

Teething Beliefs and Practices among a Sub-Urban Population in India-A Cross Sectional Study

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ABSTRACT

Background: Beliefs related to teething and practices regarding its management have varied cross culturally in various parts of the world. A paucity of specific studies related to teething in contemporary literature in India lead to this cross sectional study, to investigate the knowledge and practices about teething among the population in the central Indian region.

Materials and Method: Cross sectional survey of 150 mothers with the youngest child of less than 24 months of age was performed. A structured questionnaire which consisted of 21 questions was utilized. The numerically coded data was entered using SPSS version 16 and chi square test applied to analyze variables.

Results: The results showed that only 26.3% of interviewed mothers had good knowledge levels of teething problems. Majority of the mothers had good knowledge regarding irritability, biting fingers/objects and drooling. The remaining depicted inaccurate attribution to symptoms like fever (75%), diaper rash (77%) and diarrhoea (42%). 79% hesitated to consult dentists or health professionals.

Conclusions: Poor knowledge levels among mothers shown in this study confirmed our belief that extensive parental education is necessary with regard to teething problems. The erroneous beliefs and practices demonstrated a need for further investigation.

Keywords: Teething, Myths, Remedies, Beliefs, Oral health education.

INTRODUCTION:

The joy and wonder of a new born is a marvellous experience for new parents. Watching all the first-time-events in the child's development provides new perspectives into life. Hence the arrival of the first teeth is another miracle, even though described to be accompanied by a myriad of problems.



The comprehension of parents and doctors regarding these problems and their management seems to vary

from region to region.

For more than 5000 years various factors associated with teething have been documented. Teething, in the times of Hippocrates and Aristotle, was associated with many problems. They described symptoms ranging from fever, diarrhoea, vomiting to convulsions¹. The range of signs and symptoms are as diverse as photophobia, neuralgia, toxemia, meningitis, paralysis, tetanus etc. The historical management of teething can only be termed as barbaric to say the least. Some of the remedies used were blistering, bleeding, placing

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leeches, cautery application to the back of the head² often resulted in extreme signs and symptoms leading to morbidity³.

Lancing introduced by Ambroise Pare, in 16th century, rapidly caught on. Though the procedure was done without anaesthesia it remained unquestioned until the 19th century¹. The diagnosis and treatment of teething began to alter only after the practice of laboratory investigations started to establish the actual underlying illness like meningitis, tonsillitis, infantile paralysis.

A variety of practices exist in different parts of the world, based on their culture, religious concepts and myths that prevail in particular regions. In some rural areas of Eastern Africa, the gum swelling that precedes tooth eruption is believed to be the cause of diarrhoea, vomiting and fever. Treatment of these symptoms often involved removal of teeth (*ebinyo*), hot nails pressed into the gums and lancing of the gum tissue. These remedies are believed to relieve the pathologic tension on the gums, thereby alleviating diarrhoea and vomiting³. Baba and Kay in 1989 reported that in southern Sudan, Primary canine was thought to be the cause of diarrhoea, vomiting and fever and removal of tooth was the solution⁴. Some recent remedies practiced, encompass cooling and pressure methods. Cooling with the aid of ice cubes, frozen vegetables like carrots, cucumbers, peas may facilitate constriction of blood vessels thus alleviating symptoms^{5,6} and application of finger massage, chewing of toasts, rusks, apples etc, reduces discomfort by overwhelming sensory receptors⁷. A search of the literature revealed a paucity of studies conducted in the central region of India. With an aim to contribute to the literature, we ventured to study and understand the prevailing practices, beliefs and myths associated with teething in a semi-urban population of Bhopal, the capital city of Madhya Pradesh, located in the central region of India. Presence of various business enterprises and educational opportunities ensued people from different parts of the country to reside here, providing a mixture of various cultures and practices.

MATERIALS AND METHODS

A cross sectional study was conducted among 150 mothers each with a child less than 24

months of age, attending Government hospitals, Nursing homes and other maternity and child health centres. A structured questionnaire designed to record all the relevant information related to teething was used as a tool for data collection. Accurate translation of the questionnaire was done in the local language (Hindi); distributor interpreted the questionnaire to mothers who were illiterate. Written consent was obtained from all participants. A code system was utilized to keep the questionnaire anonymous. The questionnaire was pilot tested on a small group of parents to check the feasibility and applicability. A pilot study was conducted among 15 parents to evaluate the questionnaire, which was corrected wherever required and finalized. The resulting reliability coefficient was $r=0.66$ at $p<0.01$, Cronbach's $\alpha = 0.79$ and the Wilcoxon's signed rank test had a significance of 0.69. A letter from the research group requesting participation of parents and consent forms were included in the questionnaire. A team of researchers received standardized training for the administration of the questionnaire. The study was approved by the Institutional/ethical review board.

A serial random sampling methodology was adopted. A self-administered, pre-tested questionnaire with 21 questions composed of three sections was used.

First section: Demographic data of the parents consisting of: the age of the mother, education level, employment status, number of children and other demographic variables.

Second section: Consisted of 13 questions related to the knowledge and awareness of signs and symptoms of teething. These were questions with three options: 'Agree', 'Disagree' and 'Do not know'.

Third section: Consisted of 4 questions related to the methods used by the parents to alleviate the problems associated with teething. The questionnaire was distributed and collected on location by the investigator.

The data was numerically coded and entered into Statistical Package for Social Sciences (SPSS version 16) database and analyzed. The chi-square test was applied to analyze the different variables investigated in the study at confidence level of 95%.

Table 1: Demographic Data

Demographic variables (n=122)		%
Age:	<25yrs	36.8
	25-30yrs	50.00
	30-35yrs	06.5
	>40yrs	06.5
Education level	University	22.95
	High school	31.14
	Higher Primary	26.22
	Lower primary and below	19.67
Employment	Health sector	11.4
	Educational sector	15.5
	Others(traders-vendors, laborers, etc.)	45
	Unemployed	27.8
No. of children	First child	48.3
	2 children	35.2
	3 and more than children	16.3

Table 2: Parental beliefs regarding teething signs and symptoms

Signs & symptoms believed to be caused by teething by mothers	Agree	Disagree	Don't Know
	n (%)	n (%)	n (%)
Bleeding gums	18 (14.75)	102 (83.61)*	2(1.64)
Diaper rash	52 (42.62)	68 (55.74)*	2(1.64)
Fever	92 (75.41)	30 (24.59)*	0 (0.00)
Irritability	114(93.44)*	8 (6.56)	0 (0.00)
Loss of appetite	94(77.05)*	28 (22.95)	0 (0.00)
Drooling	94 (77.05)*	28 (22.95)	0 (0.00)
Bite fingers/ objects	120 (98.36)*	2 (1.64)	0 (0.00)
Cold/ runny nose	58 (47.54)	60 (49.18)*	4 (3.28)
Convulsions / fits	16 (13.11)	106 (86.89)*	0 (0.00)

Diarrhea	94 (77.05)	24 (19.67)*	4 (3.28)
Conjunctivitis	26 (21.31)	12 (9.84)*	84 (68.85)
Dehydration	0 (0.00)	2 (8.33)*	22 (91.67)
Weight loss	18 (14.75)	6 (4.92)*	98 (80.33)

n=No. of sample, *correct response according to the literature

Table 3: Association between knowledge levels with education

Education	Low knowledge	Good knowledge
	n (%)	n (%)
University	14 (50)	14 (50)
High school	28 (74)	10 (26)
Primary	26 (81)	6 (19)
Illiterate	22 (92)	2 (8)

Chi-square = 13.074; df=3, p = 0.0042*. n=No. of sample.

Table4: Questions related to practices of the respondents to alleviate teething problems

Questions	Responses	
	Yes	No
	n (%)	n (%)
Do you feel it is necessary to visit dentist for treatment of teething problems?	26 (21)	96 (79)
Do you use home remedies for relief of teething symptoms?	92 (75)	30 (25)
Do you use oral paracetamol syrup/drops for pain relief?	32 (26)	90 (74)
Do you use topical gels for pain relief?	34 (28)	88 (72)

n=No. of sample.

RESULTS

150 structured questionnaires were distributed to the participants of which 28 were excluded due to improper multiple answers. Hence a total of 122 questionnaires were entered into SPSS program. A total response rate of 81% was obtained.

Table 1 demonstrates the characteristics of the respondents. The analysis of demographic data showed that, of the respondents who were all women, majority were in the 25-30 years age group (50%), 48.3% had single offspring and 35% had two

children. The demographics also showed that 11.4% were employed in the health sector while 15% were in the education based sectors; around 31.14% mothers had high school level education while 23% were university educated.

Table 2 summarizes the parental knowledge regarding teething. No one out of a total of 122 respondents answered all the questions accurately. A total of 26.3% had good knowledge while 73.7% had poor knowledge (Those who answered 8 or more questions correctly were considered to have good knowledge.). Majority had

good knowledge related to irritability, loss of appetite, biting objects/fingers, salivation /drooling and absence of bleeding. Inaccurate attribution with reference to diaper rash 77%, to diarrhoea 42% and cold/runny nose 48% was noted.

The knowledge regarding teething, signs and symptoms showed strong association ($p < 0.05$) with the level of education. 'Good' knowledge levels among University educated mothers was around 50%, high school educated 26.2%, primary school 18.75% and in those who were Illiterates it was 8.6% on this score (Table 3).

The 'good knowledge' level related to signs and symptoms associated with the age group of mothers, number of children and also with respect to the employment sector displayed differences with regard to percentages. However, these values were not statistically significant.

Amongst the mothers in the above 40 years age group only 12% showed good knowledge levels, in 30-35 years of age group 25%, in the 25 to 30 years age group the statistics were 32.79% and in less than 25years age group it was 20%. While comparing the association of knowledge with regard to number of children, good knowledge levels among mothers with one child was 32.2%, mothers with 2 children was 23.26% and those with 3 or more children it was 15%.

Whilst the level of knowledge in relation to employment status was compared, mothers in the 'Health' and 'Other' (traders, vendors etc.,) sectors demonstrated better knowledge levels with 35.71% and 32.73% respectively. Those in the Education sector were at a lower level of 10.5% and Unemployed were 20%.

Responses of the participants to the questions related to the practices to alleviate teething troubles have been presented in Table 4. Around 75.4% of the mothers used alternative medications: 10% used Ginger root, 15% used clove oil, 5% used vanilla extract, 6% used spring onion, 12% used alcohol as topical applications and a further 20% of the mothers resorted to use of combined alternative therapies.

DISCUSSION

Creating awareness regarding the actual symptoms of teething, amid parents and healthcare

professionals is exceedingly important. This helps them desist from practices or remedies which would harm children. In order to bring about such consciousness it is essential to first study the knowledge and perceptions that parents have regarding teething.

With this perspective, the present study showed that only 26.3% of population had good knowledge. The plausible explanation for the lower knowledge score observed may be due to the fact that, most of the respondents had only high school level education or less with only 23% being University educated. Thus emphasizing the role played by education on enhancement of awareness and knowledge^{5,8}. Mothers who had three or more children showed lower levels of good knowledge compared to those with a single child or two children unlike other studies⁵. Possibly due to mothers in the latter group being younger and better educated.

The present study reported a broad range of signs and symptoms believed by parents to be associated with teething. In concordance to other studies mothers here agreed that biting of objects/finger and drooling were associated symptoms^{1,9,10,11,12,13}. Myths or false beliefs prevailed regarding diarrhoea, cold/runny nose and diaper rash (77%; 48%; 42%) and to a lower extent regarding conjunctivitis and convulsions (21% and 13%) respectively. Fever was wrongly attributed to teething by 75% of the respondents. Similar results were found in studies conducted by Wake et al in 1999¹² and Owais⁵. Although mild elevation of temperature is associated with teething,⁹ high temperature (higher than 39°C) should not be attributed only to teething but should be investigated^{1,12,14,15,16,17}.

Studies among African populations documented that diarrhoea and fever are regarded as normal phenomena that accompany teething and thus would not be viewed as serious enough to warrant medical attention¹⁸ and "teething diarrhoea" was generally not considered serious.¹⁹ Attributing symptoms and signs to teething, without first excluding other causes, may result in misdiagnosis and delayed management of more serious systemic conditions which cause fever and other signs¹⁴.

Mothers employed in the health sector were found to be more knowledgeable (50% good knowledge). However, only 10% in the education sector were found to have good knowledge levels. Improving awareness among mothers in the education sector may go a long way in creating awareness among other parents who interact with them.

With regard to visiting dentist or health care professional for teething problems, 79% of mothers believed consultation to be unnecessary. The lower awareness could be ascribed to the fact that majority of the mothers were high-school dropouts hence preferred the use of alternative medications like ginger root, clove oil, vanilla extract, spring onion, alcohol as well as combinations of these therapies as topical applications. Similar studies among Africans in Detroit have shown older and teen-aged mothers preferred the use of alternative remedies like whisky, eggs and spices like asafoetida, vanilla and clove.²⁰ None of these methods have proven efficacy in managing teething symptoms¹. In fact complications might arise when these are used in conjunction with conventional analgesics^{21,22}.

Particularly high percentage of parents (74%) had not resorted to use of systemic medications like paracetamol syrup/drops and 72% had not used topical anaesthetic gels. This outcome may have resulted due to a predominant inclination for the use of an alternative medication.

This was a preliminary study conducted on a small sample of population in a single city, to decipher the prevailing teething beliefs and practices. A national level survey with the inclusion of multiple population groups would have been ideal for acquisition of comprehensive data.

CONCLUSION

The present study was conducted with a relatively concise sample intending to acquire an initial understanding regarding the prevailing teething beliefs and myths. The findings have established a poor knowledge level among the majority of participants, including those in the education sector. A misconception among parents concerning the effectiveness of alternative therapies, demonstrated lower use of paracetamol and analgesic gels. The lower educational levels in

addition to the erroneous beliefs regarding efficacy of alternative medications has demonstrated reluctance to consult the health professionals. This emphasizes the need for health professionals to equip them with rational scientific advice.

Further research at national level is required to discern the beliefs and practices of the population to aid in empowering parents with a clear understanding of teething and its management.

Why this paper is important to paediatric dentists

- Parental preference in seeking alternative therapy while dealing with teething symptoms is a dangerous practice that may delay diagnosis of serious underlying illness. Hence informative counselling by a qualified Paediatric dentist would aid parents deal with teething problems appropriately.
- Paediatric dentists could play a vital role in providing scientific information regarding teething and associated practices, amid employees of the education sector. Thus empowered, they might aid parents desist from common practices or remedies which would harm children.
- Among health issues, awareness regarding dental health appears to receive low priority, resulting in poor knowledge levels. Paediatric dentists for whom education and prevention is a forte, can emphasize and call for education and awareness programmes at rudimentary and national levels.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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