

Teething Beliefs, Misconceptions, and Practices Among Mothers Attending a Tertiary Hospital in Nigeria: Implications for Child Health and Clinical Practice

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ABSTRACT

Introduction: Teething is a physiological process that begins during infancy. However, some mothers often attribute certain symptoms to teething. In this study, we assessed the opinions and practices of mothers attending a tertiary health facility in Nigeria on teething.

Methods: This was a cross-sectional, descriptive study conducted among caregivers of children presenting to the out-patient department of a tertiary hospital, Southwestern Nigeria.

Results: Five hundred and sixteen mothers were studied. The leading symptoms attributed to teething were fever 420 (81.4%), reduced food intake / appetite 320 (62.0%), diarrhoea 314 (60.9%) and vomiting 294 (57.0%). Some believed that teething is associated with convulsion 102 (19.8%), mouth ulcers 69 (13.4%), ear discharge 68 (13.2%), and no symptoms 41 (7.9%). Majority of the mothers 374 (72.5%) believed that teething requires treatment. Two hundred and four (39.5%) mothers had given their children oral analgesics for teething while 194 (37.6%) administered teething mixtures. These medications were more likely to be prescribed at the hospital or purchased over the counter ($p < 0.05$). Other treatments given included herbal concoction 46 (8.9%), local tooth extraction 22 (4.3%), enema 17 (3.3%), body scarifications 14 (2.7%), gum fomentation 14 (2.7%) and gum incision 12 (2.3%). Responders who attributed convulsion to teething were more likely to have incised their children's gums ($p < 0.05$).

Conclusions: This study revealed that sundry symptoms were attributed to teething and harmful home interventions were done for teething. There is a need to educate the society on teething and discourage harmful practices for teething by caregivers.

Keywords: Beliefs; Harmful practices; Misconceptions; Mothers; Teething; Nigeria



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INTRODUCTION

The onset of teething is a highly anticipated period in the development of an infant. The eruption of the primary teeth generally begins in second half of infancy and continues through the second and third years of life.¹ The milk teeth are later shed and replaced with the permanent teeth during school age and adolescence. Tooth eruption is a physiological process and usually occurs over an eight-day period that is roughly divided into days before tooth eruption (first four days), day of eruption, and days after tooth eruption (last three days).² Teething represents a traditional landmark in child's development and in some cultures, the precocious eruption of primary dentition is thought to connote great intelligence.¹ Its onset coincides with a period in the life of the infant when humoral protection offered by maternal antibodies begins to disappear and the infant begins to produce his/her own antibodies.³ The increased mobility, commencement of weaning diet and maternal resumption of work also heightens the exposure of the infant to various etiologic agents of childhood illnesses at this age.³ Frequently reported teething symptoms include irritability, fever, diarrhoea, drooling, gum irritation, loss of appetite / reduced food intake, ear rubbing and rash.⁴⁻⁹ The frequency and severity of these symptoms vary between children. The association between these symptoms and teething is debatable and opinions from various studies differ on whether teething in itself causes clinical symptoms or the symptoms are purely coincidental.¹⁰⁻¹³

Wide variations exist between cultures and localities on parental beliefs and practices about teething. Among Ugandans, it is believed that the primary canines could cause illness and should be extracted.¹⁴ In Ethiopia, gum drilling and tooth extractions are common traditional practices to relieve teething symptoms.¹ None of these practices has been reported in studies done among Nigerians.¹⁵⁻¹⁷

Symptoms of teething⁷ constitute a significant presentation at health care facilities.^{1-7,15-17} Presently, only scanty reports exist on teething beliefs and practices in our region. This study therefore, assessed the beliefs and practices about

teething among mothers at a tertiary hospital in Nigeria.

METHODS

The study was a cross-sectional, questionnaire-based study conducted over three months period (March to May, 2018) at the Paediatric OPD of a tertiary hospital located in a Southwestern state of Nigeria. The hospital serves the medical needs of the citizens and people of adjoining states by providing different levels of care. The study participants were mothers who brought their children to the OPD during the study period. Their children were examined to ascertain whether or not, they have erupted teeth. All mothers whose children had at least one erupted tooth were included in the study while mothers who declined to participate were excluded. Estimated sample size for the study was calculated using the Fisher's formula for proportions in cross-sectional studies.^{18,19} Sample size calculated was 383. A questionnaire was developed for the study based on similar studies on teething among children in Africa.^{1,14-17,19} The questionnaire consisted of sections on bio-demographic data, knowledge about teething and their perceived or observed teething problems, and treatments given. Also, information about previous and current experiences with their wards on teething including interventions, drugs and other measures adopted by the mothers was also obtained. The instrument was pre-tested among 10 mothers at another public hospital located within the state. Thereafter, adjustments were made to the questionnaire based on findings from the preliminary study. The questionnaires were then translated into Yoruba language (the local language) and administered to the mothers with guidance by resident doctors who were trained for the same. After obtaining the ethical approval from the Ethics and Research Committee, the study was initiated. After taking informed written consent, mothers were included in the study voluntarily. Data from the study was analysed with Statistical Package for the Social Sciences (SPSS) version 20.0 (IBM Corporation, 2011). Results were expressed as means, frequencies and percentages as appropriate. Fisher's Exact test or Chi-square test was used to

Table 1. Characteristics of Mothers and their Children

Characteristics	Frequency N = 516	Percent (%)
Age		
Teenage (19 year)	1	0.2
20 – 29 years	128	24.8
30 – 39 years	316	61.2
40 – 49 years	59	11.4
> 50 years	12	2.3
Marital Status		
Single	8	1.6
Married	499	96.7
Divorced	2	0.4
Widowed	7	1.4
Higher Education		
Primary	16	3.1
Secondary	111	21.5
Tertiary	389	75.4
Occupation		
Housewives	17	3.3
Civil servants	194	37.6
Skilled workers	87	16.9
Unskilled workers	181	35.1
Students	37	7.2
Number of children per respondent		
1	164	31.8
2 – 5	347	67.2
> 5	5	1.0
Ethnicity		
Yoruba	454	88.0
Igbo	61	11.8
Hausa	1	0.2
Religion		
Christianity	472	91.5
Islam	44	8.5

determine the level of significance of groups of categorical variables as appropriate and P value < 0.05 was considered significant.

RESULTS

A total of 516 mothers participated in the study. The age ranged between 19 and 63 years with a mean (SD) of 32.9 (6.2) years. Majority 499 (96.7%) of the respondents were married and most had 389 (75.4%) tertiary level (OND, NCE, HND, Bachelors and Postgraduate) formal education. Majority 347 (67.2%) had between two and five children. The median number of children per respondent was 2 (IQR: 1–3) and the mothers were

Table 2. Symptoms attributed to teething by respondents

Symptoms attributed to teething	Number	Percent (%)
Fever	420	81.4
Reduced food intake/Loss of appetite	320	62.0
Diarrhea	314	60.9
Vomiting	294	57.0
Nasal discharge	231	44.8
Sleeplessness	218	42.2
Irritability	188	36.4
Gum rubbing	183	35.5
Gum pain	181	35.1
Drooling	179	34.7
Boils	149	28.9
Finger sucking	144	27.9
Eye discharge	123	23.8
Rash	112	21.7
Convulsion	102	19.8
Constipation	71	13.8
Mouth ulceration	69	13.4
Ear discharge	68	13.2
Eye redness	66	12.8
Cough	44	8.5
Gum bleeding	43	8.3
No symptom	41	7.9
Headache	3	0.6

mostly Christians 472 (91.5%) and Yorubas 454 (88%) (Table 1).

As shown in Table 2, the leading symptoms attributed to teething were fever 420 (81.4%), reduced food intake / reduced appetite 320 (62.0%), diarrhoea 314 (60.9%) and vomiting 294 (57.0%). However, 41 (7.9%) mothers believed teething was not associated with any symptoms.

The most common therapies for teething among the mothers were use of oral analgesics 204 (39.5%), antimalarial 202 (39.1%), teething mixtures 194 (37.6%), cough syrups 131 (25.4%) and antibiotics 128 (24.8%) (Table 3).

Table 3. Treatments advocated for teething by respondents

Treatment advocated for teething	Number	Percent (%)
Oral analgesics	204	39.5
Antimalarial	202	39.1
Teething mixtures	194	37.6
Cough syrups	131	25.4
Oral antibiotics	128	24.8
Tepid sponging	82	15.9
Anti-diarrheal drugs	76	14.7
Injectable analgesics	62	12.0
No treatment	61	11.8
Pacifiers	54	10.5
Herbal preparation	46	8.9
Anti-emetics	40	7.8
Injectable antibiotics	37	7.2
Application of soothing paste	26	5.0
Anti-convulsants	23	4.5
Tooth extraction	22	4.3
Enema	17	3.3
Others*	17	3.3
Faith-based therapies	16	3.1
Application of ice pack	15	2.9
Scarification	14	2.7
Gum fomentation	14	2.7
Gum incision	12	2.3
Anthelmintics	9	1.7

*This includes use of black soap, teeth soap, vitamin C and teeth washing

Eight (7.8%) out of the 102 participants who believed that convulsion is a symptom of teething also had their children's gum incised to treat teething symptoms while only four (0.9%) out of 414 mothers who did not associate teething with convulsion had their children's gum incised for teething problems. Compared to those who did not associate convulsion to teething, mothers who attributed convulsion to teething were more likely to incise their children's gums: 8/102 (7.8%) vs 4/414 (0.9%); ($p = 0.034$).

A significantly higher percentage of those with tertiary level of education (76.9%) than those

Table 4. Relationship between level of education, age and belief that teething is a disease and requires treatment

Level of education	Is teething a disease			χ^2	p-value
	Yes N = 155 N (%)	No N = 361 N (%)	Total N = 516 N (%)		
No tertiary education	45 (35.4)	82 (64.6)	127 (100.0)	0.333	0.127†
Educated to tertiary level	110 (28.3)	279 (71.7)	389 (100.0)		
Age of respondent					
Less than 50 years	147 (29.2)	357 (70.8)	504 (100.0)	15.223	< 0.001*
50 years and above	8 (66.7)	4 (33.3)	12 (100.0)		
Level of education	Does teething require treatment			χ^2	p-value
	Yes N = 374 N (%)	No N = 142 N (%)	Total N = 516 N (%)		
No tertiary education	75 (59.1)	52 (40.9)	127 (100.0)	15.223	< 0.001†
Educated to tertiary level	299 (76.9)	90 (23.1)	389 (100.0)		

Test Statistics † = Chi-square Test, * = Fishers exact test

without tertiary education (59.1%) believed that symptoms of teething requires treatment ($\chi^2 = 15.223$, $p = < 0.001$). No significant relationship existed between the level of formal education and the belief that teething is a disease (Table 4). However, more mothers who were aged 50 years and above attributed symptoms to teething (Figure 1). One hundred and fifty-five participants believed that teething is a disease out of which 147 (94.8%) were aged less than 50 years. Two-third (8/12, 66.7%) of those aged 50 years and above also shared similar beliefs. Attaining the age of 50 years and above was significantly associated with the belief that teething is a disease 147 / 504 (29.2%) vs 8 / 12 (66.7%); $p = 0.009$. (Table 4)

As shown in Table 5, a significantly higher proportion of mothers who gave oral analgesics were those who treated their wards at patent and

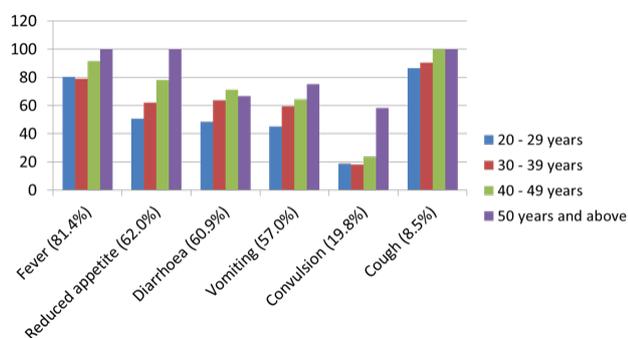


Figure 1. Perceived symptoms by Age group of respondents

proprietary medicine vendors (PPMV) shop 40.6%, home 60.0% and traditional centres 83.3% ($p = 0.01$). Similarly, those who gave oral antibiotics significantly received treatment at the hospital 30.5%, home (20%) and PPMV (17.2%) ($p = 0.008$) while anti-diarrhoeal agents were mostly used by those who treated their wards at traditional centres (33.3%) ($p = 0.017$).

DISCUSSION

Several folklores and beliefs had been associated with teething over the centuries to the extent that the condition was branded a Latin name *Dentitio Difficilis* meaning difficult teething but not everyone agrees with this assertion. In the developed world, frantic efforts by stakeholders

had significantly disabused these false beliefs.^{16,20,21} However, not much can be said about the situation in most developing countries hence, the need for more research on the subject.

As found in this study, fever, diarrhoea, and reduced food intake were leading teething symptoms. These are symptoms of common illnesses in infancy which have also been widely attributed to teething in many studies.^{15-17,22,24} Diarrhoea and fever were the leading symptoms among respondents in various studies in different developing countries.^{1,12,16,25} These misconceptions have grave consequences for the health of children. For example, mothers could erroneously believe that these symptoms are innocuous and therefore, fail to seek or delay medical interventions for their wards. It is possible that perhaps, some of the children whose mothers attributed convulsion to teething in this study might have convulsed as a result of delayed intervention.

It still remains to be proven if there is any significant pathophysiologic association between teething and clinical symptoms of illnesses in childhood. Nonetheless, a case report by Dika et al.¹⁰ and a few other studies²⁰⁻²² suggest that teething could be associated with mild symptoms. In furtherance of these observations, some authors^{10,20-21,26-27} have proven that though a normal

Table 5. Relationship between place of treatment and drug use

Drugs	Hospital N = 302 (%)	PPMV Shop N = 180 (%)	Home N = 25 (%)	Traditional centre N = 6 (%)	Mission home N = 3 (%)	P-Value
Oral analgesics						
Yes	111 (36.8)	73 (40.6)	15 (60.0)	5 (83.3)	0 (0.0)	0.011†
No	191 (63.2)	107 (59.4)	10 (40.0)	1 (16.7)	3 (100.0)	
Oral antibiotics						
Yes	92 (30.5)	31 (17.2)	5 (20.0)	0 (0.0)	0 (0.0)	0.008†
No	210 (69.5)	149 (82.8)	20 (80.0)	6 (100.0)	3 (100.0)	
Cough mixtures						
Yes	83 (27.5)	40 (22.2)	4 (16.0)	4 (66.7)	0 (0.0)	0.055†
No	219 (72.5)	140 (77.8)	21 (84.0)	2 (33.3)	3 (100.0)	
Anti-diarrhoeal						
Yes	56 (18.5)	18 (10.0)	0 (0.0)	2 (33.3)	0 (0.0)	0.017†
No	246 (81.5)	162 (90.0)	25 (100.0)	4 (66.7)	3 (100.0)	
Anti-emetics						
Yes	29 (9.6)	10 (5.6)	0 (0.0)	1 (16.7)	0 (0.0)	0.210†
No	273 (90.4)	170 (94.4)	25 (100.0)	5 (83.3)	3 (100.0)	

Test Statistics † = Chi-square Test, PPMV- Patent and Proprietary Medicine Vendors

developmental process, the physiologic processes involved with teething could give some little discomfort to the child which are often escalated by the parents and health care providers in order to justify treatment.²⁰⁻²¹ Besides, some of the behaviour exhibited by some infants between six to 12 months may be ascribable to bad habits, behavioural changes in sleeping, eating patterns and attention seeking.²⁰

About 75% of the respondents believe that symptoms of teething requires treatment. This resulted in unnecessary use of medications, worsening the already increasing problem of antimicrobial resistance. At the same time, the belief could be advantageous because it could encourage mothers to promptly seek treatment in a health facility. However, administration of un-prescribed, over-the-counter medications and harmful home therapies may obviate or nullify this possible advantage. A recent study on adverse drug reactions (ADR) among Nigerian children indicated that 38% of children who died from ADR had acute kidney injury (AKI) and 87.8% of AKI were due to drugs used for teething.²⁸ There was an outbreak of complications to children in Nigeria in 2008 due to AKI from adulteration of a popular teething syrup known as 'My Pickin'.²⁹

A significantly higher proportion of respondents with tertiary education believed that symptoms of teething require treatment. Similar reports were made by Adimorah et al.²⁴ and Adam et al.¹⁵ in Nigeria. The mothers in this present study are mostly educated and of working-class. Therefore, the discomfort experienced by their children might disturb their work thus compelling them to promptly provide relief to their children in order for them to concentrate on their work. No significant difference was however found between the educational status of the mothers and their belief that teething is a disease. A previous study done in Nigeria by Uti et al.³⁰ also reported no significant relationship between mother's level of education and their perception that teething is associated with symptoms.

The common practices for teething treatment reported in this study is in agreement with previous

reports.^{7,15,19,22,24} The prescription of antibiotics at the hospitals by some health workers for supposedly teething symptoms might reflect the use of teething diagnosis by the health workers without thorough clinical check. Unnecessary use of antibiotics for teething may contribute to the scourge of antimicrobial resistance. The relief that comes with most self-limiting symptoms seen in a teething child after tooth eruption may be erroneously attributed to the drugs used and this may further encourage continued usage of the drugs for each tooth eruption without recourse to health care professionals as found in this study (Table 5).

Harmful traditional practices like gum incision, tooth extraction and body scarifications were also stated as treatment options for teething (Table 3). Similar practices have been reported in other studies in Africa.^{1,14} These practices are usually carried out by unqualified individuals and in unclean environments. These put the infants at risk of serious complications. The association of convulsion with an increased likelihood to incise the child's gum could be a reflection of the caregivers' attitude to go to extreme lengths to forestall further episodes. It could also be a reflection of such practices in the study locality. Another observation in this study was the finding that older mothers were more associated with false beliefs on teething and this contrasts with other studies.^{16,23}

Our study, being questionnaire based, is limited by the possibility of recall bias. Also, it was a hospital-based study, hence, its findings cannot be generalised to the community. Despite its limitations, this study was able to identify common practices of mothers regarding teething and the care given to their wards, some of which were not only unhealthy but also unsafe for the children.

CONCLUSIONS

This study highlighted that the beliefs and practices on teething in our environment are not only wrong, but also harmful to child health. This study is thus an eye-opener to the existence of such practices and brings to the fore the need for more intensive sensitisation and education of the populace on issues pertaining to teething among infants.

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