modify the tool. The research guide and consultants were consulted when finalizing the tool.

Reliability: In order to establish reliability of the tool, slit half method was used. Reliability of the tool was **0.83** which showed that tool was highly reliable.

Feasibility of the study: The investigator conducted a Pilot study.

Pilot study: The pilot study was conducted on mothers' of preschooler in selected rural area to assess feasibility of the study.

Data collection procedure: A formal permission was obtained from the sarpanch of rural area. The study was conducted from 11/02/21 to 18/02/21The investigator personally contacted each selected subject and their informed written consent was obtained after explaining the purpose of the study. Subjects were given detailed information about the study. Permission was taken from them for post-test. Questionnaire was administered to each one, who was asked to fill it them and there after pre-test for single group, video assisted teaching was administered to the preschooler mothers' of same group. The post-test was conducted after 7 days for one group.

Plan for data analysis: (1) Description of demographic characteristics of the adults was computed by using frequency and percentage. (2)Mean, Standard deviation of pre and post- test knowledge scores was computed.(3) "t" test was applied to determine the significance of mean difference between mean pre-test and post- test knowledge scores. (4) Chi- square test was used to find the association of knowledge score with demographic variables and the findings were documented in tables, graphs and diagram.

Scoring mode: Score 1 was given to every correct answer. 0 was given to every wrong answer. Based on the percentage of scores, level of knowledge was graded as **Poor-** 0 to 09**Average-** 10 to 18, **Good-** 19to28

6. Results

Organization of the data: The collected data is tabulated, analyzed, organized and presented under the following sections:

Section I: Deals with analysis demographic data of mothers and percentage of preschooler in selected rural area in terms of frequency

Table 1 (A): Frequency & percentage distribution of mothers of preschooler in selected rural area in terms of frequency and percentage

Sr. No.	Variable	Groups	Frequency	Percentage
1	Age of the mother(in years)	20-25	37	61.67
		26-30	17	28.33
		above 30	6	10.00
2	Educational Qualification	Illiterate	0	0.00
		Primary and Secondary	45	75.00
		Graduate	15	25.00
		Postgraduate & Above	0	0.00
3	Occupation	Homemaker	47	78.33
		Government employee	3	5.00
		Self-employee	7	11.67
		Private employee	3	5.00
4	Type of family	Nuclear	4	6.67
		Joint Family	50	83.33
		Extended	6	10.00
5	Family Income	Rs 5000 and less	3	5.00
		5001 -10,000/-	44	73.33
		10,001-15,000/-	13	21.67
		15,001/- and above	0	0.00

Table 1 (B): Frequency & percentage distribution of mothers of preschooler in selected rural area in terms of frequency and percentage

Sr. No.	Variable	Groups	Frequency	Percentage
6	Number of children	1	26	43.33
		2	28	46.67
		3 or more	6	10.00
7	frequency of preschooler brushing per day	Morning	57	95.00
		Evening	1	1.67
		Both	2	3.33
8	Previous Knowledge	Yes	20	33.33
		No	40	66.67
9	source of information	Television & Advertisement	11	55.00
		Book, Magazines & Newspaper	3	15.00
		Family & Friends	2	10.00
		Health team member	4	20.00

Section II: Deals with analysis of data related to assessment of the knowledge among mothers’ of preschooler regarding the causes and prevention of preschooler dental caries in terms of frequency and percentage.

Table 11: General assessments of Knowledge – Pre Test

Pre Test	Groups		Frequency	Percentage
	Poor	0-9		
Pre Test	Average	10-18.	53	88.33
	Good	19-28.	3	5.00
	Knowledge	Minimum	8	
		Maximum	19	
		Average (SD)	14.51 (2.83)	

Table 12: General assessments of Knowledge – Post Test

Post Test	Groups		Frequency	Percentage
	Poor	0-9		
Post Test	Average	10-18.	31	51.67
	Good	19-28.	29	48.33
	Knowledge	Minimum	14	
		Maximum	25	
		Average (SD)	18.63 (2.70)	

Table 13: General assessments of Knowledge - Pre Vs Post Test

Knowledge	Groups		Pre Test		Post Test	
			Frequency	Percentage	Frequency	Percentage
Knowledge	Poor	0-9	4	6.67	0	0.00
	Average	10-18	53	88.33	31	51.67
	Good	19-28	3	5.00	29	48.33
Knowledge	Minimum		8		14	
	Maximum		19		25	
	Average (SD)		14.51 (2.83)		18.63 (2.70)	

Section III: Deals with analysis of data related to the effectiveness of video assisted teaching on knowledge regarding the causes and prevention of preschooler dental caries among the mothers of preschooler in selected rural area in terms of average pre and posttest.

Section IV: Deals with analysis of data related to the association of knowledge regarding the causes and prevention of preschooler dental caries with selected demographic characteristics of mothers of preschooler in selected rural area.

Table 14: Comparison of the pre and posttest Knowledge among the mothers of preschooler in selected rural area

Test	N	Mean	S.D.	t value	P value
Pre Test	60	14.51	2.83	19.47	0.000
Post Test	60	18.63	2.7		

Table 15 (A): Association of knowledge score in relation to demographic variables

Variable	Groups	Pre Test - Knowledge			Chi-Square	d.f.	p value	Significance
		Poor	Average	Good				
Age of the mother(in years)	20-25	2	35	0	6.64	4	0.16	Not Significant
	26-30	2	12	2				
	above 30	0	5	1				
Educational Qualification	Illiterate	0	0	0	10.49	2	.005	Significant
	Primary and Secondary	4	41	0				
	Graduate	0	12	3				
	Postgraduate & Above	0	0	0				
Occupation	Homemaker	3	41	3	1.94	6	0.93	Not Significant
	Government employee	0	3	0				
	Self-employee	1	6	0				
	Private employee	0	3	0				
Type of family	Nuclear	0	4	0	1.58	4	0.81	Not Significant
	Joint Family	4	43	3				
	Extended	0	6	0				
Family Income	Rs 5000 and less	0	3	0	14.81	4	0.005	Significant
	5001 -10,000/-	2	42	0				
	10,001-15,000/-	2	8	3				
	15,001/- and above	0	0	0				

Table 15 B: Association of knowledge score in relation to demographic variables

Variable	Groups	Pre Test - Knowledge			Chi-Square	d.f.	p value	Significance
		Poor	Average	Good				
Number of children	1	1	25	0	5.4	4	0.25	Not Significant
	2	3	22	3				
	3 or more	0	6	0				
frequency of preschooler brushing per day	Morning	4	51	2	8.97	4	0.06	Not Significant
	Evening	0	1	0				
	Both	0	1	1				
Previous Knowledge	Yes	0	18	2	3.5	2	0.17	Not Significant
	No	4	35	1				
source of information	Television & Advertisement	0	10	1	4.34	3	0.23	Not Significant
	Book, Magazines & Newspaper	0	3	0				
	Family & Friends	0	1	1				
	Health team member	0	4	0				

Significant- p<0.05

In that variable like of educational qualification and family income, were significantly associated with pre- test knowledge. with knowledge regarding the causes and

prevention of preschooler dental caries of mothers of preschooler in selected rural area. Hence it proves that H₂ is accepted.

In the demographic variables age of mother, occupation, type of family, number of children, frequency of preschooler brushing per day and source of information with knowledge regarding the causes and prevention of preschooler dental caries of mothers of preschooler in selected rural area.

So the null hypothesis (H_{02}) was accepted for above variables.

7. Discussion

The discussion is the most interesting part of the dissertation. The finding of the study was discussed in the light of previous studies. The discussion section is devoted to a thoughtful and insightful analysis of the finding, leading to a discussion of their clinical and theoretical utility.

This chapter deals with the discussion of the study with appropriate literature review, statistical analysis and findings of the study based on objectives and hypothesis. The present study was done to assess the effectiveness video assisted teaching on knowledge regarding causes and prevention of preschooler dental caries among the mothers' of preschooler.

The findings of the study have been discussed with reference to the objectives and hypothesis of similar studies.

1) To assess the existing knowledge among mothers' of preschooler regarding the causes and prevention of preschooler dental caries.

A study supported by Ms. Anju Appukuttan (2013) a study to evaluate the effectiveness of planned teaching programme regarding knowledge and attitude on prevention of dental caries among the mothers of primary school children at anekal district, Bangalore. Pre experimental study conducted on 60 sample of mothers of primary school children. The study reveal that out of 60 primary school children mothers 73.3(73.3%) had inadequate knowledge and 15 of primary school mothers had adequate knowledge regarding dental caries.

In the present study, At the time of pre test, 6.67% of mothers of preschooler at selected rural area had poor knowledge regarding causes and prevention of preschooler dental caries, 88.33% mothers had average knowledge and 5% had good knowledge. Average knowledge score at the time of pre test was 14.51 with standard deviation of 2.83.

2) To evaluate the effectiveness of video assisted teaching on knowledge regarding the causes and prevention of preschooler dental caries.

A study supported by Manveer Kaur (2013)A study to assess the effectiveness of structured teaching program to improve the knowledge regarding dental hygiene among 60 schoolchildren at Jalandhar. Result revealed that overall mean score of 14.91 (standard deviation [SD] = 3.84) was as in post-test mean score of 23.01 (SD = 3.72). In our study, pre-test mean score was 2.200(SD = 0.6540), whereas post-test 2.250 (SD = 0.626). Therefore, the video-assisted teaching program was highly effective in increasing the knowledge of students regarding the particular subject.

In the present study pre test average score was 14.51 with standard deviation of 2.83. The post test average score was 18.63 with standard deviation of 2.70. The test statistics value of the paired t test was 19.47 with p value 0.00. The p value less than 0.05, hence hypothesis H_1 is accepted. Shows that, video assisted teaching on knowledge regarding causes & prevention of preschooler dental caries among mothers of preschooler in selected rural area was effective.

3) To find out the association between the posttest knowledge score of mothers of preschooler with their selected demographic variables.

A study supported by Thakur Neha et al (2016) A Descriptive Study to assess the Knowledge and Practices of Mothers regarding Prevention of Dental Problems among The Children in Selected Rural Area of District Hoshiarpur (Punjab). Descriptive study conducted on 60 mothers of children age group 2-12 years. More than one fourth of the mothers i.e. 37.5% were educated upto senior secondary education level and only a fraction i.e. 1.25% mothers were educated upto primary and above graduation level and More than half of subjects i.e. 57.5% were from nuclear family and rest of subjects i.e. 42.5% were from joint family. There was statistically significant association of education and type of family with knowledge of mothers regarding the prevention of dental problems among the children.

In the present study 75% of mothers were educated up to primary and secondary, 25% of them were graduates and 83.33% of mothers were from the joint families, and 10% of them from extended families, 6.67% of from nuclear families. Concludes that, there was significant association of educational qualification and family income, with knowledge regarding the causes and prevention of preschooler dental caries of mothers of preschooler in selected rural area.

8. Conclusion

Video assisted teaching was effective on regarding preschooler dental caries among mothers' of preschooler in selected rural area. Knowledge regarding preschooler dental caries is playing important role in life of mothers of preschooler. It encourages mothers of preschooler to deal with preschooler dental caries. Present study provide knowledge regarding preschooler dental caries to mothers of preschooler about meaning and general information of preschooler dental caries, causes, risk factors of dental caries, complication, prevention and treatment.

In this study, significant improvement in knowledge regarding preschooler dental caries is observed after imparting video assisted teaching. Such video assisted teaching was improve the knowledge of mothers of preschooler.

9. Recommendations

1) Study can be conducted to evaluate the effectiveness of video assisted teaching to improve the knowledge regarding causes and prevention of preschooler dental caries among mothers of preschooler.

- 2) A similar study can be conducted to assess the knowledge of health personnel working in community (Dai, ANM, Anganwadi health worker, village health guide) regarding cause and prevention of preschooler dental caries and initiate the programme to improve their knowledge in this regard.
 - 3) Study can be conducted to compare the effectiveness of video assisted teaching to improve the knowledge regarding causes and prevention of preschooler dental caries among preschooler children and school age children in selected rural area.
 - 4) Study can be conducted to compare the effectiveness of video assisted teaching to improve the knowledge regarding causes and prevention of preschooler dental caries among the homemaker and working mothers of preschool children.
 - 5) A comparative study can be done among rural and urban area knowledge regarding causes and prevention of preschooler dental caries.
 - 6) A study can be conducted to assess the effectiveness of video assisted teaching among family members of mothers of preschooler regarding preschooler dental caries.
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