

**THE SOCIO- DEMOGRAPHIC FACTORS INFLUENCING ORAL
MUTILATION AMONG UNDER FIVE- YEAR- OLD CHILDREN AT THE
KENYATTA NATIONAL HOSPITAL, NAIROBI, KENYA.**

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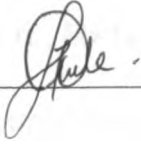
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DECLARATION

I, Dr. Francis K. Mule, do hereby declare that this thesis is my original work and has not been presented to any other institution for the purpose of obtaining a degree.

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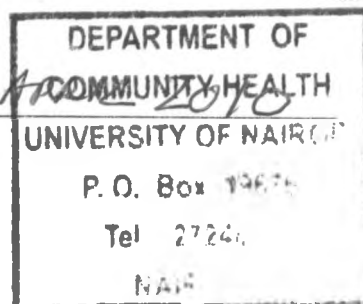
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DEDICATION

This work is dedicated to my loving wife, Lucy whose love and support has been unfailing even on the worst of days, and to my parents who have taught me that nothing worth having comes easy.

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ABSTRACT

Introduction and background: Oral mutilation (OM) is an important public health problem with potential health complications. These may include haemorrhage, septicaemia, tetanus, gangrene, contractures, abscesses, airway obstruction, and even death (1). Recent studies have also linked the prevalence of Human immunodeficiency Virus (HIV) infections to practices like Oral Mutilation. Hence calls for comprehensive research on this kind of practice. (2).

Objectives: The objective of the study was to establish the socio-demographic factors influencing the practice of oral mutilation (OM) among children under 5 years of age, seen at Kenyatta National Hospital (KNH) in Nairobi.

Methodology: This study was a descriptive, cross-sectional study among children seen at the Hospital during the study period (from April to May to 2009). The parental, guardians and/or caregivers of the children were the respondents in the study. Coded and close-ended questionnaire were administered to the respondents focusing on socio-demographic profiles and knowledge, attitudes and practices regarding oral mutilation. The children were examined and evidence of oral mutilation recorded.

Results: During the study period a total of 423 children were included in the study. The respondents were mostly parents (97.9%); females (83.7%); and married (88.7%). The majority were secondary school leavers (48.2%), 29.8%

primary, 20.1% post primary and 1.9% had no formal education. Most were unemployed (51.8%).

The prevalence of Oral Mutilation was found to be 14.9 %; traditional surgeon performed 81% of the OM, modern healthcare workers 19%.

The mothers were found to have been the main decision makers on matters relating to traditional OM, accounting for OM decisions making in 46% of the procedures.

Applying Pearson's chi-squared test, significant association was found in the respondent's responses between those whose children had had OM and those who had not, with a higher likelihood of OM among children whose parents, guardians or caregivers had no formal Education or had attained Primary level of education (None + primary) ($p = 0.02$); or had heard of uvula removal ($p=0.01$); and those who had heard of both uvula and tooth bud removal ($p=0.008$); It was also more likely among those who felt that OM was beneficial to a child's health ($p<0.001$); and among those who indicated that they advocate OM in children ($p<0.001$); and in those who indicated that they would advise someone to take child for OM ($p<0.001$).

The less likelihood of OM was in the children whose parents, guardians or caregivers who had felt that OM was a public health problem ($p=0.03$), and among those who said that they would worry of their child's health if the child were to undergo the procedure ($p=0.002$).

Conclusion: The prevalence of oral mutilation among children less than five years seen at the Kenyatta National Hospital was 14.9%. The mothers of the children were the main decision makers on matter pertaining to OM. The parents/caregivers who practiced oral mutilation were likely to be those who were less knowledgeable. Those who didn't report of any oral mutilation were likely to have negative attitude towards the practice. The parents/caregivers who had at least secondary education level were less likely to practice the oral mutilation. There was significant association between the complications related to OM and the level of knowledge regarding OM complications.

Recommendations: The Ministry of Public Health and other health providers should initiate public awareness programs at community level, service provider levels and nationally to discourage the practice of oral mutilation. Healthcare workers involved in the practice should be advised to discontinue these activities and encouraged to educate the public in view of elimination of the practice. More studies should be done to encompass all our communities and OM service providers in view of developing a National policy on OM practice.

OPERATIONAL DEFINITIONS

C1-esterase inhibitor enzyme: A vital enzyme important in control and inactivation of excessive immune responses.

Hereditary Angioneurotic oedema: This is an autosomal dominant disease due to a deficiency of antigenic and/or functional c1-esterase inhibitor enzyme that results in urticaria and oedema of subcutaneous tissues. It can affect the upper respiratory tract leading to life threatening laryngeal obstruction.

Itinerant: Travelling from one place to another usually to work for a short period.

Key informants: - This included health care workers e.g. medical doctors, district public health officer and nurses, social workers and the practitioners that perform the oral mutilation (OM).

Mutilation: - To damage severely, especially by violently removing a part. It will include but not be limited to removal of the uvula or early tooth buds (nylon teeth).

Nylon teeth: - Also referred to as natal or neonatal teeth. These are the deciduous teeth. In almost 90% of the cases, the teeth are of the normal deciduous complement. The rest are supernumerary. In about 60% of the cases, both of the natal and/or neonatal mandibular incisors erupt prematurely. Occasionally, a child may be born with a considerable number of his deciduous teeth erupted. Several such cases have been cited. About 70%

of the natal and/or neonatal teeth are firmly fixed but a small number subsequently become loose.

Oral mutilation: - This can be referred to as the surgical removal of the uvula and/or of the germinal tooth buds, also referred to as nylon teeth, in children below the age of 60 months, practiced in the traditional setting (12).

Oral: - Pertaining to the mouth

Respondents: - This referred to parents, guardians or care givers of the children.

Study population: Parents, guardians or caregivers of the study subjects presumed to have the necessary clinical and family history of the children.

Study subjects: Children below five years seen at the Kenyatta National Hospital.

Traditional surgeons: Practitioners of surgical practices that are closely allied to customs and ways of life of the people or society. **Uvula:** The soft tissue part of the soft palate that appears to hang over the back of the tongue in the mouth.

Uvulopalatopharyngoplasty: Corrective surgery to correct abnormalities in the uvula, palate and/or pharynx.

LIST OF ABBREVIATIONS

- AIDS: Acquired Immunodeficiency Syndrome
- FGM: Female Genital Mutilation
- HANE: Hereditary Angio-Neurotic Oedema
- HIV: Human Immunodeficiency Virus
- KNH: Kenyatta National Hospital
- OM: Oral Mutilation
- SPSS: Statistical Package for Social Sciences

CHAPTER 1: INTRODUCTION AND BACKGROUND

Historians only speculate on the origins of oral mutilation (OM). Hippocrates (460-355 BC) is on record for having recommended seizing an inflamed uvula with the fingers, pressing it against the palate and cutting off the end. Galen era (129-200 AD) suggested not operating upon the uvula until it had assumed the physical characteristics of leather (8).

There was one brief flourish of popularity, mainly in England and France during the 19th century, when James Yearsley introduced and advocated uvulectomy as a cure for stuttering. The practice of uvulectomy did not lose popularity in other countries, however, it is postulated that the practice of uvulectomy in northern Morocco may have originated from a Muslim refugee who may have been a disciple of Spanish physicians - Imperato and MacLean (9). The historical origins of the procedure in East Africa are unclear. Several authors with local East African health outreach workers have suggested that this procedure is relatively new in Africa. The first reports of the procedure in Africa were from the 1930s among the Nuer ethnic group of Southern Sudan where the practice believed to have originated from refugees returning from neighboring countries (10). In Kenya, the procedure originated among the Maasai in the 1960s having spread from neighboring Uganda and Tanzania (11).

The uvula serves as a pilot for eating and swallowing. It prevents the soft palate from being forced to the nasopharynx when it is resisting pressure differences between these and the oral part of the pharynx as in coughing and

sneezing. It forms part of the soft palate and together, is important in deglutination, which is also referred to as velopharyngeal closure (7).

The germinal tooth buds also referred to as nylon teeth are in fact the small white swellings seen under the gums of children and are the early forms of developing teeth (13).

The practice varies in detail, but generally involves restraining of the children followed by forceful removal of the uvula and/or the germinal tooth buds without use of any anaesthesia.

It generally falls under one of two main categories: ritual and therapeutic OM. Commonly a stick or tongue depressor is placed in the mouth to depress the tongue followed by cutting of the uvula using a curved sickle-shaped knife. Some of the variations include holding the uvula between the twines of a reed-stalk (Morocco), to severing the uvula to snaring of the uvula with twisted strands of horsehair (Ethiopia), to use of a hot knife (Egypt) (9, 14, 15).

The occurrence of natal and/or neonatal teeth is a rare anomaly, which for centuries has been associated with diverse superstitions among many different ethnic groups. The incidence of natal and/or neonatal teeth is far more frequent with an incidence of at least 1 in 3,000 births (29). Natal teeth are more frequent than neonatal teeth, the ratio being approximately 3 to 1. Rarely, a child will exhibit both natal and neonatal teeth. There appears to be no sex preference. Most frequently (85% of the cases), the natal or neonatal teeth are the deciduous mandibular incisors. In almost 90% of the cases, the

teeth are of the normal deciduous complement. The rest are supernumerary. In about 60% of the cases, both of the natal and/or neonatal mandibular incisors erupt prematurely. Occasionally, a child may be born with a considerable number of his deciduous teeth erupted. Several such cases have been cited. About 70% of the natal and/or neonatal teeth are firmly fixed but a small number subsequently become loose. Similarly, a small fraction of those initially loose become fixed. Though the aetiology is not known, approximately 15% had parents, siblings, or other near relatives with a history of natal and/or neonatal teeth. In several well-documented cases, the inheritance pattern has been that of an autosomal dominant trait. Natal / neonatal teeth usually pose no harm to the children except if they interfere with feeding they could carefully be removed by dentist so as not to harm their predecessors (29).

In Southern Sudan, the developing canine teeth, also referred to as nylon teeth, have been reported to be removed using sharp, unclean objects, including knives, razor blades, sharpened nails, bicycle spokes and even by use of fingernails (16).

The indications' for the various forms of OM vary from one ethnic group to another. Among the Hausa ethnic group in the Niger and the Barbers in Maghreb, it is performed on the 7th day as part of the naming ceremony to prevent death due to swelling of the uvula as a prophylactic measure (6). Other indications in various ethnic groups range from failure to thrive, mental retardation, recurrent upper respiratory infections, "thinning" of the neck,

inflammation of the uvula, pharyngitis, recurrent tonsillitis, child's rejection of the breast to tuberculosis (7). Among the Nuba ethnic group in Southern Sudan, the indications of nylon teeth extraction range from diarrhoeal illness to fever or other ailments in children (16). Developing canine tooth germs have been reportedly seen as worms and as the cause of the illness.

In the Western Medical Practice, uvulectomy is done as part of other surgical procedures as Uvulopalatopharyngoplasty. Partial uvulectomy has been used to successfully treat Hereditary Angioneurotic Oedema (HANE). This is a rare familial disease, which is characterized by C1-esterase inhibitor enzyme deficiency. Recurrent attacks of acute circumscribed non-inflammatory oedema occur that have been documented as cause of death due to asphyxiation (17). Uvulectomy has also been done in management of snoring with good results (18).

There has been considerable speculation as to the indications for OM. Practitioners who perform OM offer various explanations. The Western Medical Practitioners have their views, while historians are curious about the origins, and linguists are concerned about the effects on speech. Most of these views ignore the fact that OM has become a ritual with a set of fixed actions that are performed regularly and in some cases, has been incorporated as part of ceremonies and, as such, defies logical explanation.

According to the 1978 World Health Organization (WHO) definition, Traditional Medicine is "The sum total of all the knowledge and practices, whether explicable or not, used in diagnosis, prevention and elimination of physical,

mental or social imbalance and relying exclusively on practical experience and observation handed down from generation to generation whether verbally or in writing" (4).

Itinerant traditional surgeons work throughout sub-Saharan Africa and perform many procedures including: tooth extraction, abortion, injections, incising and draining abscesses, uvulectomy, removal of canine tooth buds (nylon teeth extraction), circumcision, inguinal hernia surgery and surgery on closed and open fractures. Cutting and injection equipment are not cleaned and are used on a rapid succession of up to 10 patients in a single clinic session. These procedures are known to cause haemorrhage, septicaemia, tetanus, gangrene, contractures, abscesses, airway obstruction, keloids, iatrogenic fistulae, lacerations of vital organs, loss of limbs, and death. Recent work also suggests that many cases of HIV infection may be caused by medical exposure to traditional practices. (2).

Epidemiological features of oral mutilation in children such as, uvulectomy, is an uncommon procedure among western otolaryngologists. In fact, in the mid-1800s it was described as a rare operation in otolaryngology. Uvulectomy is a far more common practice in eastern Africa (5).

It has been reported in several sub-Saharan African countries, in Maghreb and in Israel (6). However, epidemiological and anthropological data on these procedures are rare.

Indications for the procedures are based on the premise that the uvula and/or the germinal tooth buds are responsible for medical problems within the throat, diarrhoeal disease, fever, and other ailments and seen as cause of disease. Oral mutilation is therefore performed to prevent or treat organic conditions and is not related to ritual surgery, gender, or religion. Other indications include cough, congestion, pharyngitis, and poor oral intake (7).

Oral mutilation (OM) is one of the traditional customs practised in Kenya. Yet, its magnitude remains poorly understood despite being a public health concern in the region. This is due to lack of information and policy regarding this matter. A study conducted in the Thika District Hospital by Ngugi is perhaps the only documented study as very little has been done in the rest of the country (3). Specifically, at Kenyatta National Hospital data on the practice of OM is unavailable, and this is the justification for this study.

CHAPTER 2: LITERATURE REVIEW

Epidemiological and anthropological data on this practice are rare (6). Very thin literature is available on the practice. This can only be attributed to the fact that most of the procedures are done mainly in traditional settings. In most sub-Saharan countries where modern health care is inaccessible, decisions concerning health are influenced by the fact that people have to seek alternative ways to handle disease (19).

Oral Mutilation is performed despite well-documented complications and in a background where issues of cross infections through instruments stained with body fluids are ignored. With the current Human Immunodeficiency virus/Acquired immunodeficiency Syndrome (HIV/AIDS) pandemic, prevalence of Hepatitis, and other blood borne infections, recent literature has even suggested that many of these infections are transmitted through unhygienic traditional practices (2).

In a study done in Niger, it was reported that, by the age of 5 years, 19.6 % of the population had undergone a form of oral mutilation (OM) namely traditional uvulectomy, with severe complications accounting for 7.8 per 100 cases of hospitalised children below 15 years, (6).

Bleeding was reported to account for the majority of the reported complications in Nigeria, accounting for over 55% of the cases of oral mutilation (OM) (12). This was mainly attributed to resection of the vessels or musculature in the soft palate. Cases of varying degrees of damage to the soft

palate were reported with resulting to velopharyngeal insufficiency. Damage to the soft palate of varying degrees was also reported with cases of a bifid palate and /or complete amputation of the soft palate.

In Ethiopia, infections were found to be the commonest complication followed by bleeding. Uvulectomy was also found to impact negatively as far as weight gain was concerned among children who had undergone the procedure (20).

Infections reported were confined to the uvula stump or extending to the surrounding tissues with epiglottitis. Acute otitis media, tonsillitis, tetanus and septicaemia have also been reported (2).

In 1990, a study was done to determine the prevalence of extraction of 'nylon' teeth and its long-term adverse effects on the permanent dentition among Tanzanians (21). A total of 1890 subjects aged between 3 and 5 years, and another 1377 subjects aged between 12 and 19 years from different parts of the country were examined. The prevalence of missing teeth in the primary dentition due to 'nylon' teeth extraction practice ranged from 0% to 16.9%. Most cases of the missing teeth and all the malformed teeth were of the mandible (21).

In another study done to analyse discharge records from a paediatric ward in a Ugandan hospital, of the 740 admissions that were due to the effects of 'ebinyo' a local term referring to removal of an infant's deciduous tooth buds, 156 resulted in death of the children(13).

In a study done in Mkuranga District Pwani Region in Eastern Tanzania in 2005 involving 284 under-five children, 34% were found to have undergone traditional uvulectomy. The major complications were bleeding 50% among the children and difficulty in swallowing 50%. The indications given for the procedures were vomiting (33%), cough (33%) and sore throat (33%) (22).

In a more recent study conducted in Ilemela District, Mwanza Tanzania, of the 242 children under six years, the prevalence of uvulectomy was found to be 3.6%, with severe haemorrhage being the commonest complication (66.7%). The indication were cough accounting for 81.1%, rejecting food (9.1%) and failure to gain weight (9.1%) (23).

It is widely known that the practice of OM varies from community to community and from urban to rural communities. Rural children are believed to have a higher prevalence of oral mutilation than their urban counterparts. For example, in the study done in Thika District Hospital, over 80% of children were found to have undergone the procedure by their 1st birthday (3). The indications for the procedure ranged from vomiting after feeds (43%) to recurrent upper respiratory infections (36%). About 6.1% were reported to have developed complications and majority of the complications having been treated at home. The mothers were reported to have been the main decision makers in taking of the children for OM, though child's paternal grandmothers had significant influence on whether the child was to be operated or not. Majority of the respondents (69.8%) believed that OM namely uvulectomy was necessary. However 30.2% of them indicated they would not take another

child for OM citing lack of improvement (34.4%) or were now well informed (15%) or just did not believe in the benefits of the practice. The complications reported were 6.1% though not serious to warrant admission.

However in-patients were not included in the Thika study, raising questions of whether the serious complications were missed by conducting the study in an outpatient setting. This proposed study was designed to target both in and outpatients to fill this obvious methodological gap.

CHAPTER 3: RESEARCH DEFINITION

Statement of Research Problem and Justification

Although a number of research studies exist concerning the various forms of oral mutilation and their complications, the magnitude of the practice is still to be fully described in the urban set-up. In the study done at Thika District Hospital (3), 80% of children visiting the outpatient department were found to have undergone uvulectomy, which, is a form of oral mutilation. This suggests that the practice is quite prevalent in the community as cited in the results. Thika District Hospital serves mainly the rural communities in Thika District, Gatundu and Kandara Districts. Other communities that practice OM are yet to be documented. The factors that predispose children to this practice are also yet to be determined. Consequently, gaps in the literature review exist, on how best to approach and package information needed to reduce or eliminate oral mutilation (OM) practices among the various practicing communities.

Cross infections through instruments stained with body fluids may still be ongoing. This raises concern due to the current HIV/AIDS pandemic, high prevalence of Hepatitis B and other blood borne infections, as recent work has suggested that many of these infections are through traditional practices.

Regrettably despite documented evidence of complications associated with oral mutilation, itinerant traditional surgeons working throughout other sub-Saharan Africa including Kenya continue to perform these procedures. The procedures have been documented to cause haemorrhage, septicaemia,

tetanus, gangrene, contractures, abscesses, airway obstruction, and even death (1).

Whereas the Government of Kenya has put in place policies to prevent harmful traditional health practices such as female genital mutilation (FGM) perpetrated against children, none exists with respect to oral mutilation (OM).

The study offered an opportunity to determine the prevalence of oral mutilation among the under five children. It also sought to describe the characteristics of the people that practice oral mutilation as seen at KNH. The information generated could hopefully provide baseline data that would stimulate community-based studies among the communities found to practice oral mutilation. Indeed the study was deemed useful, as data collected could hopefully be used in the future in developing policy on oral mutilation (OM) in Kenya.

The study proposed to establish the prevalence of OM as seen at KNH, the factors that predispose children to the practice and the ways in which OM practice could be reduced or eliminated. To address these crucial questions, answers to the following questions needed to be determined such as: -

What was the prevalence and impact of OM on childhood mortality and morbidity among different groups?

In what ways were the children vulnerable in the perpetuation of OM practice? (Was it the lack of Knowledge and/or poor attitude's relating to OM? or was it

strong compulsions to perform and keep to tradition in disregard to current information regarding OM, by the parents, guardians and/or caregivers)

What were the socio-economic and contextual factors that compounded the access to information in those practicing OM?

What strategies could be adopted to eliminate negative practices?

The study will hopefully contribute to the understanding of oral mutilation (OM) among children less than five years old seen at the Kenyatta National Hospital.

Kenyatta National Hospital (KNH) serves a wide cosmopolitan population with diverse ethnic backgrounds; it also deals with a wide range of referred patients from all over the country. Due to this unique nature of the hospital, the study proposed to provide information from people with diverse backgrounds. This is to be useful in stimulating further studies among different communities that were identified, as having a high prevalence of OM.

Research objectives

General objective

The study goal was to determine the prevalence of oral mutilation and to describe its associated factors, among children aged below five years (60) months seen at Kenyatta National Hospital in Nairobi.

Specific Objectives

1. To determine the characteristics of the parents, guardians and caregivers (respondents) of the children namely their ages, sexes, marital status, ethnicity, religion, and number of their children, and their educational backgrounds and occupation.
2. To determine the prevalence of oral mutilation and the associated complications in the under five children.
3. To determine the knowledge, attitudes and practices with regard to oral mutilation among the parents, guardians or caregivers of the children seen at the Kenyatta National Hospital.

Research Hypothesis

The following hypotheses were tested in the study: -

1. That there is no difference in the complications associated with OM among children whose parents; guardians or caregivers had lower knowledge of the OM than in parents, guardians or caregivers whose knowledge on OM was higher as measured using the reliability approach used to generate an index representing the level of knowledge based on the knowledge questions.
2. The practice of OM is exclusively performed by traditional surgeons and not by the modern Professional health care practionners.

Conceptual hypothesis:

The family and peer influence, educational background, knowledge, attitudes, cultural beliefs, economic background, accessibility to healthcare, information sources, and ethnicity of the parents, guardians and caregivers, are likely to influence the oral mutilation practices positively or negatively among the under five children.

Conceptual framework

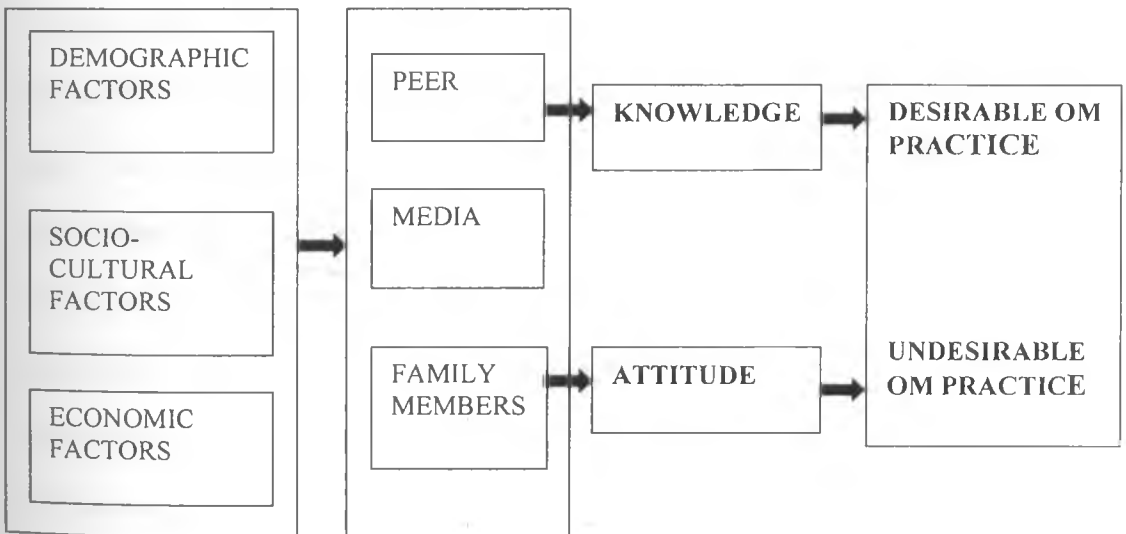
The concepts are borrowed from the conceptual statement.

CONCEPTUAL FRAMEWORK

Background factors

Proximate factors

Outcome



CHAPTER 4: METHODOLOGY

Study design

This was a descriptive, cross-sectional study among children under five years (60 months) of age, seen at the Kenyatta National Hospital, Nairobi, Kenya.

Study area

The study was carried out at the Kenyatta National Hospital ((KNH) in Nairobi. KNH had been in operation for 107 years and it had celebrated it's Centenary earlier in 2001. It covers an area of 45.7 hectares and within the KNH complex are College of Health Sciences of the University of Nairobi, the Kenya Medical Training College, Kenya Medical Research Institute and National Laboratory Service, which is a department under the Ministry of Public Health.

Kenyatta National Hospital (KNH) has 50 wards, 20 outpatient clinics, 24 theatres of which 16 are for specialised surgery and Accident & Emergency Department. Out of the total bed capacity of 1800, 225 beds are for the Private Wing. There is a Doctors' Plaza consisting of 60 suites for various consultant specialities. The hospital offers a wide range of diagnostic services such as Laboratories, Radiology/Imaging and Endoscopies among other specialised services that include an array of preventive and curative services. It has a busy paediatric unit, dental unit and maternal child health and family units (MCH/FP). The average bed occupancy rate is was 300%. In addition, at any given day the Hospital had in its wards between 2500 and 3000 patients. On average, the Hospital catered to over 80,000 in-patients and over 500,000 outpatients annually (28).

The majority of the children/infants visiting the hospital are from Nairobi and its environs with referral cases coming from all over the country.

The Nairobi River flows across the city from the west to the east and drains into the Athi River. Nairobi lies in the south of the nation, and has an elevation of 1661 m (5450 ft) above sea level.

Nairobi is the most populous city in East Africa, with an estimated urban population of 3.301 million, calculated using the 1999 census report, using the following formula: $P_t = P_o e^{rt}$

Where: p^t = population estimate mid-year 2008

P_o = Nairobi mid-year population 1999 (2,143,254)

r = Nairobi population growth rate (4.8%)

t = time period in years from 1999 to 2008 (9 years)

According to the 1999 Census, in the administrative area of Nairobi, 2,143,254 inhabitants lived within 684 km² (264 sq mi). Nairobi is currently the 4th largest city in Africa, population wise.

Nairobi enjoys a fairly moderate climate. The altitude influences the weather patterns and especially in the evenings when the temperature can drop to 10 °C (50 °F) in June /July. The sunniest and warmest part of the year is from December to March, when temperatures average around mid-twenties during the day. The mean maximum temperature for this period is 24 °C (75 °F), (28). There are two rainy seasons namely March to May and October to

December. The cloudiest part of the year is just after the first rainy season during which the skies are usually overcast with drizzle. As Nairobi is situated near the equator, the differences between the seasons are minimal. The seasons are referred to as the wet season and dry season.

Justification in choosing KNH as the study area

First of all, KNH serves a wide range of communities with different ethnic origins and demographic backgrounds from the urban, peri-urban and the rest of the country. The children attending the hospital were from diverse backgrounds; hence the study was to serve well, as a pilot study that may stimulate further research on targeted communities found to have a high prevalence of OM.

Secondly, KNH has a busy Paediatric, Dental and child welfare clinics and has both inpatient and out patient facilities. This was to allow a greater range of study subjects that would include both the inpatient and out patients.

Thirdly, it also boasts a wide variety of health providers that were to be interviewed in the study as key informants.

Target population

These were children below five years (60 months) in the outpatient and inpatient departments. The respondents were the parents, guardians or caregivers of the sampled children with informed consent to participate in the study.

Study population

The study population consisted of parents, guardians or caregivers who had clinical information regarding OM statures of the children as established by the interview. The clinical information on the child's state of oral mutilation in the study area was to be attributed to the child's position within the family or community. Participants in the study were therefore the parents, guardians or caregivers with the clinical information of the family unit. Healthcare workers dealing with the under five children in KNH were the respondents from the service providers' point of view.

Parents, guardians or caregivers bringing the children to KNH were interviewed to determine the eligibility of their children in the study, as guided by the inclusion criteria. If their children qualified and the parents, guardians or caregivers gave consent to participate in the study, they were guided through the pre-coded, structured and closed ended questionnaire and the children's mouths' checked for evidence or signs of mutilation.

The guardians and caregivers consisted of the extended kinship to the children and included the elderly, siblings, uncles and aunts. It also included social workers.

The keys informants consisted of Health care providers with information concerning knowledge and morbidity trends on OM and how the community solves its health problems. The selection criteria for the key informants was; "health care workers who had worked for at least one year in the paediatric department or dental unit and assumed to have likely encountered cases of

OM and had been willing to be interviewed". The key informants included health care workers, social workers, and the traditional surgeon that performed OM in Nairobi.

Sample determination

To determine how many children were to be sampled in order to obtain a reasonably accurate picture of the prevalence of Oral Mutilation (OM), the sample size formula according to Dobson (24, 25) was applied.

$$n = \frac{z^2 p (1-p)}{D^2}$$

Where:

n = Sample size

P = 0.5 (hypothesized proportion of subjects with adequate knowledge, rational attitude and positive practice on OM prevention, this was adopted as in the study included both in-patient and out-patient departments and both nylon tooth-bud removal and uvulectomy were taken as OM, unlike the studies done in Thika, Uganda and Nigeria where only one department and one aspect of OM was studied).

Z= 1.96 (reliability coefficient corresponding to 5% significance level. proportions used in Thika, Uganda and Nigeria were all from either inpatient or out patient setting only, in this study both in and out patient children were sampled hence the choice of this reliability coefficient).

D=0.05 (degree of precision).

Using the formula given above, the sample size (n) will be,

$$n = (1.96)^2 0.5(1-0.50) / (0.05)^2 = 384.16$$

Therefore, a sample size of a maximum of **n = 384** children was needed to assure that the 95% confidence interval for the estimated proportion was within $\pm 5\%$ of the true prevalence. To this sample size, 10% was added to cater for non-responses to give a total sample size of **423** children.

Sampling technique

The children

Convenient, non-probability sampling was done on eligible under-five year old children presenting for routine check-up and treatment at the KNH inpatient and outpatient paediatric, dental and postnatal clinics and wards. This technique was adopted due to the limitation in time allocated to collect the data and the financial constrains, though it may have resulted to study limitation as generalization of the results to the rest of the population could not be done. The total population of both male and female in Nairobi is now approximately 3.301 million with the ratio of male to female being approximately 1:1 (26,27). The ratio of the male to female children aged below five years would thus be taken to be approximately the same at KNH. Hence the proportion of the male to female children in the study sample was approximately of equal size.

The average monthly attendance of the under-five children at the hospital was established from the records clerk prior to the sampling exercise. Allocation of the number of children sampled from the inpatient and outpatient departments was calculated based on the strengths of the proportion between the average monthly "under five" out-patient attendance and in-patient attendance to give a total of 423 children. This was repeated to give the numbers required from various outpatient clinics and inpatient wards based on the strengths of the proportions in the attendances in the individual clinics or wards. The outpatient clinics were then assigned numbers (codes), based on their total.

The inpatient wards with under five children were also assigned numbers (codes) based on the total number of wards with children less than five-years old. Each morning balloting was done to identify one outpatient clinic and one ward to be visited to administer the questionnaires by each research assistant and one out-patient clinic and one in-patient ward by the principle investigator. At each of the outpatient clinic the average total attendance per day was established from the records clerk. A sampling frame was then made with the numbers from one to the number N. The sample size (n) of 20 was used based on the average expected number of questionnaires that were to be administered on each material day due the time allocated. The sampling fraction (k), that is n/N , was then used to generate random numbers from the table of random numbers. The under-five children reporting to the clinic were then assigned numbers as they registered. Those having the number generated earlier from the table and meeting the inclusion criteria were then included in the study. Care was taken to sample an equal number from each

sex. In the ward the same procedure was repeated in selecting the children. These procedures were repeated each day until the sample size was achieved with a sex ratio of approximately 1:1.

At the registration desks of the various clinics namely the dental clinic, paediatric clinics and child welfare clinics, and the inpatient wards, the one records clerk was requested to help in identification of the children. Those presenting with non-emergency cases and those presenting for regular check-up or vaccination were the potential candidates for the study. Two health care officers provided names of the children eligible for the study. The trained interviewer then approached the parent, guardians or caregivers in the waiting area to inform them about the study. Those who gave consent signed an informed consent form, to allow the children to be examined. The trained interviewers then used the pre-tested questionnaire to collect information on the demographic and socio-economic characteristics of the respondent's in the context of OM. No information was collected from non-participating parents, guardians or caregivers or their children.

Inclusion and exclusion criteria

a) Inclusion criteria

- A parent, guardian or caregiver who had brought a child aged up to five years to be attended at the hospital during the study period and had consented to be included with the child in the study and had signed the consent form.

- Children of up to five years who had or had not been subjected to OM were eligible to the study.
- The key informants included health workers and social workers who had worked with children below five years for at least one year and had accepted to be interviewed during the study period

b) Exclusion criteria

- The parents' guardians or caregivers not meeting the inclusion criteria were those who refused to be recruited with their children and those who had children with medical conditions that made oral examinations extremely uncomfortable e.g. jaw tumours, severe gingivitis, epiglottitis, or just the very sick children.
- The key informants that declined to be interviewed.

Study Variables

Conceptual statement

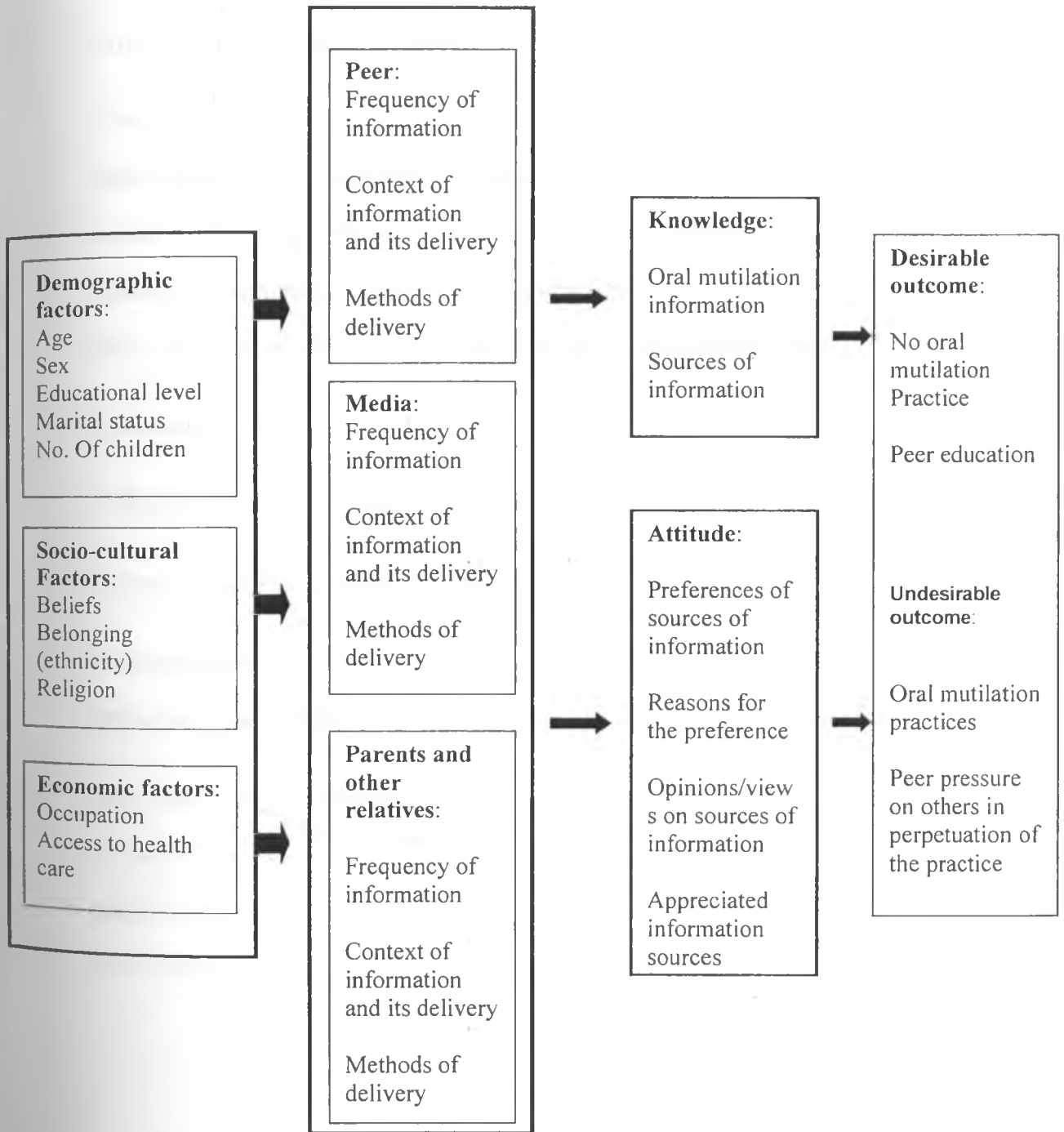
Although oral mutilation among children less than five years is likely to be affected by parents, guardians or caregiver's knowledge and attitude regarding oral mutilation, ethnic background, peer pressure, pressure from family members, economic factors, accessibility to healthcare, educational background, cultural beliefs and information sources of the parents, guardians or caregiver's can at the same time promote the practice.

OPERATIONAL FRAMEWORK

BACKGROUND
FACTORS

PROXIMATE FACTORS

OUTCOME



Background (Independent) variables

These included the respondents personal characteristics and included; Age; sex; Educational background; marital status; beliefs; ethnicity; religion; occupation and access to healthcare.

Proximate (Dependent) variables

These were variable related to knowledge, attitude and practices of the respondents and included the frequency, methods and context of information acquired from the peers, family and media, Oral mutilation knowledge and attitudes. Preferences, opinions and appreciated sources of information on OM, that eventually result to reasons that lead to the practice of OM.

Outcome variable

Desirable outcome: - No recommendation and/or the practice of OM.

Undesirable outcome: - Recommendation and/or the practice of OM.

Data collection

Structured questionnaires

Data was collected from the respondents' using a closed ended questionnaire (Appendix II). Key informants were interviewed guided by the key informant guide (Appendix III). Data from the clinical examination of the children's mouth was collected and recorded. Demographic data of the children was collected.

Clinical examination of the children

This was conducted to confirm the findings from the interviews. It was conducted alongside the interviews, and in the presence parents, guardians or the caregiver.

Determining the oral mutilation status was done through clinical examination of the children after the interview. It was done using a simple light source (touch) and a spatula where necessary with the child firmly held with one hand facing the examiner while sitting on the respondents lap and forehead immobilised with the other hand. The findings of the assessment of the uvular and the natal teeth were then recorded in the questionnaire. Those with an uvular stump or missing primary dentition were taken as evidence of OM after the confirmation of the respondents.

Quality control of data and data processing

Prior to the pre-testing of the questionnaire, randomly selected key informants, parents, guardians and care givers at Mbagathi District Hospital in Nairobi, were interviewed regarding the general aspects of the community life in regard to oral mutilation (OM). Information obtained was useful in improving the study instruments and results interpretation. The investigator personally conducted the informal key informant's interviews.

The personnel involved, two nurses and six University students on vacation, were trained on the use of the various instruments of data collection. A training session was held prior to the onset of the survey outlining the purpose

of the survey, general information and instructions on how to complete the questionnaires. Proper verbal etiquette, potentially difficult situations and administrative details were discussed. Targets were then assigned to each trained interviewer at conclusion of the training session. The questionnaire was tested during the training of the interviewers at the Mbagathi District Hospital in Nairobi. Parents, guardians and caregivers in the paediatric wards at the hospital who agreed to be interviewed were used to test the questionnaires. However these were not invited to participate in the main study. The findings of the pre-test were used to improve the reliability of the data collected.

Trained interviewers, using the standard and coded questionnaire with mostly the closed ended questions, interviewed the parents, guardians or the caregivers who have met the inclusion criteria, according to the medical officers at the clinics and wards. After informed consent (Appendix I) was given, demographic data of the respondents and the children was collected and recorded. Information regarding OM was collected guided by the questionnaire and the clinical examination of the children's uvular and the primary dentition or tooth germs physically using a touch and spatula. This was compared and verified with the respondents' response regarding the OM history of the child.

Data management and analysis

Data management

Data was double entered into Statistical Package for Social sciences (SPSS) software version 10, and 10% of the forms checked randomly to ensure that the error rate for data entry is < 0.3%, with a 95% level of confidence.

Data analysis

Absence of the primary dentition and/or a mutilated or amputated uvular was used as an evidence of oral mutilation. Disaggregated frequencies of the socio-demographic were then determined using SPSS software, version 10. The socio-demographic characteristics were cross-tabulated against knowledge, attitudes and practices of oral mutilation using SPSS software, version 10. Evidence of OM on the children namely, absence of primary dentition following tooth bud removal or a completely or partially amputated uvula was used as the cut-off point that indicated OM practice. The socio-demographic characteristics and data on knowledge, attitudes and practices of OM were then compared to that of children with no evidence of OM practice. The demographic data of the children who had undergone OM was compared with those who had not undergone the practice.

The chi-square [χ^2] test of significance was applied to identify factors that were related to the subjects' knowledge, attitudes, and practices on OM.

Logit regression analysis was also performed to determine the effect of each of the considered variables on knowledge, attitudes, and practices on OM independent of the other factors.

The level of significance used for comparisons was 5 percent.

The reliability approach was used to generate an index representing the level of knowledge based on these questions. The higher the score of the generated variable more knowledgeable the respondent is.

Study limitations

The children attending the hospital do not represent the entire population of children in Nairobi; hence the findings of the study may not be generalisable to the entire population of Nairobi children or Kenyan children in general.

Recall biases of the details of OM practice may have interfered with the reliability of the study findings.

Ethical considerations

The study proposal was presented to the Kenyatta National Hospital /University of Nairobi Ethics and Research Committee, which constitutes of the Kenyatta National Hospital – College of Health Sciences, University of Nairobi, for approval.

Approval was also sought from and the Provincial Medical Officer of Nairobi.

The objectives of the study were clearly explained to the respective heads of the departments in the study, who were then requested in turn to explain to, and encourage cooperation from his/her respective staff members.

After clear understanding of the study objectives, the consent of the subjects expected to participate in the study was taken (appendix I). The respondents were assured of the confidentiality of their responses.

The principal investigator also answered questions on Oral Mutilation (IOM) that were raised by the persons. Those suspected of not having adequate knowledge on OM and the principle investigator or his assistants educated its related potential complications. The subjects found to have any complications of a recent or past OM procedure were attended to by the researcher or referred for specialized management.

CHAPTER 5: RESULTS

A total of 423 children aged between 1 and 60 months (median age of 7 months with an inter-quartile range (IQR) of 4 to 11 months) were selected into the study, 232 (54.8%) from the outpatient departments and 191 (45.2%) from the inpatient departments. A total of 20 key informants were also interviewed in the hospital that consisted of 4 paediatricians, 3 dental surgeons, 7 clinical officers and 6 nurses. Only one traditional OM practitioner was identified and he agreed to be interviewed. He was a 53-year-old Kamba who practiced at a slum in Nairobi South-B called Mukuru Kayaba.

Background and characteristics of the respondents

The caretakers of study children who responded to the questionnaire were composed of 414 (97.9%) parents, 8 (1.9%) guardians and 1 (0.2%) caregiver.

A significant proportion of the respondents, 354 (83.7%) were females and 69 (16.3%) were males and their ages ranged from 17 to 53 years (mean and standard deviation: 27.7 ± 5.6 years). This probably indicated that female sex may be the key players in matters relating to the sick child and health seeking behaviour than the male. 375 (88.7%) were married, 47 (11.1%) were single and 1 (0.2%) was widowed.

The respondents who were secondary school leavers were 204 (48.2%), while those who had attained primary level of education only were 126 (29.8%), post secondary 85 (20.1%) and those with no formal education were 8 (1.9%).

Respondents Occupation

The majority were unemployed 219 (51.8%) with those in the informal sector being 105 (24.8%) and those in formal employment were 99 (23.4%).

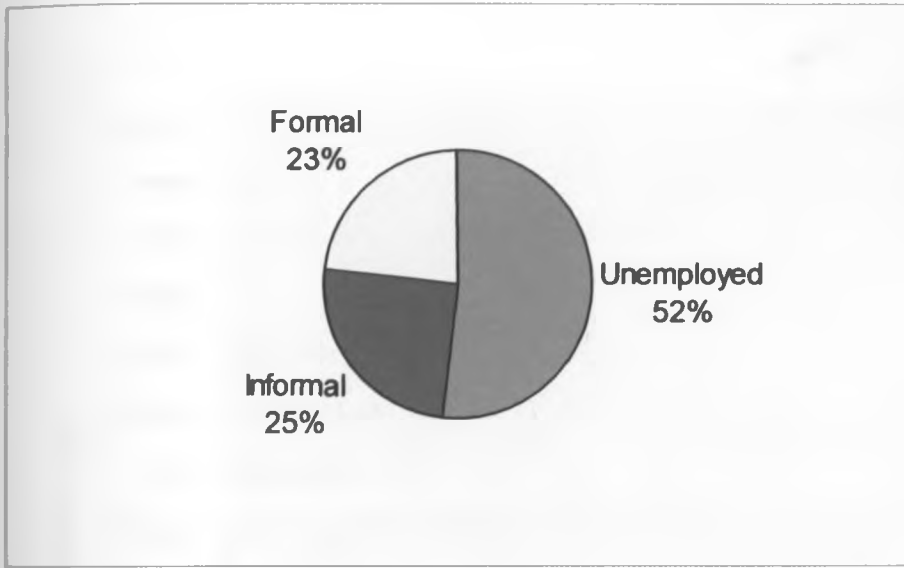


Figure 1: The relative distribution of the respondents by Occupation (N=423)

Religious affiliation

The main respondents were the Christians who in this study were grouped as Catholics and Protestants. These two groups accounted for 98% of the respondents. Muslims accounted for 2% of the respondents. There were no respondents from the other faiths.

Respondents' ages

The ages of the respondents ranged from 17 to 53 years (mean and standard deviation: 27.7 5.6 years). The mean age was 27.7 years with a median of 27 years and a mode of 25 years.

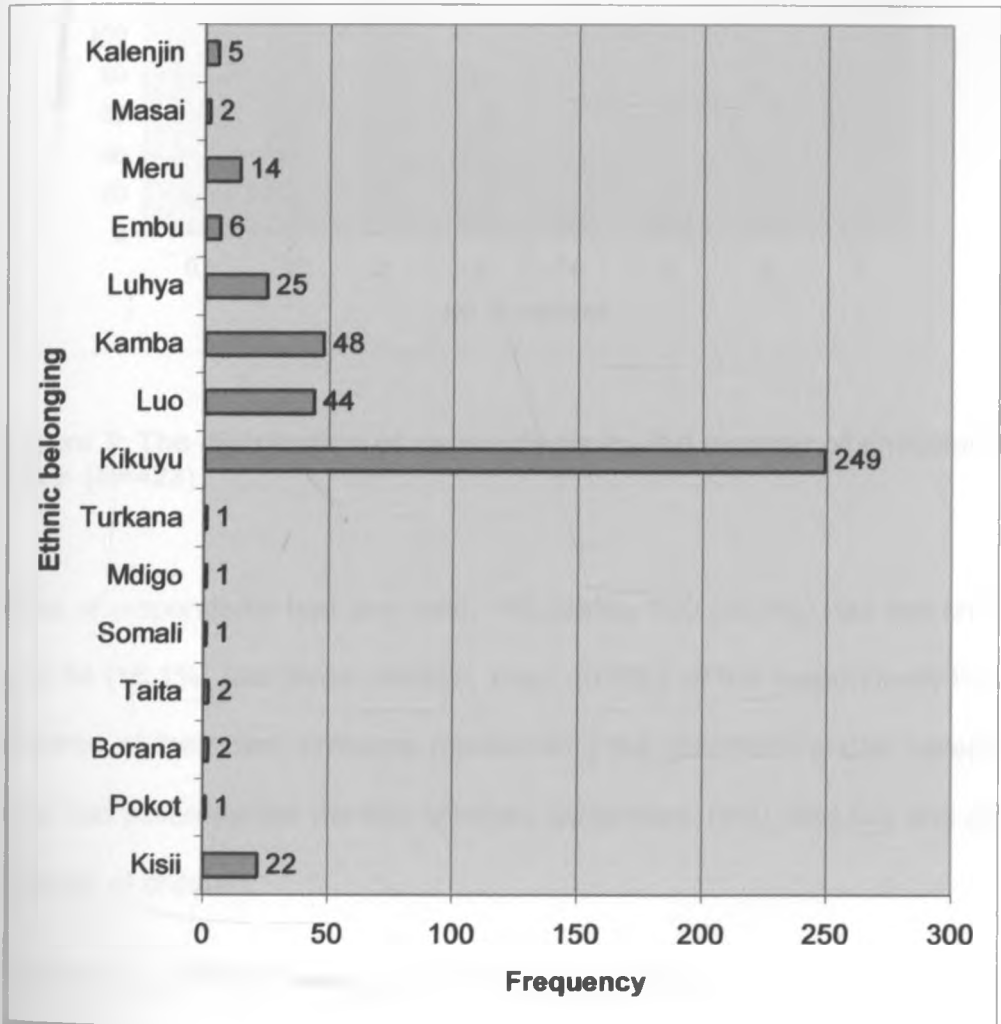


Figure 2: Distribution of the respondents by their ethnic belonging (N=423)

The main respondents in this study by ethnicity were the Kikuyu, 249 (58.9%), followed by the Kamba 48 (11.3%).

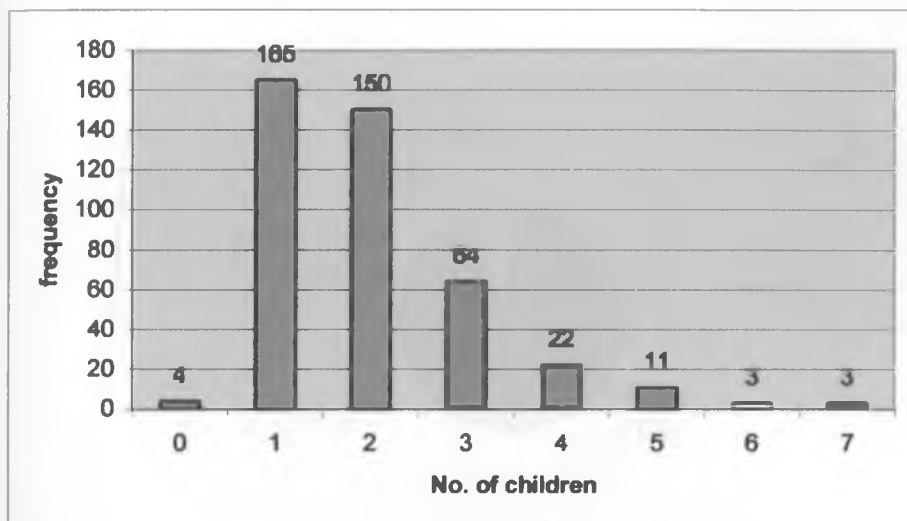


Figure 3: The distribution of respondents by the number of children they have (N=423)

Most of respondents had one child, 165 (39%), 150 (35.5%) had two children and 64 (15.1%) had three children. Four, (0.9%), of the respondents had no children of their own, probably representing the guardians and/or caregivers who had accompanied the sick children. Seventeen, (4%), had five and above number of children.

Percentages of OM and associated complications

Sixty-three children had oral mutilation giving a percentage of 14.9% (95% confidence interval: 11.5% - 18.3%).

The mutilated anatomical part involved was mainly the uvula 44 (69.8%), tooth germs 14 (22.2%) and both uvula & tooth germs 5 (7.9%).

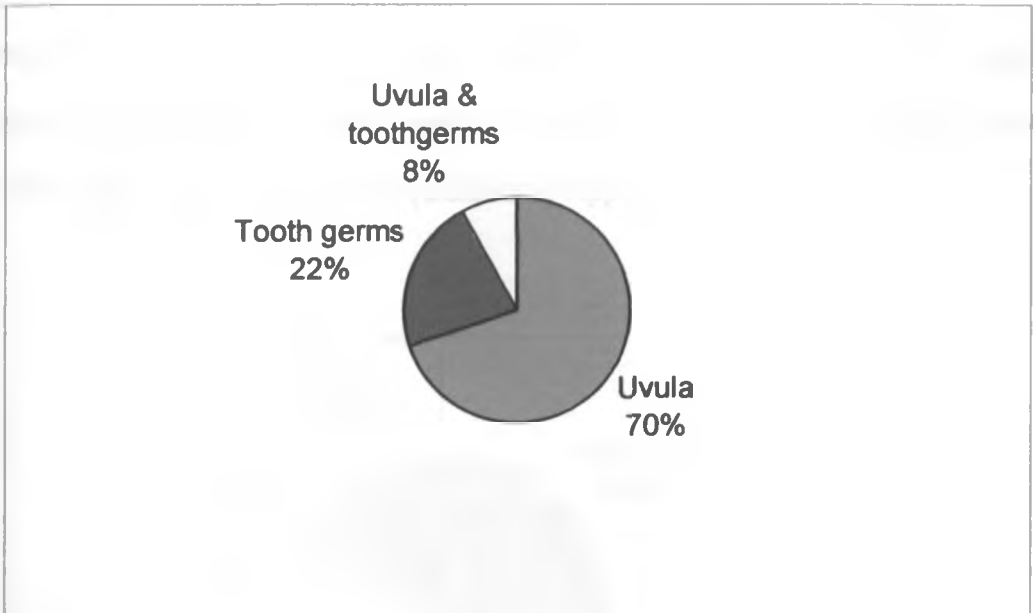


Figure 4: The mutilated anatomic parts (N=423)

The traditional surgeons performed 51 (81%) of traditional oral mutilations cases. Healthcare workers namely nurses, clinical officers and medical officers performed 12 (19%) of the procedures.

Indications of OM

The main reason given for the majority of the cases of the Oral Mutilation was “vomiting after feeds” (30.2%), the other indications in descending order were “recurrent cough” (27%), “diarrhoea and vomiting” 17.5%, “cough, diarrhoea and vomiting” (12.7%), “swallowing difficulties” (4.8%) and “loss of appetite” 1.6%). From the narratives given by the practicing traditional OM practitioner,

recurrent cough, vomiting, poor appetite, prophylaxis against choking and other traditional beliefs were given as the main indications. The key informants interviewed at the hospital felt that these cultural practices and beliefs with ignorance on modern treatment methods, poverty with poor access to medical services were to blame in making the children more vulnerable to the OM practice. (Guided by Appendix III)

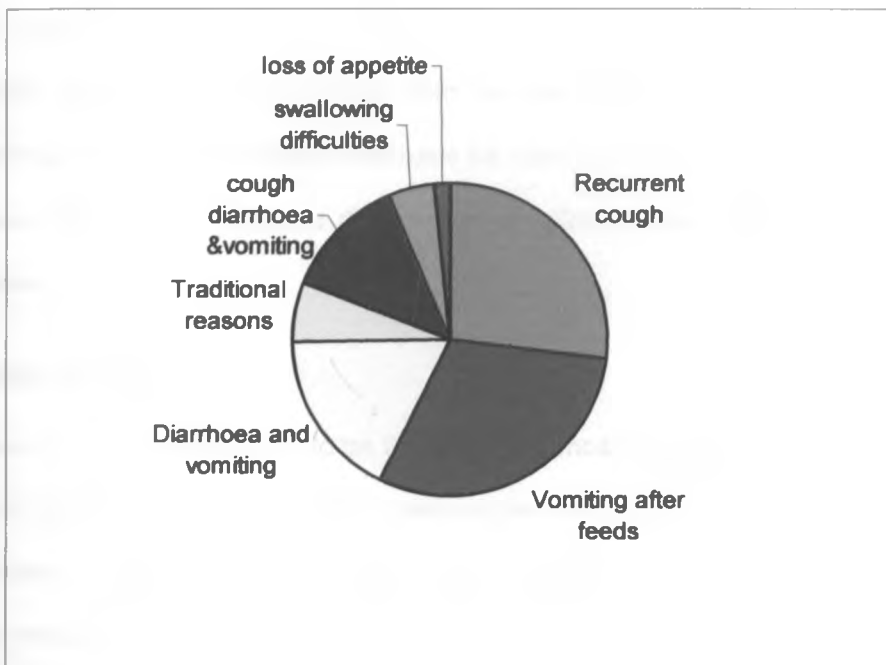


Figure 5: Indications for OM (N=423)

Complications

Complications following these surgical procedures (OM) were also reported by the respondents among 17 (27.0%) of the children that had undergone the traditional mutilation. Bleeding accounted for the most frequently encountered complication accounting to 9(53%) of the cases. Infections accounted for

6(35%) of the cases. One of the children was reported to have developed a speech problem and the other child developed a complication of which the respondent was unable to specify exactly, as to what it had been. The traditional OM practitioner reported that the only complication he had encountered in his practice was prolonged bleeding which to him was easily controlled by avoidance of solid foods and a teaspoon of calpol three times a day. The other key informants felt that other than the obviously visible complications like bleeding, interference with the permanent dentition and transmission of blood borne infection may have be resulting from the practices though there was lack of evidence due to lack of follow-up and studies in these children.

OM decision makers

The mother of the child was found to be the single the most influential person in maters of traditional OM accounting for 46% as the sole decision maker for the oral mutilation cases. The father alone came next accounting for 19% of the cases followed by all the other relatives combined, (but excluding the grandmothers) with 19%, then the traditional healers 9.5%. The children's grandmothers accounted for 7.9% and the healthcare workers 3.2%. Cases where both the father and mother had decided together and in-agreement accounted for only 1.6% probably indicating that on matters of OM it was rare to find both partners in agreement. The traditional OM practitioner said that in all the cases he had dealt with, it were the mothers who went to him

requesting for the tooth-bud removed and/or uvulectomy. The relative proportions' representing the decision makers are shown in figure 6.

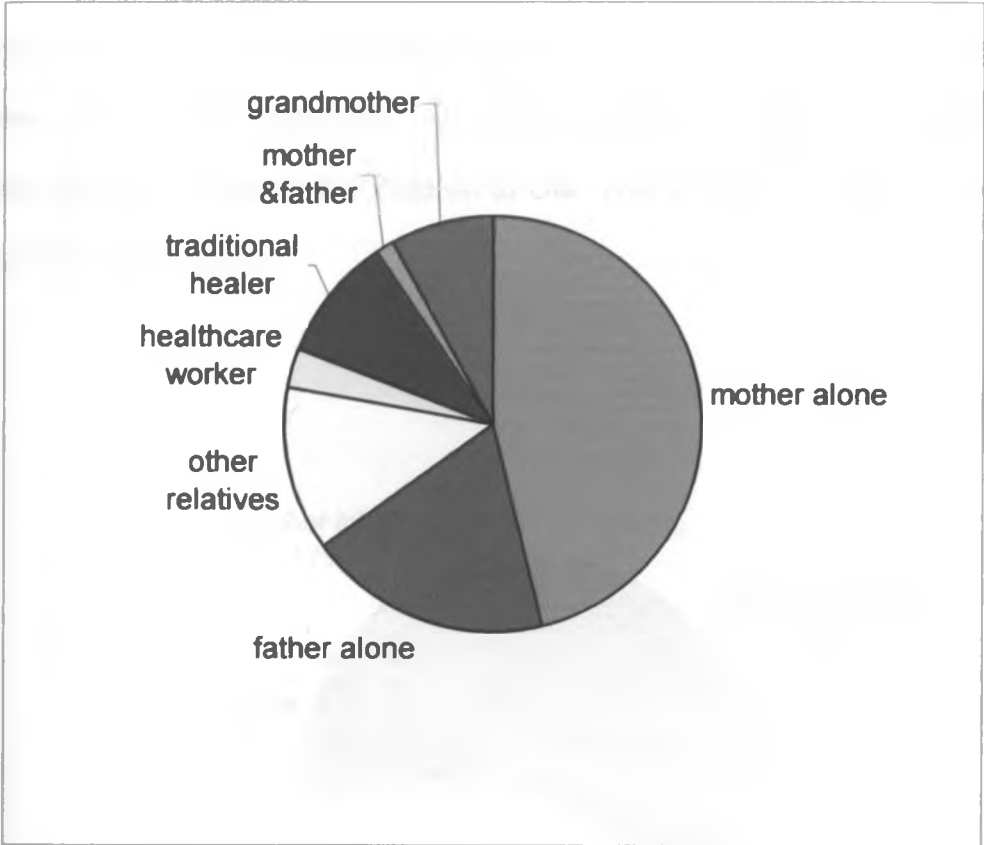


Figure 6: Distribution of OM decision makers (N=423)

Pressure to have OM

Of the 63 children who had undergone OM, 40 (63%) were done without any undue pressure exerted to the respondents to have the children undergo the procedure. However, in 23 (36%) of the OM done, the respondents indicated that they had been pressurised to have the children undergo traditional OM.

The grandmothers of the 23 children were reported to have been the most indicated subjects in pressuring the respondents subject the children to OM representing 8 (36%) of the cases. The mother in-law accounted for 4 (17%) and the fathers (9%). All the other relatives combined accounted to 7 (30%). A friend (4%) and a pastor (4%) were also reported to have pressurized the respondents to subject the children to OM. This is depicted with the relative proportions in figure 7.

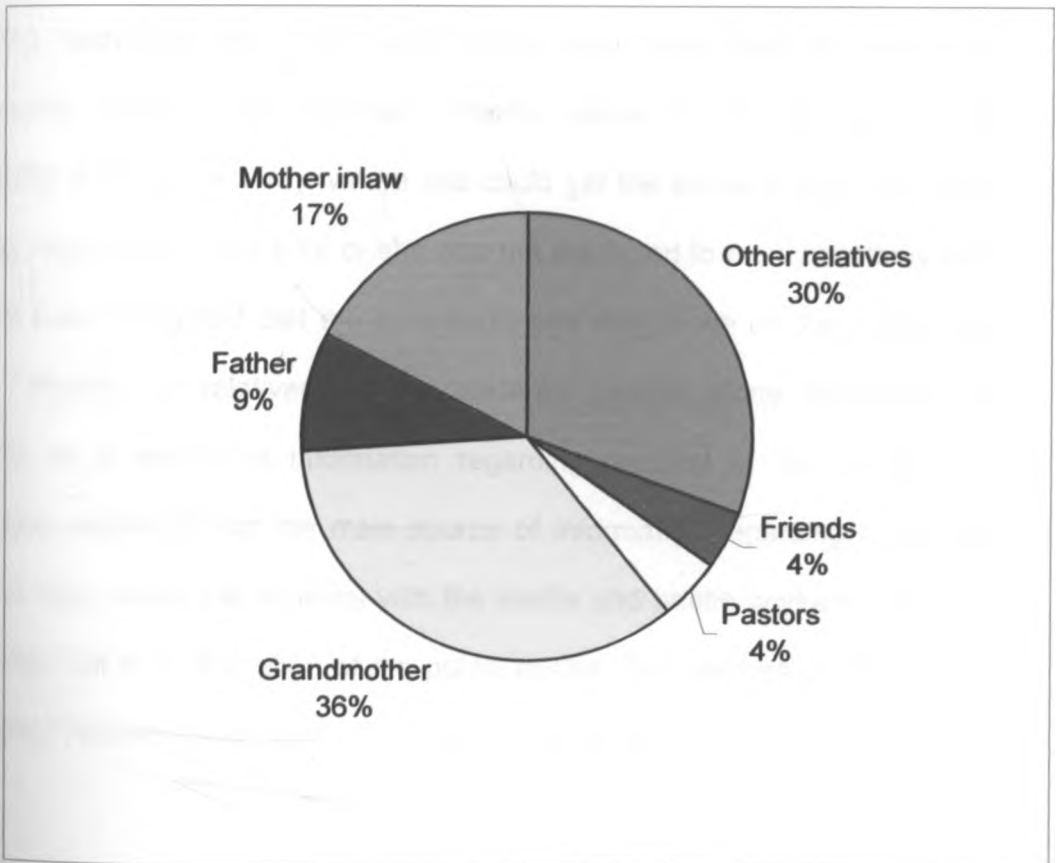


Figure 7: Sources of pressure to have OM (N=423)

Knowledge, attitudes and practices of child caretakers with regard to oral mutilation

Knowledge

Those indicating they had heard of uvula removal were 367 (86.8%), whereas 56(13.2%) indicated that they had not heard of its removal. The main source of this information regarding removal of the uvular was obtained from the relatives (52.9%), followed closely by friends (44.4%), healthcare workers (1.9%), television and other media (0.5%) and lastly from the traditional surgeons (0.3%). The information mainly related to the indications and benefits of the uvulectomy, where one could get the services and even what could result to the child if he or she was not subjected to the uvulectomy with some even being told that the child could one day choke on the uvular and die. Among the relatives, the respondent's parents alone accounted for 17.2% as a source of information regarding removal of the uvula. This probably indicated that the main source of information regarding traditional OM is from within the relatives with the media and health workers playing a minimal role in sensitisation of the public to OM. The sources of information and their relative frequencies are depicted in figure 8.

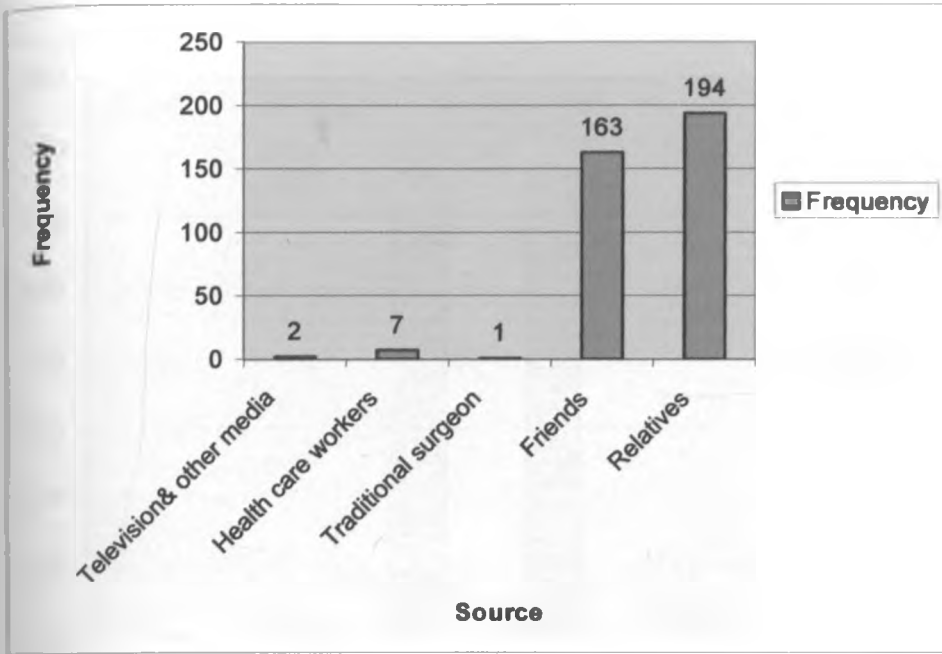


Figure 8: Frequency distribution of the sources of information about uvulectomy (N=423)

Information on the removal of the germinal tooth-buds had been heard by only 274 (64.8%) of the respondents out of the 423 interviewed. The main source of this information having been through friends of the respondents (49.2%) followed closely by relatives (45.2%) and health workers (4%). The media and traditional surgeons accounted for 1.6%. This as with uvulectomy, show that relatives and friends were the main source of information with the media and health care workers accounting for less than 6%. This is illustrated in figure 9.

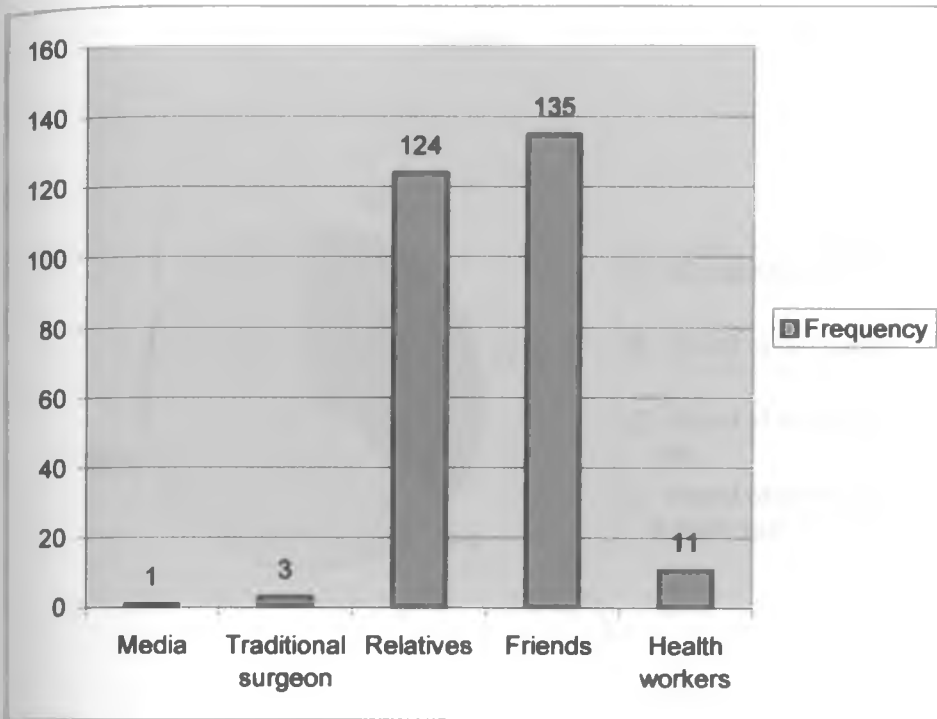


Figure 9: Sources of information regarding tooth-bud removal (N=423)

Of the 423 respondents that were interviewed the majority of the respondents had heard of removal of both the uvular and the tooth-buds (59%), followed by those who had heard of removal of the uvular only (27%). 9% had not heard of either of the two forms of OM. 5% had heard of removal of tooth-buds only (figure 10).

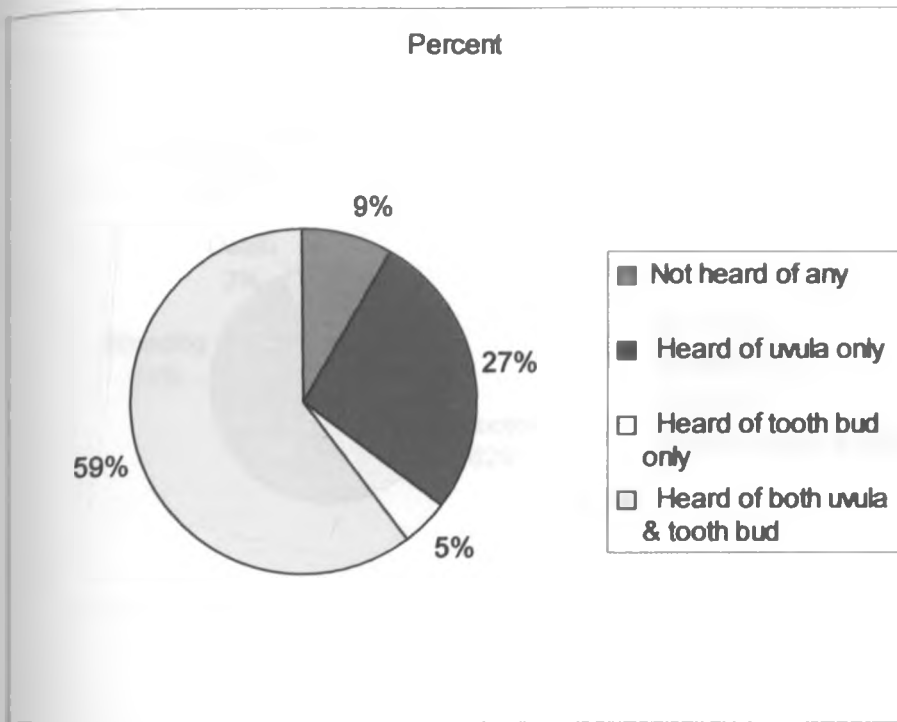


Figure 10: Responses on removal of the uvular and/or tooth-buds (N=423)

The responses regarding the safety of OM on children:

Oral mutilation was cited as harmful to child's health by 258 (61%), of the respondents with 98 (23.2%) indicated that it was not harmful and 67 (15.8%) not knowing whether it was harmful or not. The possible health effects that were known by 150 (35.5%) of the respondents with their relative proportions are depicted in figure 11.

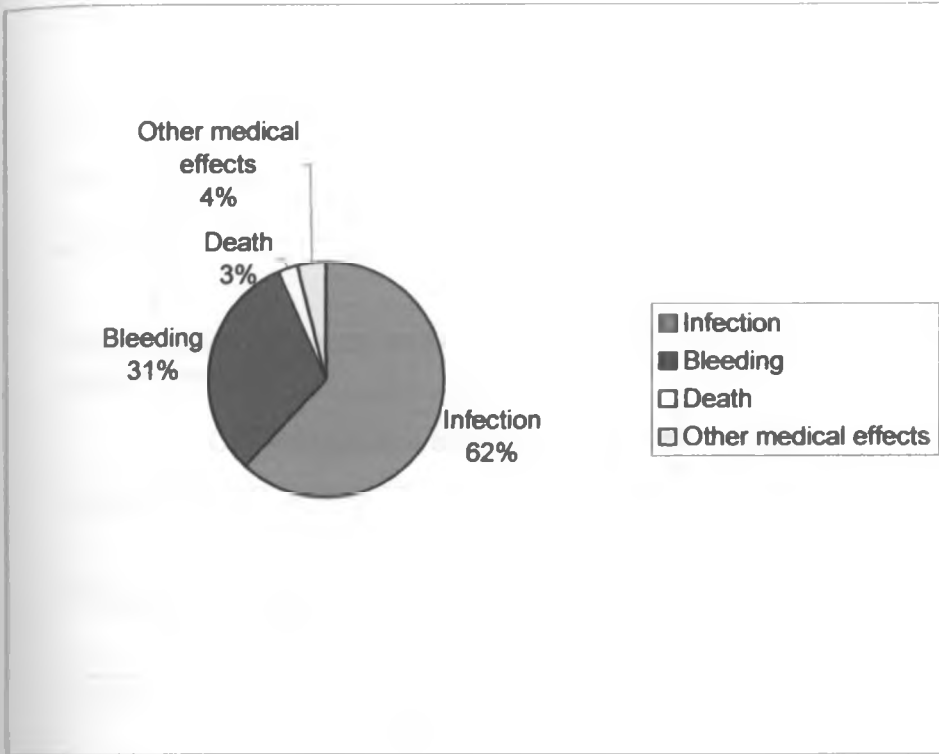


Figure 11: Respondent's awareness of the possible health effects of OM (N=423)

The majority felt that OM could result in infections 93(62%), uncontrollable bleeding 47 (31.3%), death 4(2.7%) diarrhoea and vomiting 2(1.3%), swallowing difficulties 2(1.3%), loss of tastes 1(0.7%) and dental problems 1 (0.7%).

Responses on how and where the respondents felt they could access information on OM:

Only 123 (29.1%) did not know where they could get access to information on OM. Those who felt they knew they gave the following as their possible sources: -

Table 1: Respondents awareness on the possible sources of information on OM (N=423)

OM knowledge source	Frequency	Percent
Grandmother	5	1.7
Traditional surgeon	9	3.0
Clinic	11	3.7
Health workers	70	23.3
Internet/books/journals/periodicals	205	68.3
Total	300	100.0

Regarding whether respondents knew of children who had complications, 96 (22.7%) indicated that they knew of children who had undergone OM and had developed complication, 37 (38.5%) indicated that the children belonged to relatives, 22(22.9%) to friends and 37(38.5%) to neighbours. The role of institutions such as schools, religious organizations, the importance of politicians contributions and the use of multimedia channels of communication

was greatly emphasised by the key informants in the dissemination of proper information regarding OM practices. In particular use of radios, inclusion of OM in village barazas by various leaders and health workers, was noted to be important. The key informants stressed on the need for an integrated strategy in the information dissemination.

Attitudes

Regarding their attitude to OM, 272 (64.3%) considered OM a public health problem, 89 (21%) felt that it was not a problem and only 62 (14.7%) said they did not know whether it was a problem at all.

As to whether the respondents would worry about their children's health if they were underwent OM procedure, 315 (74.6%) stated that they would worry, 108 (25.5%) felt they would have no worry at all. Of those who said that they would worry, their reasons were fear of the child developing complications 310 (98.4%) and the others feared what people would think 5 (1.6%).

Responses as to whether OM was beneficial to a child's health, 109 (25.5%) believed traditional OM was beneficial, 294 (69.5%) considered it not beneficial and only 20 (4.7%) said they did not know. The traditional OM practitioner said the OM had great benefits in children as it resulted in faster growth with healthier children due to less vomiting and coughing.

The majority of the respondents 417 (98.4 %) stated that they were willing to get more information on health effects of OM; only 6 (1.4%) stated that they would not want to get any. Those who had stated that they were willing gave

their preferred sources as depicted in Table: 9. Of these respondents, 382 (91.6%) reported that the preferred source of more information on OM was from health providers, with 16 (3.8%), indicating they would prefer the religious organizations as their source, (Table 2).

Table 2: Preferred source of OM information (N=423)

Preferred source of information	Frequency	Percent
Health providers	382	91.6
Religious organizations	16	3.8
Schools	15	3.6
Other preferred sources	4	0.9
Total	417	100

Practices

Approximately one quarter 102 (24.1%) of the respondents indicated they would advocate that children undergo OM, 314 (74.2%) indicated they would oppose this practice and only 7 (1.7%) had no comment to make.

Of the respondents who indicated that they would advocate OM, the median recommended age for OM was 6 months. Most of the respondents preferred OM performed at the age of 12 months 25 (24.7%), 17 (16.8%) at 3 months and 15 (14.8%) at 1 month and below, indicating that the majority those

advocating, preferred OM done before the age of 12 months. This probably indicates that the most crucial period in the practice of OM is within the first year of life, (fig 12).

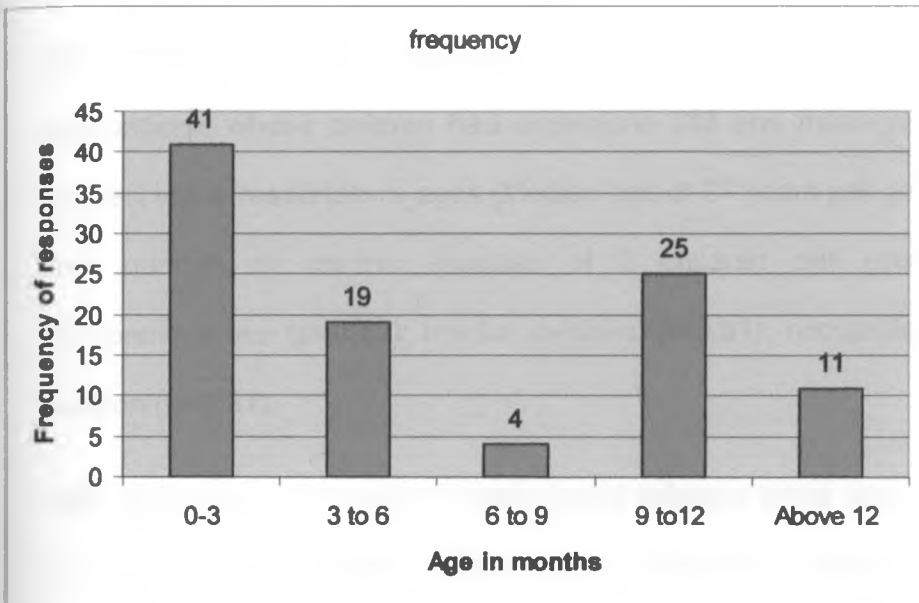


Figure 12: The ideal age indicated for a child to undergo OM (N=423)

Of the 102 (24%) who supported OM, their preference was for this exercise to be undertaken by the traditional surgeons 26 (25.5%) and the modern healthcare workers 76 (74.5%).

Of respondents who were interviewed in the study 101 (23.9%) indicated they would advice other people to have their children undergo traditional OM as they felt it was beneficial to children, 322 (76.1%) said they would not advice anyone to have their child undergo the practice.

Relationship between various Independent Variables and Oral Mutilation Practices

Socio-demographic profile:

Using the Pearson's chi-squared test of significant association, it was demonstrated that there were no significant statistical differences between respondents whose children had undergone OM and those who had not in respect to the respondents ages (Median age of 27 years per group $p = 0.98$); and number of children (median of 2 children per group; $p=0.95$), respondents sex ($p=0.52$); marital statuses ($p=0.61$); occupation ($p=0.36$) or religion ($p=0.57$).

Significant association was however found between those who had no formal education or had attained primary level of education (None + primary), and OM practice, ($p = 0.02$), with those that had attained these two levels of education having a higher likelihood of having children who had undergone the practice.

In summary level of education was found to be the single most important socio-demographic factor in relation to the practice of OM.

Knowledge:

Association was also found between having previously heard of uvulectomy and OM practice, ($p=0.01$), with a higher likelihood of the respondents who had previously heard of the uvulectomy having a higher likelihood of having children who had undergone the practice.

Significant association was also found between the respondents who had heard of both uvulectomy and tooth-bud removal and OM practice, ($p=0.008$), with a higher likelihood of the practice among the children of respondents who had heard of uvulectomy and tooth-bud removal. No significant association between those who had heard of a child who had developed complications after OM or those who had heard of tooth-bud removal only and OM was found ($p=0.13$ and $p=0.73$).

In summary previous information on both uvulectomy and tooth-bud removal was the most important factor followed by information on uvulectomy in relation to OM practice.

Attitude:

Respondents who felt OM was a public health problem were found to be less likely to practice OM, ($p=0.03$); with the practice significantly higher among the children of the respondents who felt that OM practice was not a public health problem.

A significant association was also found among those who said that they would worry of their child's health if the child were to undergo the procedure and OM practice, ($p=0.002$). With a higher likelihood of the practice among the children of respondents stated that they would not worry if their children were to undergo the practice.

A significant association to OM practice was also found among respondents who felt that OM was beneficial to a child's health ($p<0.001$), with higher

likelihood of OM among the children of respondents who felt that OM was beneficial to a children's health.

A significant association was also found among respondents who indicated that they advocate OM in children and the OM practice, ($p < 0.001$); with a higher likelihood of OM among the children of the respondents who stated that they advocate the practice.

A significant association to OM was also found to respondents who indicated that they would advice someone to take child for OM ($p < 0.001$), with a higher likelihood of OM among children of the respondents who stated that they would advice others to take their children for OM.

No association was also noted with respect to respondents who had felt that OM could be harmful to a children's health ($p = 0.13$).

In summary the most important factors in relation to the respondents attitude that were likely to lead to the practice of OM were found to be the belief that OM was beneficial to a children's health, the advocacy of OM and the stating that advice others to have their children undergo OM was good. The important factors in this relation that were found to result in less likelihood for the child to be subjected to OM were the worry to a child's health were it to undergo OM followed by the feeling that OM was a public health problem in the country.

Table 3: Respondent's variables against OM statures by Pearson's chi-square test of significance (N=423)

Variable	Oral mutilation (OM) status		P - Value
	OM (n=63) %	No OM (n=360) %	
Socio-demographic profiles:			
Ages (mean age 27)	-	-	0.98
Sex of respondent: Males	19.0	15.8	0.52
Marital status: Married	90.5	88.3	0.61
Education: None + primary	44.5	29.5	0.02*
Occupation: Unemployed	57.1	50.8	0.36
Religion: Catholics/Muslims	17.5	14.7	0.57
Knowledge:			
Heard of uvula removal	96.8	85.0	0.01*
Heard of tooth bud removal	66.7	64.4	0.73
Heard of uvula or tooth bud removal	100	89.7	0.008*
OM harmful to child's health	52.4	62.5	0.13
Know child who had complication	28.6	21.7	0.23
Attitude:			
OM a public health problem	52.4	66.4	0.03*
Worry of child health after procedure	58.7	77.2	0.002*
OM beneficial to child's health	49.2	21.7	<0.001*
Advocate children to undergo OM	49.2	19.7	<0.001*
Would advice someone to take child for OM	44.4	20.3	<0.001*

* Significant difference between groups at 5% level of significance (N=423)

Logistic regression Analysis

After the Pearson's chi square tests, which measured the association of single variables with a categorical outcome (OM), we went ahead to examine the dependency of the outcome (OM or no-OM), on several exposure variables, this was done using logistic regression. This was first to estimate an exposure effect after allowing for effects of the other variable in order to adjust for any differences before attributing any difference in the outcome (OM) between the exposure variables to a particular exposure variable. This was to control any confounding factors. The second reason was to ensure that inclusion of the exposure variables that were strongly associated with the outcome variable would reduce the residual variation and hence decrease the standard error of the regression coefficients for other exposure variables. This was to ensure that there was an increase both the accuracy of the estimation of the other regression coefficients, and the likelihood that the related hypothesis tests would detect any real effects that existing.

Knowledge on oral mutilation

After doing the association, the logistic regression with modelling was done with the knowledge questions then repackaged as follows. The respondent's knowledge on oral mutilation had been assessed using a set of six questions on a scale of (1, 2) or (1, 2, 3). The respondents were asked the following questions: Have you heard of children having the uvula removed? (1 "yes" 2 "no"), Have you ever heard of children having tooth buds removed? (1 "yes" 2 "no"), is oral mutilation harmful to baby's health? (1 "yes" 2 "no" 3 "I don't

know"), what is the possible health effects of any of the procedures mentioned? (1 "I don't know" 2 "Nothing" 3 "Other"), How can you get further knowledge on the above procedures? (1 "Don't know" 2 "Books/journals/internet/periodicals" 3 "Other ") Do you know of a child who has had complications of any of the above procedures? (1 "yes" 2 "no"). The reliability approach was used to generate an index representing the level of knowledge based on these questions. The higher the score of the generated variable the more knowledgeable the respondent was.

Table 4: Reliability approach generated as an index to represent the level of knowledge based on knowledge the questions. (N=423)

Item	Alpha
Have you ever heard of children having the uvula removed?	0.46
Have you ever heard of children having tooth buds removed?	0.47
Is OM harmful to a baby's health?	0.39
What is/are the possible health effects of any of the procedures mentioned?	0.45
How can you get further knowledge on the above procedures?	0.55
Do you know of a child who has had complications of any of the above procedures?	0.47
Overall alpha coefficient	0.51

Attitude towards oral mutilation

After knowledge, attitude related questions were repackaged to allow for the logistic regression with modelling as follows. The set of six questions used to assess the respondent's attitude towards oral mutilation were used. The questions asked were: Is oral mutilation in children a public health problem in this country? (1 "yes" 2 "no" 3 "I don't know"), would you be worried of your baby's health if was to undergo these procedures? (1 "yes" 2 "no"), Do you believe that traditional OM can be beneficial to a baby's health? (1 "yes" 2 "no" 3 "I don't know"), do you advocate that children should undergo traditional OM? (1 "yes" 2 "no" 3 "No comment"); would you be willing to get more information on health effects of uvulectomy or removal of nylon teeth? (1 "yes" 2 "no"); Would you advice someone to take his or her child for this procedure? (1 "yes" 2 "no"). The first two questions were reversed in scores so that all the questions were from positive to negative attitude towards oral mutilation. The high score of the generated attitude variable indicated that the respondent was more negative about oral mutilation.

Table 5: Reliability approach generated as an index to represent the Attitude based on attitude the questions. (N=423)

Item	Alpha
Is oral mutilation in children a public health problem in this country?	0.74
Would you be worried of your baby's health if he/she were to undergo these procedures?	0.72
Do you believe that traditional OM can be beneficial to a baby's health?	0.64
Do you advocate that children should undergo traditional OM?	0.56
Would you advice someone to take his or her child for this procedure?	0.57
Overall alpha coefficient	0.70

After assessing the reliability of the items measuring attitude, the question "Would you be willing to get more information on health effects of uvulectomy or removal of nylon teeth?" was dropped due to poor inter-correlation with other items.

Table 6: Logistic regression; knowledge, attitude and educational level with OM (N=423)

	Coefficient.	Std. Error.	P-value	95% Confidence Interval	
Knowledge on OM	-0.995	0.315	0.002	-1.61	-0.38
Attitude to OM	-1.101	0.200	0.000	-1.49	-0.71
Education level	-0.698	0.304	0.022	-1.29	-0.10

Table (6) above indicates that the level of knowledge about OM, attitude toward OM and education level of the parent/guardian/caregiver were associated with oral mutilation. The parents/guardians/caregivers who practiced oral mutilation were likely to be those who were less knowledgeable. Those who didn't report of any oral mutilation were likely to have negative attitude towards the practice. The parents/caregivers who had at least secondary education level were less likely to practice the oral mutilation.

Table 7: Logistic regression of knowledge of OM and Complications associated to the OM

	Coefficient.	Std. Error.	P-value	95% Confidence Interval	
Level of knowledge	-1.424	0.663	0.032	-2.72	-0.12

There was significant association between the complications related to OM and the level of knowledge about OM, with the respondents having a lower score in the level of knowledge regarding OM having had children with a higher likelihood of developing complications. Probably this lower knowledge may have interfered with health seeking behaviour aimed at ensuring that the children were taken to practitioners less likely to perform the procedure with fewer complications.

CHAPTER 6: DISCUSSION

This chapter dwells on the implications of the results obtained in relation to the objectives of the study. The factors that were found to influence the oral mutilation practices are discussed in details.

Socio-demographic characteristics of the respondents

The respondents were mainly parents (97.9%), the majority (83.7%), were females and the ages ranged from 17 to 53 years (mean and standard deviation: 27.7 & 5.6 years). This probably indicated that the mothers were the key players in the taking the sick children to hospital with the father playing a lesser role in the health seeking role to their children. It may have also indicated that the numbers of the men may have been lower due to engagement in other matters other than health seeking activities in their families. Preliminary analysis of the sex of the respondents however showed that there was no statistical differences in the OM statures among the children accompanied by the male respondents and those by the female respondents ($P=0.52$).

The majority of the respondents were married (88.7%), the rest were single except one who was widowed (11.1% were single and 1 was widowed). There was however no statistical differences among the children who had undergone OM practice in respect to the marital stature of the respondents ($p=0.61$). This may be an indication that the marital statures may not have been a factor in determining the outcome of OM among the children.

In regard to the respondent's level of education, the majority of those interviewed had attained of secondary school and above (68.3%). With just about a third having attained primary school level or no education at all. Of interest was that the respondents with the lower level of education (primary school or no-education) were on the analysis shown to have children who were more likely to have undergone the OM practice than those with a higher level of education ($p=0.02$). This likely indicated that higher level of education had a negative effect to the practice of OM hence a protective factor in the practice of Traditional OM.

Slightly just over half of the respondents were found to be unemployed (51.8%) with about a quarter in formal employment and another quarter in the informal sector. This probably reflected to the lower cost of services offered at the hospital as compared those charged in private hospitals that may have been a key factor in attracting more of the unemployed for the services. The occupation of the respondents was however not shown to have had a significant association to OM practice.

Christians accounted for the majority of the respondents interviewed accounting to over 90% of the respondents. This may have introduced a bias, as it did not represent the different religious denominations that would have allowed comparison in terms of religious affiliation. This may however indicated that the KNH serves mainly people with a Christian background or that the Christians accounted for the largest religious group in Nairobi.

Muslims dominate in the North Eastern parts of the country and the Coastal region hence they were probably not well represented in this study.

About three quarters of the respondents had one or two children (74.5%), 15.1% had three children. 0.9% had none probably representing the guardians and/or caregivers who had accompanied the children. Only 4% had more than 5 children. No statistical association was found between OM practice and the number of children the respondents had. Indicating this was neither a protective nor an OM promoting factor.

The main respondents were the Kikuyu (58.9%), followed by the Kamba probably because the Kikuyu and Kamba are among the largest ethnic groups in the country that also inhabit the adjoining districts of Nairobi Province.

As with the religious affiliation it was however not possible to correlate the respondents' by their ethnic belonging owing to the sampling technique, as no equal numbers from each religious sub group and ethnicity could be obtained in significant proportions.

The prevalence of Oral mutilation and the associated complications

The prevalence of Traditional Oral Mutilation among the outpatient children was 14.9 % (95% confidence interval: 11.5%-18.3%) and 21 % among those in the inpatient wards. No significant difference was found in the practice of OM between the children in the inpatient department and out patient departments ($p=0.211$). Thika District Hospital was found to have an outpatient prevalence rate of over 80% (3). This leads to the rejection of the

first null hypothesis that stated that “the prevalence of Oral mutilation among the under five in the outpatient departments at the Thika District Hospital and Kenyatta National Hospital are the same”. The possible explanation for the lower prevalence may be in that in the urban setting some of the traditional beliefs and practices may be less practiced due to interactions and influences of the different ethnic groups in the setting. It may also be that the other ethnic groups sampled may have contributed in the lowering of the overall prevalence due to a lower level of OM practice unlike in Thika where it was a study composed of mainly one rural ethnic group.

The study finding shows that of the 63 children who had undergone the OM, 17 (27.0%) had developed complications. Bleeding accounted for 9 of the cases, 6 had infections, 1 developed a speech problem and 1 other developed a complication, which to the respondents could not be recalled. No fatal complications were reported.

This is comparable to other studies done in Mkuranga in Tanzania and in Niger where bleeding was found to be the commonest complication after OM.

Knowledge and attitudes on oral mutilation

The main sources of information regarding traditional OM were mainly from friends and relatives (80%). This is in contrast to 0.5% and 1.9% for uvulectomy and 0.4% and 4% for tooth-bud removal from media and healthcare workers respectively. Oral mutilation was found to have been more likely among the children of the respondents who had heard of uvulectomy ($p=0.01$). This is in contrast to the practice among those who had heard of

tooth-bud removal only where no significance association was found ($p=0.73$). But those who had heard of both uvulectomy and tooth-bud removal were likely to have children who had undergone OM practice ($p=0.008$).

This may probably be an indication that traditional beliefs and practices such as OM practice, is mainly passed down through the friends and relatives. It is therefore not surprising to find the minimal role the media and health workers in this information dissemination. However this points towards a potentially important avenue in the information dissemination in OM control, as demonstrated by the results where 98.6% of the respondents were reported to have been willing to get more information on OM, with most (91%) indicating that their preferred source of the information to be from healthcare workers, religious organizations (3.8%) and schools (3.6%). However the respondents ranked the Internet, journals and periodicals higher than health care workers as their possible source of available information (68.3%), against 23.3% for the healthcare workers respectively.

Most of the respondents (64.3%) felt traditional OM was a public health problem in the country with 14.7% indicating that they did not know and 21% indicating that it was not. The respondents who felt that OM was a public health problem were found to be less likely to have children who had undergone the practice ($p=0.03$). This indicated that this feeling that it was a public health problem played a protective role to the children against OM practice.

About a quarter of the respondents (25.5%) indicated that they believed that traditional OM was beneficial to a child's health with 69.5% indicating that it was not beneficial at all. Only 4.7% indicated that they did not know whether it had any benefit or not. The respondents who believed that it was beneficial were found to be more likely to have children who had undergone the practice ($p < 0.001$). This indicated that this belief was a risk factor to the children in regard to OM practice. The implication of this finding is that relevant information needs to be urgently disseminated to counter this belief if OM practice is to be addressed.

Most of the participants (61%), felt that OM was potentially harmful to a child's health with infections and bleeding accounting to the possible complications. Only 2.7% felt that OM could result to death of a child. 22.7% of the respondents knew of children who had developed complications after OM procedure.

By using the reliability approach, an index was generated to represent the level of knowledge and another the attitude level based on the knowledge and the attitude questions (Appendix II). The higher the score of the generated variable the more knowledgeable the respondent was assumed to be. The level of knowledge about OM, attitude toward OM and education level of the respondents found to be significantly associated with oral mutilation. The respondents who practiced oral mutilation were likely to be those who were less knowledgeable ($p = 0.002$). The practice of OM was also found to be less likely among those who had a negative attitude towards OM practice as

shown from the reliability index ($p < 0.001$). There was significant association between the complications related to OM and the level of knowledge about OM as demonstrated by logistic regression ($p = 0.032$) (95% confidence interval of -2.72 to -0.12). This leads to the rejection of the second hypothesis that stated that, "That there is no difference in the complications associated with OM among children whose parents; guardians or caregivers had lower knowledge of the "OM" than in parents, guardians or caregivers whose knowledge on "OM" was higher".

Practices on Oral mutilation

The practice of OM was mainly found to involve uvulectomy (69.8%), tooth-germs removal (22.2%) and both uvulectomy and tooth-germs removal (7.9%). This may be probably expected taking into consideration that the sample was composed of mainly the Kikuyu who are known to practice mainly uvulectomy (3).

The indications ranged from "recurrent cough (27%)" to "vomiting after feeds (30%)" to "diarrhoea and vomiting" (17.5%). A few (6.3%) were due to what the respondents said to be "traditional reasons" while 4.8% and 1.6% were due to "swallowing difficulties" and "loss of appetite" respectively.

The mothers of the children were found to have been the main decision makers in matters relating to tradition OM (46%). However the role of the extended family cannot be downplayed. The children's grandmothers and relatives had a significant role accounting for 7.9% and 12.7% of those who

made OM related decisions. The traditional healers were also found to play part in the decision-making processes in regard to OM (9.5%).

Of the 62 children who had been subjected to OM practice the respondents (63.5%), indicated that they were not subjected to any pressure to subject the children to the procedure. However most of the respondents (74.2%) indicated that they would not advocate children to undergo traditional OM. This is in contrast to 24.1% who indicated that they would advocate OM. It was also found that those who said they would advocate the practice had a higher likelihood of having children who had undergone the practice ($p < 0.001$). This probably indicates that respondents advocating for OM posed a higher risk to the children in regard to OM practice. Those respondents who said that they would advise others to take their children for traditional OM also were found to have a higher likelihood of having children who had undergone the practice ($p < 0.001$). This also poses as a risk factor to the children in the practice of traditional OM.

About a quarter of the respondents (24.7%) gave first 12 months as most ideal age for children to undergo traditional OM. This probably indicates that in the control of traditional OM intervention may be less useful after the first year of life. They also indicated that the preferred surgeon was the modern health care worker (73.5%) followed by the traditional surgeon (25.5%).

From the respondents of the children who had undergone traditional OM, the traditional surgeons were found to have performed 81% of the procedures and the modern health care workers 19%. This leads to the rejection of the third

and final hypothesis that stated, "The practice of OM is exclusively performed by traditional surgeons and not by the modern professional health care practitioners".

Study limitations

The non-probability sampling technique used limited extent to which the findings can be used as baseline for policy formulation nationally.

Most of the respondents were from only two ethnic groups, the Kikuyu and Kamba. Adequate samples from the other ethnic groups were not found. Thus it was not possible to statistically compare the different ethnic groups in the country with the various aspects of OM.

It was not possible to determine whether complications related to cross infections like HIV and Hepatitis resulted from the practice.

CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 1) Oral mutilation was found to be more likely among children whose parents, guardians or caregivers; Had no education or had attained only primary level of education; Were less knowledgeable about OM related complications; Had said that they would advice others to take their children for traditional OM; Had said they would advocate the practice; Had previously heard of "uvulectomy" or both "uvulectomy and tooth-bud removal"; Believed that it OM beneficial was to children's health.
- 2) The prevalence of traditional OM in children under five years at the KNH outpatient department was found to be 14.9%. The complications reported were mainly bleeding followed by infections. One child was reported to have developed a speech problem. No fatal complications were reported. The complications related to OM were more likely in children whose parents; guardians or caregivers were less knowledgeable about OM. No significant difference was however found in the prevalence between the inpatient and outpatient departments.
- 3) Levels of education followed by knowledge related to OM were found to be the two most important factors related to OM practice followed by attitude towards OM. The practice involved uvulectomy, tooth-germs removal with fewer cases where both uvulectomy and tooth-germs were involved. The mothers of the children found to have been the

main decision makers in matters relating to tradition OM. The first 12 months of life was found to be the most crucial age in the practice of traditional OM, with the indications ranging from "recurrent cough" to "vomiting after feeds" to "diarrhoea and vomiting" A few were due to what the respondents said to be "traditional reasons", "swallowing difficulties" and/or "loss of appetite.

- 4) It was found that both the traditional surgeons and the modern professional health care practitioners did indeed perform the traditional oral mutilation procedures.

Recommendations

1. Health providers and Health Care institutions under the Ministry of Health, NGO's and individuals should promote and support all efforts aimed at sensitising the public and especially the mother to the dangers and effects of Oral mutilation with the aim of protecting children and eliminating of the practice.
2. The Ministry of Public Health and other Health care providers should initiate public awareness to encourage men to take part and support their wives on issues and activities aimed at elimination of Traditional Oral Mutilation practices.
3. All health care workers involved in traditional oral mutilation should be advised to discourage the activities in order to avoid passing wrong information to the public that may be viewed as endorsing the practice of traditional OM as a harmless practice.
4. The Ministry of Health should develop a policy on harmful traditional practices to protect children's health.

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APPENDIX I: CONSENT EXPLANATION AND FORM

STUDY TO DETERMINE THE PREVALENCE AND FACTORS ASSOCIATED WITH ORAL MUTILATION AMONG THE UNDER FIVE CHILDREN AT THE KENYATTA NATIONAL HOSPITAL

1. EXPLANATION FORM.

INVESTIGATOR: DR. FRANCIS KITONYI MULE.

POST GRADUATE STUDENT

DEPARTMENT OF COMMUNITY HEALTH

UNIVERSITY OF NAIROBI.

This research activity is aimed at finding out the prevalence and factors associated with oral mutilation practice among children less than five years from their parents, guardians or caregivers attending the KNH. Oral mutilation is a common practice in this region and it involves the partial or complete removal of the uvula and/or the child's developing teeth before their fifth birthday. It is a practice that has been shown to be associated with minor and major life-threatening complications to the children and even death. Removal of the early stages of growing teeth can result to permanent damage to the growing underlying permanent teeth, while the uvula removal can result to excessive bleeding, infections and even the death of the child.

The investigator will ask questions which the parent, guardian or caregiver will be expected to answer. The child will also have his/her mouth examined with

a simple touch and with use of a spatula where necessary. The parent, guardian or caregiver may choose to not to answer the questions or have the child examined or be included in this study. This however will not compromise the subsequent medical care given to the patient. Acceptance to be included in the study will not accord the patient any special favours, or treatment or monetary gain.

The results of this study will form a basis for future research on this practice. It will also give information that will be useful in setting up initiatives aimed at curbing the practice.

2. INFORMED CONSENT

I, _____parent/guardian/caregiver to _____ do hereby consent to my son /daughter and I to be included in the study on oral mutilation. The study will enable health providers understand this practice better and hence be able to advice the community appropriately. I also understand that I don't have to be included in the study and that I can change my mind at any time during the interview. I also understand that this will not mean that I will not receive the routine health services as I have been receiving before.

The nature of the study has been explained to me by Dr. _____ and I have not been promised any material gain to be included in this study.

Signed _____ Date _____

Thump print _____ Witness _____

APPENDIX II: QUESTIONNAIRE

SECTION A: INSTITUTIONAL DATA

Serial Number: - _____

Name of respondent: - _____

Department / clinic: - _____

- [1] Paediatric outpatient
- [2] Dental outpatient
- [3] MCH/FP
- [4] Inpatient (dental/paediatric)

Date: - _____

SECTION B. DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENT

1. Respondent code: _____

- [1] Parent
- [2] Guardian
- [3] Caregiver

2. Age _____ (in years)

3. Respondents, sex: _____

- [1] Male
- [2] Female

4. Marital status _____
[1] Married
[2] Single
[3] Other (specify) _____
5. Number of children _____
6. Educational level _____
[1] No formal education
[2] Primary
[3] Secondary school
[4] Postsecondary
7. Occupation _____
[1] Unemployed
[2] Informal
[3] Formal
8. Ethnicity _____
9. Religion _____

SECTION C. PERSONAL CHARACTERISTICS OF THE CHILD

10. Age _____ (in months)
11. Child's OM surgical history _____
[1] Positive
[2] Negative
[3] Unknown

12. Anatomic oral part removed and/or mutilated _____
- [1] Uvula
 - [2] Tooth germs
 - [3] Other (specify) _____
 - [4] None --- (If none go to section D Q21)
13. What were/was the reasons for removal? _____
- [1] Recurrent cough
 - [2] Vomiting after feeds
 - [3] Diarrhoea
 - [4] Traditional
 - [5] Other reasons (specify) _____
 - [6] Not applicable
14. Who made the decision to have it removed? _____
- [1] Mother
 - [2] Father
 - [3] Relative
 - [4] Health care worker
 - [5] Traditional healer
 - [6] Other (specify) _____
 - [7] Not applicable
15. Is any relative involved routinely in decision-making for OM?
- [1] Yes
 - [2] No
 - [3] Not applicable

16. Were you in any way pressurised to have your child undergo OM?

[1] Yes

[2] No

[3] Not applicable

17. If yes to Q16 by whom?

[1] Relative (specify) _____

[2] Friend

[3] Other (specify) _____

[4] Not applicable

18. Who removed it? _____

[1] Healthcare worker (specify) ____

[2] Traditional surgeon

[3] Other (specify) _____

[4] Not applicable

19. Were there any complication to the OM _____

[1] Yes

[2] No

[3] Not applicable

20. If answer to Q19 is yes, please specify _____

[1] Bleeding

[2] Infections

[3] Tetanus

[4] Speech problems

[5] Other (specify) _____

[6] Not applicable

SECTION D. RESPONDENTS KNOWLEDGE ON ORAL MUTILATION (OM)

21. Have you ever heard of children having the uvula removed? _____

[1] Yes

[2] No

22. If answer to Q21. Above is yes, specify the source of Information _____

[1] Through a relative (specify) _____

[2] Through the media (specify) _____

[3] Through health workers (specify) _____

[4] Other sources (specify) _____

23. Have you ever heard of children having tooth buds removed? _____

[1] Yes

[2] No

24. If answer to Q 23 above is yes, specify the source of Information _____

[1] Through a relative (specify) _____

[2] Through the media (specify) _____

[3] Through health workers (specify) _____

[4] Other sources (specify) _____

25. Is OM harmful to a baby's health? _____

[1] Yes

[2] No

[3] I don't know

26. What are the possible health effects of any of the procedures mentioned? _____

[1] I don't know

[2] Nothing

[3] Other (specify) _____

27. How can you get further knowledge on the above procedures? _____

[1] Don't know

[2] Books/journals/internet/periodicals

[3] Other (specify) _____

28. Do you know of a child who has had complications of any of the above procedures? _____

[1] Yes

[2] No

29. If yes to Q28, who's child did the child belong to? _____

[1] Relative

[2] Friend

[3] Neighbour

[4] Not applicable

SECTION E: RESPONDENTS ATTITUDE TOWARDS OM

30. Is oral mutilation in children a public health problem in this country?

[1] Yes

[2] No

[3] I don't know

31. Would you/ were you be worried of your baby's health if/when she /he is/was to undergo these procedures? _____

[1] Yes

[2] No

32. If the answer to Q.31 is YES, give the reason(s)_____

[1] Afraid of complications

[2] Afraid of what people would think

33. Do you believe that traditional OM can be beneficial to a baby's health?

[1] Yes

[2] No

[3] I don't know

34. Would you be willing to get more information on health effects of uvulectomy or removal of nylon teeth? _____

[1] Yes

[2] No

35. If yes to Q34 who would you rather you got information through?

[1] Families

[2] Schools

[3] Religious organizations

[4] Health providers

[5] Other (specify) _____

SECTION F. RESPONDENTS RESPONSES TOWARDS OM PRACTICE

36. Do you advocate that children should undergo traditional OM?

[1] Yes

[2] No (If No skip to Q39)

[3] No comment

37. When should a child undergo the procedure?

[1] At _____ months old

[2] Never

38. Who should perform the procedure?

[1] A traditional expert (specify) _____

[2] A modern healthcare provider (specify) _____

[3] Other (specify) _____

[4] Not applicable

39. Would you advice someone to take his or her child for this procedure?

[1] Yes

[2] No

APPENDIX III QUESTION GUIDE FOR KEY INFORMANTS

SECTION A:

GENERAL INTRODUCTION TO THE KEY INFORMANT INTERVIEW

My name is Dr. Mule Francis Kitonyi. I'm a postgraduate student at the Department of Community Health of the University of Nairobi. I am carrying out this study as part fulfilment for the award of the degree of Masters of Public Health of the University of Nairobi.

I would like to request you to kindly allow me to discuss with you various aspects of my study, which focuses on oral mutilation among children less than five years.

I would like us to discuss about your experience on OM and what you feel should be the way forward in addressing it. I encourage you to share your views and ideas freely for all the information collected will be treated as vital contributions to the study. The information collected will be valuable to the study and may in future be useful in prevention of oral mutilation practices in our communities.

With me are _____ and _____ who will help me record the key issues and other factors that may influence the interpretation of information as you raise them in the session. We also have a radio cassette recorder to record the discussion least any point escape our ears. This information will help in the analysis and writing of the report.

Names of the Assistant moderators

Date of the interview _____ Time started _____ Time ended _____

Venue: _____

Name of key informant _____

Profession _____

Employer _____

SECTION B:

ORAL MUTILATION

I would like to start the discussion about oral mutilation among the under five's.

To Explore:

- 1) What is the magnitude of OM as seen in KNH or the country in general?
- 2) In what ways are children vulnerable to OM? (Knowledge, attitude's and practices of the parents, guardians and/or caregivers).
- 3) What is the impact of OM on childhood mortality and morbidity among different groups, Urban versus rural?
- 4) What are the cultural, socio-economic, and political factors that increase or reduce OM practice among the different groups?
- 5) How can institutions such as families, schools, and religious organizations go about in helping in building protective attitudes against OM?

- 6) What channels exist for provision of information and services that can help in eliminating OM among the practicing communities?
- 7) What socio-economic and contextual factors that compound the access to information among those practicing OM?
- 8) What are the factors that generate and perpetuate OM practice at community and institutional level?
- 9) What strategies can be adopted to improve information dissemination, good attitudes and positive practices, and strengthen capacities and skills of parents, guardians and /or caregivers in implementation and elimination of OM practices at community level?

SECTION C:

QUESTIONNAIRE FOR THE PRACTICING OM SURGEON

Name _____

I would like us to discuss about your experience on oral mutilation (OM) and the future of this practice in this region and the country at large. What do you see as the best way forward in addressing OM?

- 1) How many cases of OM do you encounter in your practice?
- 2) What are the indications of OM in your practice?
- 3) What kind of complications have you experienced in your practice?
- 4) How do you deal with the complications?
- 5) What advice would you give to help reduce any complications?
- 6) What health benefits of OM can you share, that you have seen in your practice?

PREAMBLE

It has been a wonderful discussion indeed. I would like to thank you for your contributions which will be helpful in the writing of the research report and in turn to the formulation of initiative for prevention of oral mutilation in this region and country. Before we end the discussion, do you have any question you would like to ask or comment to make?

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