

Knowledge And Practices In Prevention Of Dental Caries Among Mothers Of Primary School Children In A Selected Community Of Sikar, Rajasthan.

¹Dr. Titi Xavier

¹Principal

¹Colleg of Nursing Rajouri

¹BGSB University, Rajouri, Jammu & Kashmir.

Abstract: Dental caries remains one of the most common chronic conditions among children globally. This study investigates the correlation between maternal knowledge and preventive practices regarding dental caries among mothers of primary school children in Sikar, Rajasthan. Conducted in March 2016, the study employed a structured questionnaire, rigorous statistical analysis, and ethical protocols. Findings reveal a moderately positive correlation between knowledge and practices, underscoring the need for targeted oral health education.

Keywords: Dental Caries, Effective Brushing Techniques, Correlational Study, Knowledge, Practice, Mother, Primary school, Children, Rural Community.

I. INTRODUCTION

Dental caries remains one of the most prevalent chronic diseases affecting children worldwide, with significant implications for general health, nutrition, and quality of life. According to the Global Burden of Disease Study 2015, untreated caries in permanent teeth was the single most prevalent condition globally, affecting approximately 2.5 billion people with an age-standardized prevalence of 34.1%.¹ In children, caries in deciduous teeth contributes to pain, infection, missed school days, and impaired growth and development.² In India, the burden is particularly acute. National oral health surveys have consistently reported high prevalence rates of dental caries among children aged 5 to 15 years, ranging from 50% to over 60%, with rural populations disproportionately affected due to limited access to dental care, low oral health literacy, and socioeconomic constraints.^{3,4} Rajasthan, a state with significant rural and semi-urban populations, faces persistent challenges in oral health infrastructure, especially in districts like Sikar where dental services are often underutilized.^{3,5} Among the key determinants of children's oral health are maternal knowledge and practices. Mothers play a central role in shaping dietary habits, hygiene routines, and healthcare-seeking behavior during early childhood.^{6,7} Studies have shown that maternal oral health literacy, attitudes, and socioeconomic status are strongly correlated with children's oral hygiene and caries risk.^{8,9} Inadequate maternal awareness about fluoride use, brushing frequency, and the importance of early dental visits often translates into poor preventive practices.⁶ Despite the availability of preventive strategies such as fluoride toothpaste, school-based education, and atraumatic restorative treatment (ART), their uptake remains low in underserved communities.¹⁰ The Basic Package of Oral Care (BPOC), recommended by WHO Collaborating Centres, emphasizes affordable, community-based interventions tailored to low-resource settings.¹⁰ However, implementation in rural India has been sporadic, and maternal engagement in such programs is limited. This study was conducted in March 2016 in selected communities of Sikar, Rajasthan, to assess the correlation between maternal knowledge and practices in preventing dental caries among primary school children. By identifying gaps and associations, the findings aim to inform targeted oral health education and community-level interventions that empower mothers as key agents of change.

II. OBJECTIVES

1. To assess the level of knowledge among mothers regarding prevention of dental caries in primary school children.
2. To evaluate maternal practices related to dental caries prevention.
3. To determine the correlation between maternal knowledge and preventive practices

III. HYPOTHESES

- H₁: There is a significant positive correlation between mothers' knowledge and their practices in preventing dental caries among primary school children.
- H₀: There is no significant correlation between mothers' knowledge and their practices.

IV. RESEARCH METHODOLOGY

Research Design

Correlational descriptive research design was adopted to explore the relationship between knowledge and practices.

Setting and Population

The study was conducted in Sikar, Rajasthan, focusing on a purposive sample of 120 mothers of children enrolled in three primary schools across rural and semi-urban areas.

Sampling Technique

Purposive sampling ensured inclusion of mothers with children aged 6–12 years and without diagnosed chronic oral conditions.

Instruments

A validated, pre-tested structured questionnaire comprising 30 items (15 knowledge-based and 15 practice-based) was used. Reliability was confirmed with a Cronbach's alpha of 0.82.

Ethical Considerations

All formal permissions were obtained from authorities concerned. Informed consent was secured from all participants, ensuring voluntary participation and confidentiality throughout the conduct of the study.

Data Collection Process

The total duration of the study was one month from march 01 to 31st 2016. The investigator conducted face-to-face interviews in school premises and nearby community centers. Questionnaires were administered in Hindi and English, depending on the literacy level of the respondent.

V. STATISTICAL ANALYSIS

Data were analysed using SPSS v20.0. Descriptive statistics included mean, standard deviation, and frequency distribution. Pearson's correlation coefficient was applied to test the association between knowledge and practices.

Descriptive Statistics

Section I: Description of Sample Characteristics

Table 01. Frequency and % distribution of Demographic Characteristics of Respondents (N = 120)

Sl. No.	Demographic Variable	Category	Frequency	(%)
01	Age of Mother	20–30 years	58	(48.3%)
		31–40 years	44	(36.7%)
		>40 years	18	(15.0%)
02	Education Level	No formal education	32	(26.7%)
		Up to 10th grade	50	(41.7%)
		Graduate or above	38	(31.6%)
03	Occupation	Homemaker	94	(78.3%)
		Employed (formal/informal)	26	(21.7%)
04	Monthly Household Income	≤ ₹10,000	46	(38.3%)
		₹10,001–20,000	52	(43.3%)
		>₹20,000	22	(18.4%)
05	Number of Children	One	24	(20.0%)
		Two	68	(56.7%)
		Three or more	28	(23.3%)
06	Type of Family	Nuclear	66	(55.0%)
		Joint	54	(45.0%)

07	Housing Conditions	Pucca (permanent structure)	72	(60.0%)
		Semi-pucca	32	(26.7%)
		Kuccha (temporary structure)	16	(13.3%)
08	Source of Health Information	Television/Newspaper	30	(25.0%)
		Community health worker	44	(36.7%)
		Healthcare facility (clinic/hospital)	20	(16.7%)
		Family/friends	26	(21.6%)
09	Dental Visit in Last Year	Yes	28	(23.3%)
		No	92	(76.7%)
10	Knowledge of Fluoride in Toothpaste	Yes	36	(30.0%)
		No/Not sure	84	(70.0%)

The demographic analysis revealed that most participating mothers were young (20–30 years), with moderate educational attainment, primarily homemakers from nuclear families. Household income was modest, and many lived in semi-permanent or pucca homes. Despite having two or more children, only a small fraction had visited a dental clinic in the past year. Community health workers were the most common source of oral health information, yet awareness of fluoride and its preventive role against dental caries was low.

Section II: Knowledge and practice Scores

Table 02. Mean Knowledge and Practice Scores with Standard Deviation of Study Participants regarding prevention of Dental Caries (N=120)

Parameter	Mean Score	SD	Range
Knowledge	10.8	±3.1	2–15
Practices	9.6	±2.8	3–15

Table 2 reveals that mothers scored moderately on both knowledge and practice measures related to dental caries prevention. The **mean knowledge score of 10.8** (SD ±3.1) suggests a fair level of understanding, while the **mean practice score of 9.6** (SD ±2.8) indicates that many mothers were not consistently applying preventive behaviours. The gap between knowledge and practice points to a need for more active translation of awareness into routine oral care actions.

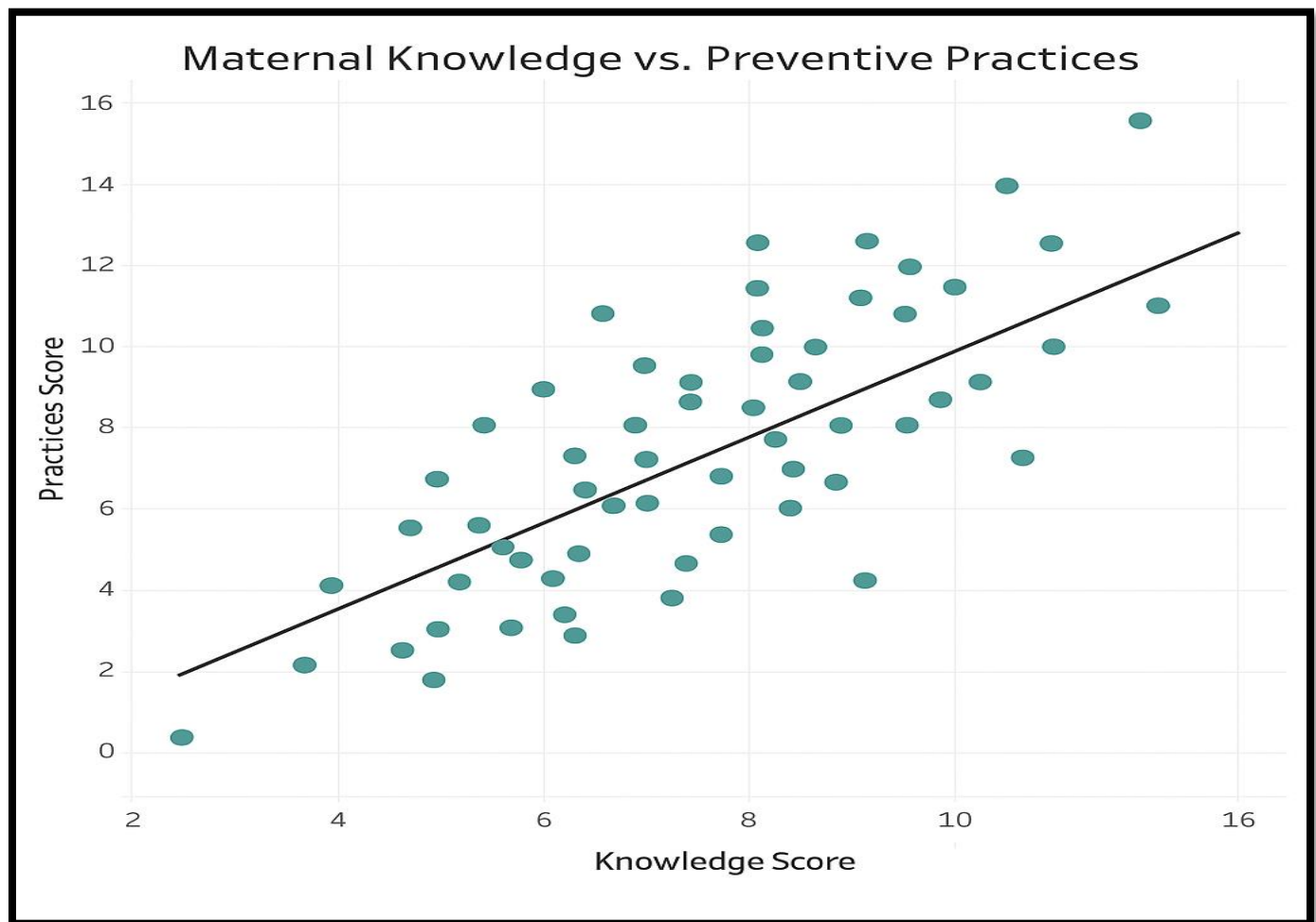
Section III: Correlation between Knowledge and Practice Scores

Table 03. Pearson's Correlation Between Knowledge and Practices regarding prevention of dental caries

Variable 1	Variable 2	Pearson's r	p-value
Knowledge	Practices	0.56***	<0.001

*** Significant at P<0.001 level.

Table 3 shows a statistically significant moderate positive correlation between maternal knowledge and preventive practices (Pearson's $r = 0.56$, $p < 0.001$). This indicates that as mothers' knowledge about dental caries increases, their likelihood of adopting better preventive behaviours also rises. The strength and significance of this relationship highlight knowledge as a critical predictor of health-promoting practices in this population.

Fig 01: Scatter Plot: Maternal Knowledge vs Preventive Practices

The scatter plot illustrates a moderate positive relationship between maternal knowledge scores and preventive practice scores regarding dental caries. The data points are generally clustered along an upward trajectory—from lower left to upper right—signifying that mothers with higher knowledge tend to apply more consistent and effective oral hygiene practices for their children. While the spread indicates some variability, the pattern supports the statistical finding of a Pearson's correlation coefficient $r = 0.56$ ($p < 0.001$), confirming that enhanced awareness is associated with healthier behavioural outcomes. In practical terms, this implies that educational interventions targeting maternal knowledge could have a meaningful impact on improving dental health practices and ultimately reducing caries prevalence in the community.

VI. RESULTS

Most mothers demonstrated moderate knowledge regarding dental hygiene, with awareness of brushing techniques, sugar intake, and dental visits. Practice scores were lower overall, revealing gaps in brushing frequency, use of fluoride toothpaste, and regular dental consultations. A statistically significant moderate positive correlation ($r = 0.56$, $p < 0.001$) was found between knowledge and practice scores.

VII. DISCUSSION

These results align with findings from prior studies conducted in similar rural contexts⁴⁻⁶, highlighting the persistent gap between awareness and execution. While mothers may possess basic oral health information, translating that into consistent preventive behavior requires reinforcement and community education.⁷ Socioeconomic factors, cultural beliefs, and accessibility to dental care appear to influence practices.⁸ Interestingly, mothers with higher education levels demonstrated both superior knowledge and better practices, emphasizing the role of education in public health strategies.⁹ The findings advocate for targeted oral health interventions and integration of maternal education programs in school-based health curricula.¹⁰

VIII. CONCLUSION

Maternal knowledge significantly influences practices related to dental caries prevention in primary school children. Enhancing community-level education, especially among less literate mothers, can foster better preventive behaviours and reduce dental caries prevalence. Future programs should include school-dental partnerships and culturally tailored awareness campaigns.

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