



Child Oral Health: Practices among Parents Attending Child Welfare Clinics in Murang'a County, Kenya

Kaguru George^{1*}, Mutave Regina James¹, Ayah Richard¹, Karimi Peter¹, and Mugambi Cosmas²

¹University of Nairobi, Nairobi, Kenya and ²Ministry of Health, Nairobi, Kenya

*Corresponding author: Kaguru George: Email address: georgekaguru@gmail.com
<https://orcid.org/0000-0001-8630-0490>

DOI: <https://dx.doi.org/10.4314/ajhs.v37i3.12>

This work is distributed Open Access under the Creative Commons Attribution 4.0 (CC BY 4.0).
Copyright resides with the authors

Abstract

BACKGROUND

Early childhood caries affects half of Kenya's under-five-year-old children. This high disease burden suggests possible gaps in child oral healthcare practices among their parents. To facilitate change in practice towards reducing early childhood caries, there was a need to identify current practice gaps. This study thus aimed at assessing child oral healthcare practices among parents attending child welfare clinics in Murang'a County, Kenya.

METHODOLOGY

This was a baseline cross-sectional study targeting 357 parents of children aged 6-18 months attending the child welfare clinics in Murang'a County, Kenya. An interviewer-administered questionnaire was used to collect data on child oral healthcare practices. The chi-square test and logistic regressions were used to determine the association between predictor variables and practices.

RESULTS

Fifty-one (14.3%) of the parents cleaned their children's teeth, majority brushed occasionally. Brushing was significantly ($p < 0.001$) influenced by the child's age. Parents' age, sex or level of education did not influence teeth cleaning. Only 2.0% used toothbrush and toothpaste, while a piece of cloth was the preferred cleaning tool (10.9%) and only 1.1% used toothbrush only. Additionally, only 14.3% of participating parents referred to dental health notes in the mother-child booklet, none had filled the baby's teeth development chart. Notably, no parent had taken their child for an index dental visit, consumption of a cariogenic diet was prevalent (32.8%), and uvulectomy (6.7%) was practised among the study population.

CONCLUSION AND RECOMMENDATIONS

Parents visiting the child welfare clinics had poor child oral health practices, consequently, they should be educated on child oral health practices and how to utilize the mother-child booklet for oral health.

Keywords: Oral Hygiene, Primary Oral Healthcare, Patient Education

[*Afr. J. Health Sci.* 2024 37 (3)358-367]

Introduction

Child oral health has become a public health concern in Kenya as reported by the national oral health survey of 2015 that there is an unmet oral health care need among the children population.¹ Almost all 5-year-old children had at least one negative oral health attribute.¹ Additionally, one in every two children

had untreated dental caries while 99.6% suffered from gingival bleeding.¹ Reversing this high burden of oral diseases would require an approach that improves parental child oral health care practices as well as strengthening preventive and promotive oral health care programs in the primary healthcare system.²



Parental child oral health care practices are the caregivers' actions aimed at achieving a good child's oral health status. The practices include proper mouth and teeth cleaning, proper nutrition, prompt oral health-seeking behaviour and, regular dental check-ups. Other related actions include seeking correct oral health information, adherence to prescribed oral health instructions and avoiding harmful traditional oral practices. The primary healthcare system should concurrently provide children with oral health services based on the level of care. These services should include oral health education, oral examination, oral urgent treatment, and referral.²⁻⁴

Child oral health needs are however age dependent. Mouth cleaning for example starts with wiping the toothless gum with a soft piece of clothing. This transitions to tooth brushing using a soft toothbrush and fluoridated toothpaste when primary teeth erupt.² An index dental visit is also recommended by the child's first birthday.^{2,5} Conversely, the primary healthcare system should avail oral health services at all child contact points, irrespective of the child's age.

The sixth month of age is a significant oral health milestone for a child. It is the average age for the eruption of the first primary tooth.⁵ Teething is usually accompanied by drooling, increased oral activity and itchiness.^{6,7} There is however common belief that diarrhoea, fever and other systemic diseases around this age are caused by teething.⁷ This has given rise to harmful traditional practices like infant oral mutilation, lacing of gums with traditional herbs and over-the-counter prescriptions.^{7,8} Other harmful traditional oral practices include uvulectomy and teeth filing.

The aforementioned beliefs, misinformation and practices ultimately affect the parent's health-seeking behaviour for the child. As a result, systemic diseases mimicking teething-associated symptoms are thus presented to the hospital late. Similarly, oral health seeking

for the child is negatively affected, with the index dental visit by the first birthday, often overlooked. Subsequent dental visits are also symptoms driven,^{1,9} leading to late presentation with advanced dental diseases that are otherwise preventable.

In sub-Saharan Africa, child oral health practices are poor. Teeth cleaning practices are inadequate¹⁰ and consumption of a cariogenic diet is common for children across ages.^{1,9,11,12} Additionally, oral health care seeking is poor and tends to be symptom-driven.^{9,13} Harmful cultural practices like uvulectomy and infant oral mutilation are still prevalent in the East African region.¹⁴⁻²⁰ Most of these studies were however conducted among preschool and school-going children.

In Kenya, like the rest of the region, information on parental oral health practices for babies and toddlers is poorly documented. This hinders the formulation of proactive promotive and preventive oral health actions and interventions that would be more effective to the needs of this group. The child welfare clinic, where children are presented by their caregivers for scheduled immunization and monthly growth and development monitoring, provides an excellent opportunity for assessing parental oral health practices for babies and toddlers. The study aimed to assess the child oral health care practices among parents visiting child welfare clinics in Murang'a County, Kenya.

Methodology

Study design and setting

This was a cross-sectional study carried out to establish child oral health practices among parents visiting child welfare clinics in Kigumo and Mathiopia sub-counties of Murang'a County, Kenya. The study was part of a baseline assessment for a larger interventional oral health training study. The assessment was carried out in February 2023.

Study population

The study population were parents with children aged six to eighteen months seeking child welfare clinic services in Murang'a County. Six months corresponds to the average age of the first deciduous tooth eruption while eighteen months is the age of administration of the last vaccine in the Kenya expanded immunization program.² Since the larger interventional study is aimed at oral health integration into the immunization program, eighteen months was set as the upper age limit in this study.

Inclusion and exclusion criteria

Parents visiting the child welfare clinic in Murang'a county, in Kenya during the duration of the study and, whose children aged between six to eighteen months were included in the study were included. Only parents who consented to participate in the study were included. On the other hand, parents who declined to give consent were excluded from the study.

Sampling strategy

The sample size was calculated using Fisher's formula $\{n = Z^2 \times p(1-p)/d^2\}$ using a confidence level (Z) of 95% (1.96), study population with the outcome of interest (p) of 0.5, and margin error (d) of 0.05 for the unknown population, to be 384. A p of 0.5 was used since little is known about the practice proportion among the study population.⁷ This allowed us to get the largest sample size required for the margin error and confidence levels used.

Participants were distributed using the proportion to the size of expected one-year-old children among healthcare facilities in the two sub-counties. The use of the proportion-to-size approach ensured an equal distribution of probabilities even where there is a non-uniform distribution of participants like in the current study. Actual participants from the facilities were selected using a systematic method to allow for picking characteristics across the participating parents. The first mother to receive service in the clinic was chosen as the first respondent of the

day. Intervals for respondent identification were based on expected clients on the interview day.

Data collection

Data was collected using an interviewer-administered questionnaire. The principal researcher calibrated 10 data collectors in their training during the pre-test phase of the study using 10 questions [5 questions relating to practice and 5 questions related to service delivery (reported elsewhere)]. Cronbach's Alpha score was calculated to assess uniformity in application and understanding of questions.²¹ A score of 0.81 was obtained. The inter-collector rating was thus reliable.

The questionnaire was developed by the researchers guided by expected parents' child oral practices in paediatric dentistry and other dental literature.^{4,5,22} The questionnaire was administered at exit after the child received welfare services. Parents were asked about their child's oral health practices, including teeth cleaning, oral health-seeking behaviour, utilization of oral health information and the teeth eruption chart in the mother-child booklet, consumption of cariogenic foods, and traditional oral health practices.

Affirmative answers for teeth cleaning, reference to the oral health information in the mother-child booklet and making an entry to the baby's teeth development chart were rated as good practices. Avoiding a cariogenic diet and refraining from harmful traditional practices were also considered good practices. Each good practice score was allocated a score of "1" while the poor score was allocated a "0". A score out of 5 was then computed for the parents. This is presented as general practice performance. A score of < 60% (3/5) was considered poor practice.

Data analysis

Data was analysed using descriptive statistics with the STATA 17 statistical package. Teeth cleaning was the main proxy indicator for oral health practice and was used as the main

outcome in the logistic regression model of this study since the teeth cleaning practices of the parents being studied were unknown, The *Chi-square* test, which accommodates variability within the study population, was used to test for association between variables. The odds ratio was used to give the strength of association between predictor variables and teeth cleaning.

Ethical considerations

Ethical approval was obtained from the University of Nairobi and Kenyatta National Hospital ethics review committee (number p648/07/2022). Informed consent was obtained from all the participants. They were also at liberty to withdraw from the study at any time with no effect on their care. Privacy of all collected data was ensured.

Results

Social demographic characteristics

A total of 384 parents were interviewed. However, only 357 (93%) entries were complete and were used for analysis. As shown in table 1, 11 (3.1%) were male, 346(96.9%) were female

parents. The majority (54.6%) had a secondary school level of education, 31.9% had not studied beyond primary school and 13.5% had a post-secondary school education level. The age of the parents ranged from 15 to 45 with a mean of 30 years. The mean child age was 11.5 months.

Oral health practices

An expansive summary of oral health practices among participating parents is presented in Table 2.

Teeth cleaning. Only 51(14.3%) of the parents cleaned their children's teeth. Among these, 25 (49.0%) cleaned the teeth occasionally, 21 (41.2%) cleaned the teeth once a day while 5 (9.8%) cleaned the teeth twice daily. Majority of those who cleaned their teeth, 38 (74.5%), used a piece of cloth, 4 (7.8%) used a tooth brush alone while 9 (17.7%) used a tooth brush and toothpaste

Consumption of a cariogenic diet. Consumption of cariogenic foods including sweet/ biscuits/soda/juice/sweetened milk in the preceding 24 hours was reported by 117 (32.8%) of the parents.

Table 1:
Social Demographic Characteristics of Participants

Variable		n (%) N=357
Sex of parent	Female	346 (96.9)
	Male	11 (3.1)
Parents Level of Education	Primary school	114 (31.9)
	Secondary school	195 (54.6)
	Post-secondary	48 (13.5)
Age of parent (years)	Mean (SD)	29.5 (6.1)
	Median (Q1, Q3)	29.1 (24.7, 33.9)
	Min	15.6
	Max	45.0
Age category (parent)	<30 years	193 (54.1)
	>=30 years	164 (45.9)
Age of child (months)	Mean (SD)	11.5 (4.2)
	Median (Q1, Q3)	11.0 (8.2, 14.8)
Childbirth order	1 st	94 (26.3)
	2 nd	118 (33.1)
	3 rd	95 (26.6)
	4 th	42 (11.8)
	5 th	8 (2.2)



Oral health-seeking behaviour. None of the parents had ever presented their child to a dental clinic. However, only 4(1.1%) indicated the nurse in the child welfare clinic had informed

them to attend the index dental visit by one year. Nevertheless, none of the 4 had attended the index dental clinic visit.

Table 2:
Child Oral Health Practices among Participating Parents

Oral health practice question		Frequency (%)
Do you clean your child's teeth? (n=357)	Yes	51 (14.3)
	No	306 (85.7)
*How often do you clean your child's teeth? (n= 51)	Twice a day	5 (9.8)
	Once a day	21 (41.2)
	Occasionally	25 (49.0)
**What do you use to clean your child's teeth? (n= 51)	Piece of cloth	38 (74.5)
	Toothbrush alone	4 (7.8)
	Toothbrush and paste	9 (17.7)
Has the child taken sweet/ biscuits/soda/juice/sweetened milk in the last 24 hours? (n=357)	Yes	117 (32.8)
	No	240 (67.2)
Has the nurse ever informed you that it is recommended your child visits the dentist by the age of 1 year? (n=357)	Yes	5(1.1)
	No	352(98.9)
***Has your child visited a dentist? (n=5)	No	5 (100)
†Reasons for not visiting the dentist (n= 5)	For lack of indication, doesn't see a need	1 (20.0)
	Has no teeth	1 (20.0)
	Have no problem with the teeth	1 (20.0)
	Lack of information on oral health	1 (20.0)
	Not aware	1 (20.0)
Has your child had any of the following cultural practices? (n=357)	Uvulectomy	24 (6.7)
	None	333 (92.3)
Do you refer to oral health notes in the mother-child booklet? (n=357)	Yes	51 (14.3)
	No	306 (85.7)
††When did you refer to the notes in the mother-child booklet? (n= 51)	During pregnancy clinic	12 (23.5)
	At home	30(58.8)
	During Child clinic day	9 (17.7)
Is the baby teeth development chart on page 26 filled? (n=357)	No	357 (100)
†††Why was page 26 not filled? (n=357)	No reason	65 (18.2)
	The child has yet to develop a tooth	9 (2.5)
	Did not know	274 (76.8)
	Forgot	1 (0.3)
	No booklet	2 (0.6)
	No time	6 (1.7)
Average practice score (n=357)		31.27%

Key: *Denominator represents the number of patients who clean their teeth
 **Denominator represents the number of patients who clean their teeth
 ***Denominator represents the number of patients who had a nurse's recommendation
 †Denominator represents the number of patients who did not visit a dentist
 ††Denominator represents the number of patients who referred to the notes in the mother-child booklet
 †††Denominator represents the number of patients who did not fill page 26

Harmful traditional practices. Other than Uvulectomy reported by 24(6.7%) parents, no other traditional practices were reported by the participants.

Reference to oral health information in the mother-child booklet. Only 51(14.3%) of the parents had referred to the dental health notes printed in the mother-child booklet.

Utilization of the baby's teeth development chart in the mother-child booklet. No parent had filled the baby's teeth development chart under the child growth monitoring section in the mother-child booklet. The majority, 274 (76.8%), were not aware of the chart.

Logistic regression with cleaning child's teeth as the main outcome

As shown in Table 3, using cleaning of the child's teeth as the main outcome, the age of the child was found to significantly influence ($p < 0.001$) of teeth cleaning. The odds of teeth cleaning were 1.2 higher for every index increase in a month. The parent's age, education level or sex of child did not significantly influence teeth cleaning.

Discussion

The study found poor child oral health practices among parents visiting the child welfare clinic in Murang'a County. Parents had poor tooth-brushing practices. They provided a cariogenic

diet to their children. Parents rarely referred to the oral health information in the mother-child booklet. Moreover, they did not utilize the dental chart for monitoring their baby's teeth development. No parent had presented their child for index dental visit, and uvulectomy was still being practiced among the participants.

Teeth cleaning was the main proxy indicator for good oral hygiene practices. In the current study, however, only a meagre 14.5% of the parents cleaned their children's teeth. A piece of cloth was the preferred (10.9%) teeth-cleaning tool while a toothbrush was only used by 3.6% of the parents. This contrasts the national oral health survey findings among children aged 5, 12 and 15 years which reported high rates of tooth brushing (96.5%) and, toothbrushes were the preferred (85.3%) cleaning tool.¹ Studies among children aged three to five years have also reported very high tooth brushing rates (94.4% and 95.6%).^{23,24} The disparity in findings could be a result of differences in target populations' ages. In the current study children were aged 6 and 18 months while the other studies targeted older children who were in school or pre-school. This indicates a tooth brushing initiation gap; tooth brushing starts late and, appears to be driven by factors outside the family setting. Additionally, the frequency of tooth brushing was poor and happened occasionally in the current study and the national oral health survey.¹

Table 3:
Logistic Regression with Cleaning Child's Teeth as the Main Outcome

Variable		Odds ratio (CI)	P-value
Parent age category (years)	<30	Ref	
	≥ 30	2.0 (0.9, 4.7)	0.098
Parent Education Level	Post-secondary school	Ref	
	Primary school	0.4 (0.2, 1.1)	0.077
	Secondary school	0.6 (0.3, 1.4)	0.272
Sex of child	Female	Ref	
	Male	1.5 (0.8, 2.8)	0.226
Childbirth order	Age of child	1.2 (1.1, 1.3)	<0.001
	5 th	Ref	
	4 th	0.5 (0.1, 1.7)	0.256
	3 rd	0.4 (0.1, 1.3)	0.422
	2 nd	0.7 (0.3, 1.7)	0.126

This reflects a practice gap, the sequelae of which is already evident with high levels of early childhood caries and gingival bleeding among children.¹ There is a need therefore to identify and address the root cause of these tooth brushing initiation and practice gaps.

This study results found parents' age, sex and level of education do not significantly influence teeth cleaning. This contrasts Lithuanian, Russian and Norway studies where parents' level of education significantly influenced their children's teeth cleaning.^{25,26} Level of education has a direct relationship to socioeconomic status, which has also been shown to affect teeth cleaning.²⁵ The current study group, which sought care in a public health institution, likely shares a common social economic bracket and thus common practices.

In the current study, childbirth order did not significantly influence teeth cleaning. However, child age significantly influenced teeth cleaning probably as more teeth erupted. This is in line with observations of late initiation and poor practice of teeth cleaning in this study. Other studies have however reported younger siblings having better teeth cleaning probably due to learnt practice.²⁷ More needs to be done in parents' education on tooth brushing initiation.

Diet is one of the essential factors in the occurrence of dental caries. When the frequency of cariogenic diet consumption is high, the caries balance tilts in favour of tooth decay. One in every three parents reported providing some form of a cariogenic diet such as sweet/biscuits/soda/juice/sweetened milk, to their children in the preceding twenty- four hours. This parallel results from similar studies in the country. Wakhungu *et al* found 33.5% of 3 to 5- year old in Uasin Gishu county, Kenya, consumed a cariogenic diet.¹² Similarly, Chepkwony *et al* reported a high intake of sugar in and soft drinks among 3-6-year-old children in Nairobi, Kenya.⁹ Although the national oral health survey reported low consumption of jam/honey, sweet/candy and

milk with sugar, the majority of children (60.9%) still drank sweetened tea every day.¹ This indicates consumption of cariogenic diet cuts across all children age groups. Thus, there should be sustained oral health education on diet and its role in dental caries across age groups, including targeted messages to the parents.

One source of oral health information for the parent is the mother-child booklet with a dedicated section for the dental health of the mother and the child. It further provides a dental chart for recording a baby's teeth development as part of child growth monitoring.² This study found only a few parents referred to the oral health notes in the mother-child booklet while none had used the baby's teeth eruption monitoring chart. The majority were unaware of the oral health notes or the dental chart. This poor utilization of the mother-child booklet is however not peculiar to oral health as this has generally been reported in other specific aspects of the mother-child booklet like the postnatal maternal and neonatal care.²⁸⁻³⁰ Poor utilization has been associated with inadequate transfer of health information by the health care workers to the parents, usually related to poor knowledge of the content in the mother-child booklet by the health care worker.²⁸⁻³⁰ In the case of oral health, this may be attributed to oral health information being introduced late into the mother-child booklet.³¹, additionally, most nurses have also not received training in oral health.³² They may thus lack knowledge of oral health and, their expected role in oral health care. Nurses working in the mother-child clinic should be trained on their expected roles in educating parents about the mother-child booklet content in all health aspects, including oral health.

The index dental visit is recommended by the child's first birthday, followed by subsequent annual check-ups for oral health advice, institution of preventive measures for the populations at risk and/or early and prompt treatment for any dental condition identified.⁵ In the current study, none of the children had been presented to the dental clinic

for their index visit. This mirrors findings by Chepkwony *et al* where no child in their study aged 3-6 years had visited the dentist for a dental checkup.⁹ Similarly, the national oral health survey results indicated only 9.9% of children aged 5, 12 and 15 visited the dental clinic for a check-up.¹ This depicts poor oral health-seeking behaviour among the parents of children across the child-age spectrum. Most of the children have their index visit when they develop a dental problem.^{1,9} They are usually presented late necessitating more expensive treatment, emergency extractions, medication for dental infection and lost school hours.⁹ This ultimately affects the oral health-related quality of life for the child. Policies and programs that encourage the index and annual dental check-up visits should thus be advocated.

Harmful cultural practices usually happen around the child's teething age. This results from beliefs and misinformation about teething and associated signs and symptoms.^{7,8,33,34} In this study, 6.7% of the children had undergone uvulectomy. Uvulectomy was a common practice by communities in central Kenya where this study took place and, as Ngugi *et al* report, there is still a very strong belief and practice of uvulectomy.¹⁸ This is despite the dangers posed by uvulectomy through neonatal morbidities such as infection, septicaemia, anaemia, aspiration and oropharyngeal injury.¹⁹ The continued practice of uvulectomy depicts challenges in eliminating this deep-rooted practice. Oral health education on uvulectomy and other harmful traditional practices should be part of oral health messaging for parents visiting the child welfare clinic.

Study limitations

Whereas the study investigated some of the parent and child-related factors that could be responsible for the current poor child oral practices, this study did not exhaust all possible confounders. The study did not examine parents' socioeconomic status, or parents' oral health-seeking behaviours and practices which have been reported to influence their child's oral healthcare

practices.^{25,35} There could also be other system-related factors that influence child oral health practices. Nevertheless, poor practices were reported to stem from a lack of awareness. Thus, the inclusion of these factors may not vary the current study findings since there has been no program reported before, or in the intervening period that would alter the socioeconomic status or awareness of child oral health practices.

Conclusion and Recommendations

The results of this study indicate poor child oral health practices among the parents for all aspects assessed. There was late initiation of tooth brushing, improper selection of teeth cleaning tools, and inadequate frequency in teeth cleaning. Provision of cariogenic diet to the children was prevalent among the parents in the study. There was low utilization of the mother child booklet for oral health information as well as for monitoring of baby's teeth development. Parents had poor child oral health seeking behaviour with no recorded index visit in the study. Harmful traditional practices like uvulectomy were still present among the parents.

Recommendation for future studies

We recommend provision of targeted oral health education to parents visiting the child welfare clinic. Future studies could explore nurses' capacity to provide oral health services and mechanisms to integrate oral health into parental education schedules while also promoting the utilization of the mother-child booklet as a source of dental health information and a monitoring tool for baby's teeth development.

Acknowledgement. We wish to acknowledge the data collection team in Murang'a County and the management that gave support to the team.

Competing interest. None

Authors' contribution. All listed authors contributed to the conception, critically revised and approved the final version of the manuscript.

Source of funding. The study was self-funded.

Authors ORCID Numbers

- Kaguru George - <https://orcid.org/0000-0001-8630-0490>
- Mutave Regina - <https://orcid.org/0000-0002-5740-3041>
- Ayah Richard - <https://orcid.org/0000-0002-3723-3559>
- Karimi Peter - <https://orcid.org/0000-0003-1000-6046>
- Mugambi Cosmas - <https://orcid.org/0000-0001-9693-7911>

References

1. MOH. Kenya National Oral Health Survey Report. Published 2015. Accessed October 15, 2022. <https://academia-ke.org/library/download/moh-kenya-national-oral-health-survey-report-2015/>
2. MOH K. Mother and Child Health Handbook. Published 2020. Accessed October 15, 2022. <https://familyhealth.go.ke/wp-content/uploads/2020/11/Mother-Child-Health-Handbook-MOH-September-2020.pdf>
3. MOH K. Clinical Guidelines for Management and Referral of Common Conditions at Levels 2-3: *Primary Care.*; 2009.
4. MOH K. Kenya National Oral Health Strategic Plan 2022-2026. Published 2022. Accessed October 15, 2022. <https://www.health.go.ke/wp-content/uploads/2022/06/Kenya-National-Oral-Health-Strategic-Plan-2022-2026.pdf>
5. PAHO. Integrated Oral Disease Prevention and Management: Module for Primary Health Care Workers. *Module 1: Children 0-5 Years Old.* 2nd edition.; 2013.
6. Ramos-Jorge J, Pordeus IA, Ramos-Jorge ML, Paiva SM. A prospective longitudinal study of signs and symptoms associated with primary tooth eruption. *Paediatrics.* 2011;128(3). doi:10.1542/peds.2010-2697
7. Regina Mutave James, Loice W. Gathece AMK. Association Of Fever And Diarrhea With Infant Teething Among Mothers Attending Two Health Centres In Nairobi. *J Kenya Dent Assoc.* 2015;6(2).
8. El-Gilany AH, Abusaad FES. Mothers' teething beliefs and treatment practices in Mansoura, Egypt. *Saudi Dent J.* 2017;29(4). doi:10.1016/j.sdentj.2017.05.003
9. Chepkwony F, Kemoli AM, Owino R, Muasya M. Effects of socio-economic and behavioural factors on early childhood caries among children attending a dental clinic in Nairobi, Kenya. *East Afr Med J.* 2016;93(8).
10. Iqbal Z, Shafeeq S, Ashraf T, Ehsan W. Knowledge, Attitude and Practices of Mothers Regarding Oral Hygiene and Dental Caries Among Children: A Systematic Review. *Pakistan Biomed J.* Published online April 30, 2022;246-251. doi:10.54393/pbmj.v5i4.411
11. O'Malley L, Worthington H V., Donaldson M, et al. Oral health behaviours of parents and young children in a practice-based caries prevention trial in Northern Ireland. *Community Dent Oral Epidemiol.* 2018;46(3):251-257. doi:10.1111/cdoe.12357
12. Wakhungu HK, Were GM, Serrem CA, Kibosia CJ. Dietary Intake and Prevalence of Dental Caries among Five-Year-Old Children in Urban and Rural Areas of Uasin-Gishu County, Kenya. *Eur J Agric Food Sci.* 2020;2(4). doi:10.24018/ejfood.2020.2.4.80
13. Sivaramakrishnan G, Alawadhi B, Almahmood B, et al. Child Oral Health-related Knowledge and Practices of Mothers in Bahrain-Are Practices Based on Knowledge? *Int J Prosthodont Restor Dent.* 2022;16(2). doi:10.5005/jp-journals-10062-0067A
14. Agbor AM, Naidoo S. A review of the role of African traditional medicine in the management of oral diseases. *African J Tradit Complement Altern Med.* 2016;13(2). doi:10.4314/ajtcam.v13i2.16
15. Wordley V, Bedi R. Infant oral mutilation in East Africa: Eradication within ten years. *Br Dent J.* 2019;226(1). doi:10.1038/sj.bdj.2019.1
16. Elgamri AI, Ahmed AT, Haj-Siddig OE, Chin JR. Infant oral mutilation (IOM) related to traditional practices among inner-city preschool children in Sudan. *Afr Health Sci.* 2018;18(2). doi:10.4314/ahs.v18i2.21
17. Spang D, Kemoli AM, de Soet HJJ, Ziesemer KA, Volgenant CMC. The Prevalence, Dental Complications, and Effects of Infant Oral Mutilation. *Int Dent J.* 2024;74(3).



doi:10.1016/j.identj.2023.11.012

18. Ngugi S. Determinants of the practice of traditional Uvulectomy as seen at Thika District Hospital: a survey on children below five years. Published online 2005.
19. Alebachew Bayih W, Minuye Birhan B, Yeshambel Alemu A. The burden of traditional neonatal uvulectomy among admissions to neonatal intensive care units, North Central Ethiopia, 2019: A triangulated cross-sectional study. *PLoS One*. 2020;15(7). doi:10.1371/journal.pone.0234866
20. Getachew T, Negash A, Eyeberu A, et al. The burdens, associated factors, and reasons for traditional uvulectomy in Ethiopia: A systematic review and meta-analysis. *Int J Pediatr Otorhinolaryngol*. 2024;176. doi:10.1016/j.ijporl.2023.111835
21. Tavakol M, Dennick R. Making sense of Cronbach's alpha. *Int J Med Educ*. 2011;2. doi:10.5116/ijme.4dfb.8dfd
22. WHO. Promoting Oral Health in Africa: Prevention and Control of Oral Diseases and Noma as Part of Essential Non-Communicable Disease Interventions.; 2016.
23. Njoroge NW, Kemoli A, Gathece LW. Early childhood caries amongst preschool children and their caregivers' perceptions of oral health in a Kenyan rural setting. *East Afr Med J*. 2015;92(8).
24. Ngatia E.M., Imungi J.K., Muita J.W.G., Ng'ang'a P.M. Dietary patterns and dental caries in nursery school children in Nairobi, Kenya. *East Afr Med J*. 2001;78(12). doi:10.4314/eamj.v78i12.8939
25. Saldunaite K, Bendoraitiene EA, Slabšinskiene E, Vasiliauskiene I, Andruskeviciene V, Zubiene J. The role of parental education and socioeconomic status in dental caries prevention among Lithuanian children. *Med*. 2014;50(3). doi:10.1016/j.medic.2014.07.003
26. Koposova N, Widström E, Eisemann M, Koposov R, Eriksen HM. Oral health and quality of life in Norwegian and Russian school children: A pilot study. *Stomatologija*. 2010;12(1).
27. Szalewska M, Boryczko M, Kapica A, et al. The knowledge of pregnant women regarding appropriate oral hygiene practices of young children - A questionnaire survey. *Curr Issues Pharm Med Sci*. 2015;28(2). doi:10.1515/cipms-2015-0050
28. Gathoni KE, Magembe OA. Utilization of Mother and Child Booklet among Mothers Attending Well Baby Clinic in Nakuru Central District. *Int J Sci Res*. 2013;4(April).
29. Situma JN, Ahoya B, Musungu RL. Awareness and Utilization of Mother-Child Health Booklet by Health Workers and Mothers in Western Kenya. *Int J Innov Res Dev*. 2019;8(5). doi:10.24940/ijird/2019/v8/i5/may19007
30. Opondo M. Utilisation of the mother-child health booklet by healthcare workers and caregivers at Mbagathi District Hospital. Published online 2015.
31. Ministry of Health K. Mother & Child Health Handbook. Published 2016. Accessed October 15, 2023. https://media.path.org/documents/Mother_Child_Health_Handbook_MOH.pdf
32. Kaguru G. Factors Associated With Practices Of Health Care Workers Towards Integrating Oral Health Into Primary Health Care In Imenti North District, Kenya. Published online 2013.
33. Getaneh A, Derseh F, Abreha M, Yirtaw T. Misconceptions and traditional practices towards infant teething symptoms among mothers in Southwest Ethiopia. *BMC Oral Health*. 2018;18(1). doi:10.1186/s12903-018-0619-y
34. Olatunya OS, Adeniyi AT, Babatola AO, et al. Teething beliefs, misconceptions, and practices among mothers attending a tertiary hospital in Nigeria: Implications for child health and clinical practice. *J Nepal Paediatr Soc*. 2020;40(3). doi:10.3126/jnps.v40i3.30008
35. Bozorgmehr E, Hajizamani A, Malek Mohammadi T. Oral Health Behaviour of Parents as a Predictor of Oral Health Status of Their Children. *ISRN Dent*. 2013;2013. doi:10.1155/2013/741783