EDORIUM Journals

Edorium J Health Educ 2016;1:1–10.
www.edoriumjournals.com/ej/hed

ORIGINAL ARTICLE PEER REVIEWED | OPEN ACCESS

Impact of health education on maternal perception and practices about teething at a pediatric outpatient clinic in Lagos state

Oyapero A., Oyapero O., Iwuala M.O., Areago I.A.

ABSTRACT

Aims: Tooth eruption is the process by which a tooth moves from its position in the alveolar bone through the oral mucosa into its final position in the mouth. Teething has, however, been implicated for a variety of other isolated systemic manifestations in infants. The aim of this study was to determine the impact of health education on maternal perception and practices about teething at the pediatric outpatient clinic of the Alimosho Igando General Hospital in Lagos state. Methods: An interviewer administered questionnaire was employed before and after an educational intervention to obtain socio-demographic information as well as responses on maternal perception of teething symptoms and possible remedies. Results: The desire to bite (79.8%), gum irritation (91.5%), increased salivation (80.9%) and loss of appetite (80.9%) for solid food were correctly identified by majority of the mothers as being associated with teething. Over 75% of the participants, however, incorrectly attributed fever and diarrhoea to teething while more than 50% believed that teething was related to vomiting, runny nose, respiratory/systemic problems and sleep disturbance/wakefulness. After the educational intervention, the number of subjects with good knowledge scores improved from 4 (4.3%) to 50 (53.2%) while those with good practice scores improved from 16 (17%) to 63 (67%). There was a significant improvement in the percentage of subjects with improved knowledge (p = 0.005) and practice scores (p = 0.018). Conclusion: Parent's awareness on the subject of teething and its management can possibly be increased by health education. There is a clear need to include scientific information on teething in the health educational packages directed at mothers at different levels of healthcare within communities.

Keywords: Attitude, Health Education, Knowledge, Practice, Teething

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Received: 12 February 2016
Accepted: 22 April 2016
Published: 14 May 2016

How to cite this article

Oyapero A, Oyapero O, Iwuala MO, Areago IA. Impact of health education on maternal perception and practices about teething at a pediatric outpatient clinic in Lagos state. Edorium J Health Educ 2016;1:1–10.

Article ID: 100001H02OA2016

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doi:10.5348/H02-2016-1-OA-1

INTRODUCTION

Teething is the process by which a tooth moves from its pre-eruptive position in the alveolar bone through the mucosa into its functional position in the oral cavity. It

also appears to be a social construct coined by society to express the experience the child goes through during the early days of childhood. Eruption involves the movement of the tooth from its formation till it achieves its functional position. The emergence of the primary tooth in oral cavity commences around six months and it is completed by 30 months of age. Antigens from the oral cavity pass through the widened intracellular spaces of the oral epithelium into the deeper tissues as the tip of the cusp emerges, initiating an inflammatory response that results in increased inflammatory cytokine levels within the altered connective tissue. This causes the observed signs and symptoms of inflammation called teething.

Local signs of teething include hyperemia of the mucosa overlying the erupting teeth, increased drooling and patches of erythema on the cheeks [1]. It may also cause infant restlessness, refusal of solid foods, fussiness, rubbing of the gums with fingers and a slight increase in temperature. Tooth eruption has, however, been held responsible for a variety of other unrelated systemic manifestations in infants. The period of teething coincides with the timing of other normal developmental process such as the decline in maternal antibodies prior to the development of the infants own immunity resulting in increased infections. The development of the infant's salivary glands at this same period also contributes to constant drooling. The child likewise begins to crawl at this age and may introduce pathogens into the mouth which may cause gastrointestinal disturbances. Nocturnal awakening can result from the development of object permanence and attachment to parents [2, 3]. Probably because of this temporal association, the causal attribution of signs and symptoms of illness to teething appears to be nearly universal across cultures and continents.

Various studies have found the signs and symptoms attributed to teething to be highly associated with retropharyngeal space infections [4, 5]; primary herpetic gingivostomatitis [6]; otitis media; gastrointestinal infections and febrile conditions. Researchers found no association between daytime agitation, diarrhoea, bronchitis, loss of appetite and teething in children [7, 8]. Traditional beliefs on the issue have, however, not been entirely supplanted by scientific findings [9]. Long held perceptions are often difficult to change without appropriate health promotion interventions and many of the historical misconceptions about teething and the related dangerous remedies persist [10]. Parental or caregiver understanding of and belief about an illness, can have a profound impact on clinical care of the children [9] and may also interfere with the prompt diagnosis and management of a range of serious illnesses [11].

Effective patient-engagement and communication to effect health-related behavior change can be a challenging and rewarding role for health workers. Brennan et al. [12] observed that an improvement in knowledge could reinforce positive dental behaviors and result in better oral health outcomes. Many studies in Nigeria have explored maternal/caregivers knowledge, attitude and practices on infant teething but there is virtually no documented study that had aimed to determine the impact of an oral health education intervention on maternal perception. The aim of this study was to determine the impact of health education on maternal perception and practices about teething at the pediatric outpatient clinic of the Alimosho Igando General Hospital in Lagos state.

MATERIALS AND METHODS

Setting

This interventional study was conducted at the Pediatric outpatient clinic of the Alimosho Igando General Hospital in Lagos state from November to December 2015.

Sample Selection

The sample included all mothers who had their babies enrolled for care at the Pediatric outpatient clinic of the Alimosho Igando General Hospital in Lagos state during the period of study. A simple random sampling technique using the balloting method was used to enlist the study subjects using the attendance register for each clinic day as the sampling frame. Selected subjects were screened for eligibility by set inclusion and exclusion criteria and those that met these criteria and were willing to give their informed consent were included in the study.

Sample size

The estimated sample size (n=71) was computed using results from a study in Nigeria with a prevalence value of 90% for respondents with poor knowledge [13]. The sample size was, however, increased to 94 to increase the power of the study.

Inclusion and Exclusion criteria

Those included were mothers who had at least two children or those who had only one child that had at least two erupted teeth. The subjects were included in the study after explaining the nature of the study to them and obtaining their informed consent. Mothers who were unwilling to give their informed consent and those whose babies were currently undergoing any form of dental treatment were excluded from the study.

Ethical aspects

The protocol and procedures for the study was presented to Health Research and Ethics Committee of the Alimosho Igando General Hospital and written approval was obtained to conduct the study. The protocol was implemented in accordance with provisions of the Declaration of Helsinki. All the participants also completed a written informed consent.

Data collection

The first part of the questionnaire obtained information on the parents' and their children's demographic characteristics including the age, employment, educational level, number of children in the family and age of the youngest child. The second, third and fourth sections contained multiple choice questions with 'Agree', 'Disagree', 'Do not know' answer choices provided.

The second section was composed of two parts: the first part had three questions that aimed to assess the general knowledge of parents regarding their children's teething while the second part of this section contained 14 questions aiming to assess the parents' beliefs about teething associated signs and symptoms. The third section had ten questions on the practices that the parents engaged in to manage teething problems and relieve pain. The fourth section contained questions that repeated the inquiries in sections 2 and 3 and this was administered after the educational intervention.

The right responses were assigned a score of 1 while wrong responses were given a score of 0. The respondents were categorized as having either 'good'; 'fair' or 'poor' knowledge about signs and symptoms related to teething based on their responses to the 17 knowledge and 10 practice questions. Obtaining a score ≤ 6 was classified as 'poor'; 7–12 as 'fair' and ≥13 as 'good' in the knowledge category while practice scores of 1–3 was classified as 'poor'; 4–6 as 'fair' and 7–10 was classified as 'good'.

Educational Intervention

The health education program was developed with the hospital staff in partnership with a consultant with experience in health education. It was administered to the mothers using pamphlets with pictures and illustrations. The messages covered topics on tooth eruption; loss of maternal antibodies; developmental milestones; signs and symptoms associated with teething; teething myths; teething remedies and medical care seeking behaviour. The health education session for each mother lasted about 15 minutes and was designed to be interactive rather than didactic. The health education material was piloted before the study with 15 mothers, and amendments were made based on their ability to understand the material. The health educators were supervised twice weekly during the study period by the principal investigators to check their style of delivery, level of interaction with the mothers and their adherence to passing on the key messages of the program. The post-test was administered about 4 hours after the educational intervention.

Data Analysis

The data was analysed using SPSS (Statistical package for social sciences) for Windows (version 20, Chicago, IL) statistical software package. Frequency tables were made for all variables and measures of central tendency and dispersion were computed for numerical variables. Descriptive statistics including means, standard deviations, and percentages were used to present the socio-demographic variables and health-related behavior of the study population. The chi square test was used to determine the level of association between variables. For the comparison of means between pre- and post-tests, the paired *t*-test was used. Differences and associations were considered statistically significant where the associated p-values were equal to or less than 0.05.

RESULTS

Subjects

A total of 94 mothers participated in the survey and majority (73.6%) were in the 26–30 years of age. More than half of them were tertiary educated (55.3%) and were professionals or civil servants (58.5%) while most of them worked full time (84.0%). Most of them (40.4%) also had 2 children (Table 1).

Table 2 summarizes parental knowledge about the signs and symptoms associated with teething in the pre-test. The desire to bite (79.8%), gum irritation (91.5%), increased salivation (80.9%) and loss of appetite (80.9%) for solid food were correctly identified by majority of the mothers as associated with teething. Over 75% of the participants, however, incorrectly attributed fever and diarrhoea with teething while more than 50% believed that teething was related to vomiting, runny nose, respiratory/ system problems and sleep disturbance/ wakefulness.

Table 3 displays the maternal practices that were used to alleviate teething problems pre-test. Sixty-nine percent of the mothers disagreed with the use of bottle feeding or nursing at night as a measure to control the symptoms of teething. More than two-thirds of the participants agreed to the use of teething powder (70.2%) and teething syrups (78.7%). Over 50% of the mothers agreed with the use of teething ring while only 18.1% agreed to allow their children to bite chilled objects. Majority (73.4%) of the

respondents, however, agreed that a consultation with a primary healthcare provider in case of any problem with tooth eruption.

Table 4 summarizes parental knowledge about the signs and symptoms associated with teething in the post-test. The desire to bite (93.6%), gum irritation (94.7%), increased salivation (85.1%) were correctly identified by majority of the mothers as associated with teething, an increase over the pre-test. Less than 40% of the participants incorrectly attributed fever and diarrhea with teething while less than 30% believed that teething was related to vomiting, runny nose, respiratory/ system problems and sleep disturbance/ wakefulness.

Table 5 displays the maternal practices to alleviate teething problems in the post-test. Ninety two percent of the mothers disagreed with the use of bottle feeding or nursing at night as a measure to control the symptoms of teething. Less than one-tenth of the participants agreed to the use teething powder (6.4%) and teething syrups (7.4%). Forty-three percent of the mothers agreed with the use of teething ring while 56.4% agreed to allow their children to bite chilled objects. Majority (96.8%) of the respondents, however, agreed that a consultation with a primary healthcare provider in case of any problem with tooth eruption.

Comparison of the pre- and post-intervention knowledge and practice scores

At baseline, 31.9% of the respondents had poor knowledge compared to only 5.3% at the post-test. Similarly, 31.9% had poor practices at baseline compared to 2.1% at the post-test. The mean knowledge and practices scores of the participants were 7.79±2.87 and 4.33±1.99 respectively at baseline while it was 12.35±3.10 and 6.91±1.63 after the educational intervention. These differences were statistically significant. (p=0.000) (Table 6).

Table 7 gives the improvement in the knowledge and practice of the mothers after the educational intervention. The number of subjects with good knowledge scores improved from 4 (4.3%) to 50 (53.2%) while those with good practice scores improved from 16 (17%) to 63 (67%). There was a significant improvement in the percentage of subjects with improved knowledge (p = 0.005) and practice scores (p = 0.018).

Table 8 gives the relationship between the mean pre- and post-knowledge scores of the subjects and their

Table 1: Socio-demographic characteristics of the study population

Variable	n=94	Frequency	Percentage
Age group	≤25	18	19.1
	26-30	32	34.1
	31-35	31	33.0
	≥36	13	13.8
	MN±SD	30.14±0.08	
Religion	Christian	71	75.5
	Islam	22	23.4
	Others	1	1.1
Highest educational level	Primary	6	6.4
	Secondary	36	38.3
	Tertiary	52	55.3
Ethic group	Yoruba	55	58.5
	Hausa	1	1.1
	Igbo	34	22.3
	Others	4	13.8
Working status	Full time	79	84.0
	Part time	7	7.4
	Not at all	8	8.5
Number of children in the family	One	25	26.6
	Two	38	40.4
	Three	17	18.1
	Four	11	11.7
	Five	3	3.2
Occupation	Student	6	6.4
	Trader /Artisan	55	58.5
	Professional/ Civil servant	19	20.2
	None	14	14.9
Total (Each subsection)		94	100

socio-demographic variables. Subjects aged 41–50 years; who were tertiary educated; that were professionals/civil servants and those that had ≥3 children had the highest mean pre- and post-intervention knowledge scores. There was a significant improvement in the mean knowledge score in all the socio-demographic domains.

Table 9 displays the relationship between the mean pre- and post-practice scores of the subjects and their socio-demographic variables. Subjects aged 41–50 years; who were tertiary educated; that were professionals/civil servants and those that had 2 children had the highest mean pre- and post-intervention practice scores. There was a significant improvement in the mean practice scores in all the socio-demographic domains.

Table 2: Parental knowledge about teething signs/symptoms: Pre-test.

Variables n=94	Agree	Disagree	Don't know
The first incisors to appear in the mouth are upper central incisors	31(33.0)	59(62.8) *	4(4.3)
The eruption of teeth get completed at approximately 2 years of age	33(35.1)	35(37.2) *	26(27.7)
Delayed eruption of teeth could be an indication of the presence of systematic disease	14(14.9)	56(59.6) *	24(25.5)
The following signs and symptoms are associated with teething:			
Fever	90(95.7)	3(3.2) *	1(1.1)
Diarrhea	77(81.9)	14(14.9) *	3(3.2)
Sleep disturbance/ wakefulness	53(56.4)	25(26.6) *	16(17.0)
Loss of appetite	76(80.9) *	14(14.9)	4(4.3)
Gum irritation	86(91.5) *	7(7.4)	1(1.1)
Desire to bite	75(79.8) *	13(13.8)	6(6.4)
Increase salivation	76(80.9) *	9(9.6)	9(9.6)
Runny nose	69(73.4)	15(16.0) *	10(10.6)
Respiratory/ system problems	53(56.4)	29(30.9) *	12(12.8)
Skin rashes	24(25.5)	58(61.7) *	12(12.8)
Vomiting	63(67.0)	27(28.7) *	4(4.3)
Ear problem	13(13.8)	62(66.0) *	19(20.2)
Convulsion	20(21.3)	57(60.6) *	17(18.1)
Increase susceptibility to other disease	29(30.9)	43(45.7) *	22(23.4)

*Correct response according to literature

Table 3: Parental practices to alleviate teething problems: Pretest.

Variables n=94	Agree	Disagree	Don't know
Teething ring	48(51.1) *	40(42.6)	6(6.4)
Allow the child to bite on chilled object	15(16.0) *	68(72.3)	11(11.7)
Allow bottle feeding or nursing at night	17(18.1)	65(69.1) *	12(12.8)
Use systematic analgesics	69(73.4) *	13(13.8)	12(12.8)
Apply topical analgesics to the gum	20(21.3) *	58(61.7)	16(17.0)
Antibiotics	31(33.0)	51(54.3) *	12(12.8)
Teething powder	66(70.2)	24(25.5) *	4(4.3)
Teething syrup	74(78.7)	16(17.0) *	4(4.3)
Giving the child fluids to prevent dehydration	48(51.1) *	25(26.6)	21(22.3)
Consultation of a primary healthcare provider in case of any problem with tooth eruption	69(73.4) *	19(20.2)	6(6.4)

*Correct response according to literature.

Table 4: Parental knowledge about teething signs/symptoms: Post-test.

Variables n=94	Agree	Disagree	Don't know
The first incisors to appear in the mouth are upper central incisors	33(35.1)	60(63.8) *	1(1.1)
The eruption of teeth get completed at approximate 2 years of age	42(44.7)	47(50.0) *	5(5.3)
Delayed eruption of teeth could be an indication of the presence of systematic disease	32(34.0)	58(61.7) *	4(4.3)
The following signs and symptoms are associated with teething:			
Fever	36(38.3)	57(60.6) *	1(1.1)
Diarrhea	15(16.0)	78(83.0) *	1(1.1)
Sleep disturbance/ wakefulness	34(36.2)	57(60.6) *	3(3.2)
Loss of appetite	50(53.2) *	44(46.8)	0(0.0)
Gum irritation	89(94.7) *	5(5.3)	0(0.0)
Desire to bite	88(93.6) *	6(6.4)	0(0.0)
Increase salivation	80(85.1) *	12(12.8)	2(2.1)
Runny nose	27(28.7)	65(69.1) *	4(4.3)
Respiratory /system problems	18(19.1)	72(76.6) *	4(4.3)
Skin rashes	30(31.9)	63(67.0) *	1(1.1)
Vomiting	16(17.0)	76(80.9) *	2(2.1)
Ear problem	6(6.4)	80(85.1) *	8(8.5)
Convulsion	3(3.2)	85(90.4) *	6(6.4)
Increase susceptibility to other disease	22(23.4)	6(6.4) *	5(5.3)

*Correct response according to literature.

Table 5: Parental practices to alleviate teething problems: Post-test.

Variables n=94	Agree	Disagree	Don't know
Teething ring	41(43.6) *	50(53.2)	3(3.2)
Allow the child to bite on chilled object	53(56.4) *	40(42.6)	1(1.1)
Allow bottle feeding or nursing at night	6(6.4)	87(92.6) *	1(1.1)
Use systematic analgesics	58(61.7) *	30(31.9)	6(6.4)
Apply topical analgesics to the gum	23(24.5)	68(72.3)	3(3.2)
Antibiotics	11(11.7)	82(87.2) *	1(1.1)
Teething powder	6(6.4)	87(92.6) *	1(1.1)
Teething syrup	7(7.4)	85(90.4) *	2(2.1)
Giving the child fluids to prevent dehydration	80(85.1) *	12(12.8)	2(2.1)
Consultation of a primary healthcare provider in case of any problem with tooth eruption	91(96.8) *	2(2.1)	1(1.1)

*Correct response according to literature.

Table 6: Comparison of the pre- and post- intervention knowledge/practice scores

Knowledge	Pre	Post
Poor	30(31.9)	5(5.3)
Fair	60(63.8)	39(41.5)
Good	4(4.3)	50(53.2)
Mean±SD	7.79±2.87	12.35±3.10
Practice		
Poor	30(31.9)	2(2.1)
Fair	48(51.1)	29(30.9)
Good	16(17.0)	63(67.0)
Mean±SD	4.32±1.99	6.91±1.63

	Time period		Mean difference	p-value
	PRE	POST		
Knowledge	7.79±2.87	12.35±3.10	-4.534	0.000
Practice	4.33±1.99	6.91±1.63	-2.59	0.000

Table 7: Improvement in the knowledge and practice of the mothers

		Post knowledge			Total
		Poor	Fair	Good	
Pre knowledge					
	Poor	4(4.3)	18(19.1)	8(8.5)	30(31.9)
	Fair	1(1.1)	20(21.3)	39(41.5)	60(63.8)
	Good	0(0.0)	1(1.1)	3(3.2)	4(4.3)
	Total	5(5.3)	39(41.5)	50(53.2)	94(100.0)

χ^2=14.940 df=4 p-value=0.005

		Post-Practice			Total
		Poor	Fair	Good	
Pre Practice					
	Poor	2(2.1)	13(13.8)	15(16.0)	30(31.9)
	Fair	0(0.0)	15(16.0)	33(35.1)	48(51.1)
	Good	0(0.0)	1(1.1)	15(16.0)	16(17.0)
	Total	2(2.1)	29(30.9)	63(67.0)	94(100.0)

χ^2 = 11.947 df = 4 p-value = 0.018

Table 8: Relationship between the mean pre- and post- knowledge scores of the respondents and their socio-demographic variables

		TIME PERIOD		p-value
		PRE	POST	
Age (years)	≤20	6.61±3.18	12.00±2.85	0.003
	26–30	7.53±3.07	11.97±3.40	0.000
	31–40	8.35±2.30	12.45±2.86	0.062
	41–50	8.69±2.81	13.54±3.23	0.545
Religion	Christianity	8.04±2.69	12.37±3.39	0.000
	Islam	6.95±3.37	12.27±2.05	0.019
Educational level	Primary	7.17±1.33	11.00±2.28	0.707
	secondary	7.36±3.21	12.08±2.87	0.000
	Tertiary	8.15±2.73	12.69±3.31	0.002
Occupation	Student	6.67±4.03	12.17±2.64	0.018
	Business/Artisans	7.29±2.97	12.07±3.01	0.000
	Professional/ Civil servant	9.05±2.34	13.63±2.31	0.087
	None	8.50±2.53	11.79±4.23	0.084
Child position	First	6.97±3.45	11.24±3.16	0.000
	Second	7.60±2.14	12.500±3.06	0.021
	Third or above	8.93±2.83	13.33±2.81	0.152

Table 9: Relationship between the mean pre- and post-practice scores of the respondents and their socio-demographic variables

		Time period		p-value
		PRE	POST	
Age (years)	≤20	4.27±2.37	7.00±1.0	0.467
	26–30	3.56±1.81	6.50±2.14	0.000
	31–40	5.00±1.44	7.06±1.46	0.142
	41–50	5.69±1.50	7.46±0.97	0.256
Religion	Christianity	4.30±1.85	7.07±1.63	0.000
	Islam	4.32±2.40	6.27±1.39	0.133
Educational level	Primary	4.33±1.75	7.50±1.76	0.291
	secondary	4.03±2.19	6.78±1.48	0.025
	Tertiary	4.54±1.87	7.54±1.73	0.002
Occupation	Student	3.50±1.64	7.68±0.82	0.778
	Business/Artisans	4.00±6.73	6.73±1.81	0.000
	Professional/Civil servant	5.00±1.45	7.26±1.45	0.173
	None	4.07±1.64	6.86±1.35	0.327
Child position	First	3.72±2.28	6.45±2.16	0.020
	Second	4.81±1.77	7.13±1.34	0.016
	Third or above	4.30±1.84	7.11±1.25	0.017

DISCUSSION

The present study aimed to assess the impact of health education on maternal perception and practices about teething at the pediatric outpatient clinic of the Alimosho Igando General Hospital in Lagos state. Majority of the sample were in the 26–30 year age range and most of them were tertiary educated professionals or civil servants. The desire to bite, gum irritation, increased salivation and loss of appetite for solid food were correctly identified by majority of the mothers as associated with teething. Most of the mothers, however, also attributed almost all the systemic and/or local manifestations that occur during the period of tooth eruption to the teething process. Most of the responses indicate that the mothers could not clearly differentiate between the normal signs/symptoms of teething and systemic disturbances from other sources. These results are in agreement with that by Owais et al. [11] who observed that parents' knowledge teething is significantly influenced by myths related to the child's development. Other researchers similarly published a community based survey and showed that 70%, 36%, 78% and 41% of Australian parents believed that teething causes fever, diarrhea, sleep disturbances and runny nose, respectively [8]. This confirms that myths and attitudes about teething which have been reported for decades are still persistent.

Similarly, most of the mothers had wrong perception about practices to alleviate teething symptoms at baseline. Studies have shown that beliefs about causes of illness are likely to affect the choices of treatment [14, 15]. More than two-thirds of the participants agreed to the use of teething powder and teething syrups. Only an insignificant percentage of the mothers agreed with the right regimen for the management of teething symptoms. Wake et al. [8] also reported that 76% of parents used some form of medication, most commonly paracetamol and/or teething gels. Some of the teething syrups have been proven to contain chemicals such as opiates and antihistamines, which are not recommended in children less than two years [16]. Many of these remedies contain unsafe and harmful substances such as mercury. Not only will parents and caregivers expose their children and wards to harmful substances and unproven home remedies by their erroneous beliefs; they will also attribute serious illnesses such as diarrhea, respiratory infections and febrile illnesses to teething and thus fail to take their children to the pediatrician.

After the educational intervention, there was an improvement in the responses made by the respondents on the items measuring their knowledge and practices. There were statistically significant differences in the mean knowledge and practices scores of the participants after the educational intervention compared to the values obtained at baseline. The number of subjects with good knowledge scores also improved from 4 (4.3%) to 50 (53.2%) while those with good practice scores improved from 16 (17%)–63 (67%). The rational approach to health promotion—that information given by health workers during clinic based or community based contacts will bring about a change in health behavior—is still an integral part of primary healthcare strategies [17, 18]. A meta-analysis of studies on the effectiveness of dental health education indicated that knowledge and attitudes could be improved through dental health education [19].

Important differences were observed between mothers with a high level of education and mothers with a low level of education: the mean scores for respondents in this study that had tertiary education were higher than those with a low level. Maternal educational level

has been shown to be a good proxy of socio-economic status [20]. There are several possible explanations for the poorer dental attitudes in parents with a low level of education. Parents with low literacy are expected to have less knowledge about children's health and more likely to follow unhealthy behaviors and attitudes which possibly affect children's health. The norms and attitudes of parents may also be influenced by prevailing child-rearing norms in their communities [21] and be transmitted from one generation to the other [22]. High level of knowledge was also strongly associated with the number of children in the family and increasing maternal age and this was likely due to the experience acquired while raising other children.

Pediatricians, nurses, public health physicians, family physicians and community dentists have an obligation to engage in aggressive health promotion activities. Antenatal clinics, immunization clinics, pediatric outpatient clinics and the general community should be targeted with appropriate health education messages. The use of teething rings and other safe remedies for symptoms associated with teething should also be promoted.

CONCLUSION

A significant percentage of the respondents in this study had poor knowledge and practices regarding teething at baseline and there was a significant improvement in these parameters after an educational intervention. Parent's awareness on the subject of teething and its management can possibly be increased by health education. There is a clear need to include scientific information on teething in the health educational packages directed at different levels within communities. The inclusion of teething and its management as a topic in antenatal classes, in professional health programs and in continuing professional education for health professionals and childcare workers can possibly lead to improved outcomes in the health of infants and toddlers.

STUDY LIMITATION

Unbiased analysis using randomized controlled trials (RCT) remains the gold standard methodology [23]. The bias associated with non-controlled and non-randomised experimental trials cannot be exclusively ruled out in this study. A RCT conducted on a large scale is desirable to further validate the findings of this study. Similarly, there is a need to conduct a long-term assessment of the impact of this intervention on the study population.

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Author Contributions

Oyapero A. – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Oyapero O. – Acquisition of data, Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Iwuala M.O. – Acquisition of data, Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

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Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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