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**Effect of a Planned Teaching Programme on Knowledge Regarding
Prevention of Dental Caries among Mothers of Preschool Children in
Rural Jabalpur**

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Abstract

Background: Dental caries is considered as common yet avoidable childhood ailments worldwide. Untreated dental caries leads to pain, contamination, sleep disruption and school absence, affecting children's life quality and their families' wellbeing. Therefore present study aims to examine the efficacy of planned teaching module on knowledge concerning prevention of dental caries among the mothers of school going children.

Method: Quantitative approach comprising pre-experimental one group pretest post-test research design adopted. A sample of 100 mothers of rural areas of Jabalpur District (M.P.) selected as sample through convenient sampling technique.

Results: The mean pre – test knowledge score was 7.27 with mean percentage score 36.35%. Average post–test knowledge score as 15.26 with mean percentage score 76.30%. The mean variation is seen as +7.99, showing absolute enhancement of 39.95%. The Paired ‘t’ test calculation 49.78 was significant at $p=0.0001$. This shows that there is significant variation among the pre test and post test knowledge level among mothers of school-aged children after planned teaching module concerning prevention of dental caries. There was relevant association discovered between the pre-test knowledge level among mothers with demographic traits like educational status, monthly family income, mother's occupation and birth order of the child.

Conclusion: Findings of our study strongly recommend periodic educational drive regarding prevention of dental caries among mothers of school going children especially in rural areas.

Keywords: Effectiveness, Dental caries, Mothers, Prevention, Planned teaching, school going children

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Introduction

Dental caries is considered as chronic infection owing to tooth-adherent cariogenic bacteria, primarily *Streptococcus mutans*, that metabolize carbohydrate to make acid, demineralising the tooth composition over period.¹ Dental caries is termed as most recurrent yet preventable childhood ailments universally. Untreated dental caries leads to pain, infection, sleep interruption and school nonattendance, distressing children's and their families' welfare.² Dental caries occur in preschool children referred as early childhood caries (ECC). Early dental caries is typical incidence of one or more decayed, missing teeth owing to caries. A meta-analysis of 71 research studies comprising 69,330 preschool children approximated the pooled prevalence of early dental caries as 46.9% in India.³

Dental caries is termed as multifarious infection consequential from the interplay of vulnerable tooth exterior, cariogenic microorganisms, brewing carbohydrates and duration.

Significant predisposing factors comprise recurrent intake of sugary foods in addition to drinks, long-duration or night-time bottle-feeding, meagre oral hygiene, insufficient fluoride exposure, belated dental check-up and low parental understanding. Regular carbohydrates intake between meals or at bedtime is predominantly detrimental since salivary flow is decreased throughout sleep, allowing acids formed by dental-plaque bacteria to stay in make contact with the teeth for longer duration.⁴

A systematic review of parenthood aspects in developing nations discovered that education of mothers; socioeconomic grade, parental oral-health awareness, attitudes as well as tooth cleaning practices were linked to dental caries in children. Numerous incorporated studies detailed that mothers with enhanced oral-health understanding and affirmative attitudes had lesser caries occurrence in their children, while insufficient parental regulation of brushing and repeated sugary-food eating augmented the risk of dental caries in children.⁵

Ravishankar T et al (2010) established that merely 27.1% and 25.4% mothers had proper awareness about the value of oral cleanliness practices and significance of deciduous teeth, correspondingly. Tak HK et al (2023) publicized regarding insignificant relationship between awareness score with certain demographic characteristics with no considerable difference in the awareness score of private and government school children concerning mouth hygiene. Study recommended facilitating oral hygiene as an important aspect preferably for healthy life of among school children. Kaushik P et al (2025) discovered that after planned teaching programme administration about early childhood caries in view of awareness, attitude and practice amongst mothers of 1 to 6 years of age group children, post-test awareness, attitude and practice score of the mothers were found appreciably elevated than the average pre-test scores.⁶

Consequently, the current research study designed to measure the efficiency of a teaching module on knowledge concerning the prevention of dental caries amongst mothers of preschool children. Collected evidence may strengthen family-centred oral-health promotion for future generation.

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Statement of problem

“A study to examine the efficacy of planned teaching regarding knowledge on prevention of dental caries among the mothers of school going children in selected rural areas at Jabalpur District (M.P.)”.

Objectives

1. To measure the knowledge of school going children mothers concerning prevention of dental caries.
- 2 To appraise the efficacy of planned teaching module on the knowledge of school going children mothers concerning prevention of dental caries.
- 3 To associate knowledge score with the certain demographic traits

Hypothesis

H₁: There will be a considerable variation in knowledge of mothers of school going children concerning prevention of dental caries.

H₂: There will be noteworthy association amid knowledge and certain demographic traits.

Methodology

Quantitative approach comprising pre-experimental one group pretest post-test research design adopted. 100 mothers of rural areas of CHC Panagar of Jabalpur District (M.P.) selected as samples. Mothers with school going children, able to understand Hindi language, without any mental or serious illness and willing to take part in study included as sample. Sampling technique of non probability convenient type was used. Though this technique can hamper generalizability but was feasible for the researcher.

The tools divided in two parts. Part I comprises 8 socio-demographic traits such as age, educational status, family type, monthly family earning, mother's occupation, religion, sex of the child, birth order of the child. Part II comprises 20 multiple choice knowledge items concerning prevention of dental caries. Each item equipped with one correct answer and score one for each correct answer and incorrect or not attempted was scored as zero. The maximum attainable score of the structured knowledge items was 20. The research instrument was duly validated with the help of 8 experts from nursing and public health area. Research tool reliability was found as 0.90. The planned teaching includes study material related to introduction, definition, aetiology, risk factors, clinical manifestation, diagnosis, complications, overall management and conclusion. A session of 45 minutes for 20 mothers group taken through lecture cum discussion with PPT, flash card and posters. After 7th day of teaching program, post test taken with the same questions. The data collection duration was 3 weeks from 20-02-2015 to 09-03-2015. The gathered data was ordered, tabulated, summarized, analyzed and presented in the forms of tables and bar diagrams based on objectives of the study by means of descriptive along with inferential analysis.

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Ethical approval was taken from College Ethical Committee (CEC) Jabalpur Institute of Nursing Sciences and Research. Written authorization was acquired from local leaders of the rural areas. Oral and on paper consent was collected previous to data collection process. Assertion was specified with participants that anonymity of each person and privacy would be considered all the way through the research study.

Results

Table: 1. Allocation of samples according to socio demographic traits (N=100)

Sr. No.	Variable	Frequency	Percentage
1. Age	25-30 years	27	27%
	31-35 years	59	59%
	36-40 years	13	13%
	Above 40 years	01	1%
2. Educational Status of mother	Primary	8	8%
	Higher Secondary	67	67%
	Graduation	24	24%
	Post graduation (PG)	01	1%
3. Type of family	Nuclear	71	71%
	Joint	29	29%
	Extended	0	0
4. Monthly family income	3000-5000	30	30%
	5000-8000	29	29%
	8000-10000	20	20%
	Above 10000	21	21%
5. Mother's occupation	House wife	74	74%
	Govt. Employee	7	7%
	Private Employee	10	10%
	Others	9	9%
6. Religion of the family	Hindu	39	39%
	Christian	04	4%
	Muslim	02	2%
	Others	55	55%
7. Sex of the child	Male	54	54%
	Female	46	46%
	First	71	71%

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8. Birth order of the child	Second	28	28%
	Third	1	1%
	Fourth & Above	0	00

According to **Table 1**, majority 59% of the mothers were from of 31-35 years age group, 67% had Higher Secondary education standard, 71% residing with nuclear family, 41% monthly family earnings was above 8000/-Rs., 74% mothers were housewives, 55% mothers were from other religious conviction while 39% were Hindus, 54% children were male and 71% children were in first birth order.

Figure 1, Discloses that the most of mothers, 97% scored average knowledge level whereas 3% scored poor knowledge level in pre – test. But in post test nearly half of mothers, 55% scored good knowledge level, 45% scored excellent level and nobody scored poor or average knowledge level.

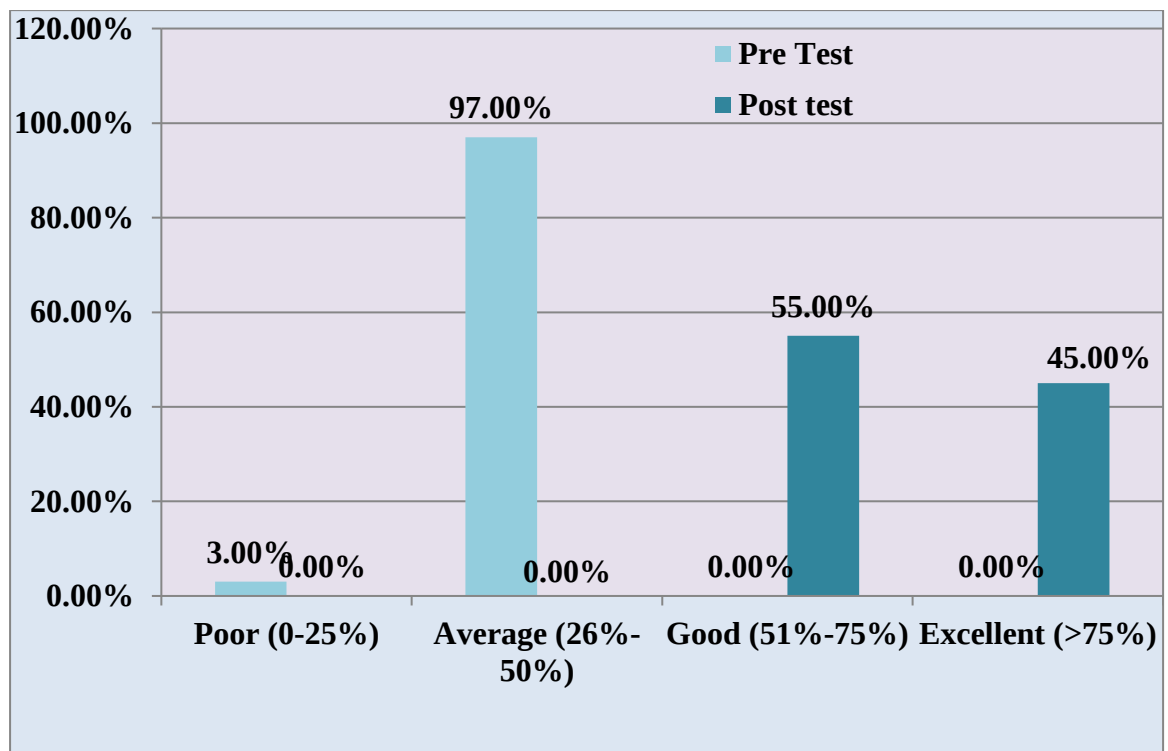


Figure 1. Comparison in overall level of knowledge in pre test & post test (N=100)

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Table: 2 Comparison of mean pre-test and post-test knowledge scores (N=100)

Test	Mean (Mean %)	SD	Absolute Enhancement	df	t-value	Inference
Pre-Test	7.27 (36.35%)	1.07	7.99 (39.95%)	99	49.78	p=0.0001 S**
Post Test	15.26 (76.30%)	1.06				

Table 2, Depicts about average pre-test knowledge score as 7.27 with mean percentage score 36.35%. Average post-test knowledge score as 15.26 with mean percentage score 76.30%. The mean variation is seen as +7.99, showing absolute enhancement of 39.95%. The Paired ‘t’ test calculation 49.78 was significant at p=0.0001. It clearly states considerable differentiation amid the pre-test and post-test knowledge rank amid school going children mothers following planned teaching on the subject of dental caries prevention.

Table 3, States about noteworthy alliance established between the pre-test knowledge level amid mothers with demographic traits like educational status (**p=.0001**), family earning monthly (**p=.0001**), mother’s employment (**p=.0001**), child’s birth order (**p=.0015**). There was no considerable relationship found between the pre-test knowledge level among mothers with demographic traits like age, family type and religion of the family.

Table -3 Associations between pre-test score of knowledge among mothers with demographic variables

S. No	Demographic Variables	Knowledge level			OR (Fisher’s exact test)	P value
		Freq.	Above median	Below median		
1.	Age (in years)				0.88	0.6458
a)	25-30 years	27	04	23		
b)	31-35 years	59	14	45		
c)	>36 years	14	03	11		
2.	Educational Status				10.91	0.0001 S**
a)	Primary	08	00	08		
b)	Higher Secondary	67	07	60		
c)	Graduation & PG	25	14	11		
3.	Type of Family				0.7719	0.600988
a)	Nuclear	71	14	57		
b)	Joint	29	07	22		

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4.	Monthly family income					
a)	Rs. 3000-5000	30	00	30	11.14	0.0001
b)	Rs. 5000-8000	29	04	25		S**
c)	Rs. 8000 -10000	20	08	12		
d)	Above Rs. 10000	21	09	12		
5.	Mother's occupation					
a)	House wife	74	14	60	10.83	0.0001
b)	Govt. Employee	07	05	02		S**
c)	Private Employee	10	02	08		
d)	Others	09	00	09		
6.	Religion of the family					
a)	Hindu	39	08	31	0.78	0.45
b)	Christian	04	02	02		
c)	Muslim	02	00	02		
d)	Others	55	11	44		
7.	Sex of the child					
a)	Male	54	12	42	0.83	0.80
b)	Female	46	09	37		
8.	Birth order of the child					
	1 st	71	09	62	13.50	0.0015
	2 nd	28	11	17		S**
	3 rd	1	01	00		

Discussion

Current study results revealed regarding 54% participants with male child and 46% with female child. Our results were steady with those reported by **Dsouza JGI et al (2024)**⁹. Approximately equal balance in child gender will minimize alternative explanation of knowledge gain.

Our study findings disclose that the most of mothers, 97% scored average knowledge level whereas 3% scored poor knowledge level in pre – test concerning prevention of dental caries. Around 92% mothers were having more than higher secondary education, though their knowledge was not appropriate in preventing dental caries. Our findings were consistent with the results discovered by Venugopal M et al (2024)¹⁰ in which 89.3% mothers were ignorant on initiation of tooth brushing, 78% on shared utensils bacterial transmission, 81.3% on recurrent snacking effect of dental caries. **Singh SK et al (2022)**¹¹ reported that 22% preschool children mothers scored average knowledge level and 74% scored moderate knowledge concerning avoidance of dental caries.

Following implementation of planned teaching in existing study, nearly half of mothers 55% scored good knowledge level and 45% scored excellent knowledge level. The mean variation is seen as +7.99, showing absolute advancement of 39.95%. The Paired 't' test calculation was 49.78 was significant at p=0.0001 indicating significance in knowledge improvement after intervention. Planned teaching addressed specific knowledge gaps and provided structured information in systematic way related to dental caries prevention. Mothers are important care providers to the children so routine dental hygiene practice related information are easily recalled. The knowledge improvement

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is steady with previous education studies¹⁷⁻²⁰. Lucreatia R et al. (2022)¹², Arias-Mendoza MJ et al. (2026)¹³, Saalam C et al. (2025)¹⁴, Rekha MU et al. (2024)¹⁵ and Mahajan A et al. (2025)¹⁶ also disclosed improvements in mothers' or participants' oral-health knowledge following educational interventions. Based on above evidences, the current study findings strongly support about role of structured educational interventions in knowledge improvements. Despite of significant result, several internal validity threats like recall of questions, test sensitivity, hawthorne effect and some external variables may also have contributed to the improvement of knowledge. Present study states about significant connection between the pre-test knowledge level amid mothers with demographic variables namely educational rank, monthly family earnings, maternal occupation and birth order of the child. These associations corresponds mother's baseline knowledge with higher education, economical status, job level and experiences as care giver. **Tamannur T et al (2024)**²¹ similarly discovered associations with age, education, family size and monthly income with awareness level. **Alkalash S et al (2020)**²² reported a statistical noteworthy difference of mother's knowledge level with education, occupation and socioeconomic status. **Meena P et al (2021)**²³ discovered no considerable relationship between knowledge level and selected demographic variables.

Conclusion

Our study discovered mother's inadequate knowledge regarding prevention of dental caries before learning intervention. Educational intervention extensively advanced knowledge levels, signifying its efficiency but possibility of confounding variable is not eliminated due to non availability of control group. Noteworthy relations were seen between pre-test knowledge and demographic traits, throwing light on the magnitude of meticulously planned learning interventions for mothers.

Limitations

The small size causing it complicated to illustrate generalization of our findings. Research tool on knowledge part only, limit the quantity of data that can be collected from the respondents. Time scarcity and fewer resources were also boundaries. Pre experimental research designs also limits generalization of the findings.

Source of Funding: Researcher has self-financed this research study.

Conflict of Interest

No divergence of concern occupied while conducting the current research study.

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