

**THE MOTHERS' EXPERIENCE OF THEIR
INFANTS' TEETHING AT THREE
DIFFERENT SETTINGS IN UGANDA AND
SOUTH AFRICA.**



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Key words: teething; diarrhoea; fever; gum inflammation; gum irritation; drooling; teething remedy; sleep disturbance.

This study explores the mothers' experience of their own child's teething at three different setting (one in Kampala, Uganda and two in Cape Town, South Africa).

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DECLARATION

I, Arabat Kasangaki, the undersigned, do hereby declare that the work on which this dissertation “The mothers’ experience of their infants’ teething at three different settings in Uganda and South Africa” is based on my original work. Neither in full nor in part has this work been before or is being submitted elsewhere in other institutions for pursuance of a degree or examination.

All the sources that I have used or quoted have been fully acknowledged by means of complete references.



Signature

Date November 2004

Arabat Kasangaki

Abstract

THE MOTHERS' EXPERIENCE OF THEIR INFANTS' TEETHING AT THREE DIFFERENT SETTINGS IN UGANDA AND SOUTH AFRICA

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'Teething' – a common subject of discussion among nursing mothers has been held responsible for a variety of childhood ailments by both health professionals and parents. It appears to be a social construct coined by society to express the experience the child goes through during the early days of childhood. Teething to the dental profession is the biological expression of tooth movement, in a predominantly axial direction, from the tooth's developmental position within the jaws to its emergence in the oral cavity. Several studies have reported both health professionals and parents to attribute local and systemic disturbances to the eruption of the primary dentition. The mothers' experience and understanding of teething have not been reported on.

Objectives;

- To determine what mothers understood by the term teething.
- To establish the signs and symptoms mothers associate with teething.
- To ascertain the treatment sought by mothers for their child's teething.
- To investigate how mothers in different settings (Uganda and South Africa) understand and respond to teething.

Methods; Using a face-to-face approach, interviews with 375 mothers attending well-baby clinics at Mulago Hospital, Uganda, East Ridge Baby Clinic, Mitchells Plain, South Africa and Gugulethu Day Hospital, South Africa with children ages 6 -30months with at

least one primary tooth in the mouth were carried out. Following consent to take part in the study one hundred and twenty five mothers at each of the clinics at the three sites were interviewed. Information regarding the mothers' understanding of and source of knowledge of teething, their ascribed signs and symptoms to teething, experience and response of their own child's discomfort was gathered. All interviews were conducted by a calibrated researcher (AK).

Results; The mothers' understanding of teething differed significantly between the studied sites ($p < 0.0001$). There was a significant difference when the two Cape Town groups were compared ($p < 0.0001$). When responses of respondents from Kampala were compared with those of the mothers in Mitchells Plain (excluding Gugulethu) the results were not statistically significant at the 0.01 level ($p = 0.027$), however a comparison of responses from Kampala and those from Gugulethu (excluding Mitchells Plain) produced a statistically significant value ($p < 0.0001$). A large proportion of the interviewed mothers were affected by the eruption of own child's primary dentition ($p < 0.0001$). Over 66% of the respondents associated erroneous signs and symptoms to the eruption of own child's primary dentition. A large proportion of the respondents attested to having received information about teething from relatives, friends, neighbours or from elders. Only 22 (5.9%) out of the 375 respondents claimed to have received information about teething from a health worker. None of the respondents claimed to have consulted a dentist. In response to their child's discomfort, a higher proportion of respondents preferred seeing a health care provider than using other means.

Conclusion; The findings of this study revealed an understanding of teething by mothers to be marred by several traditional beliefs and practices and to differ from that of health

professionals. Mothers at the three different settings were found to associate teething with several signs and symptoms. There was a difference in associated signs and symptoms from site to site. Some of the associated signs and symptoms such as diarrhoea and chest infection were reported proportional to the burden of disease at the given sites. The fact that mothers were found to erroneously blame the erupting primary dentition for different signs and symptoms calls for efforts to educate mothers on what teething is and is not. The results point to a need for further studies targeting an in-depth knowledge of the mothers' understanding of teething. This would stamp out harmful practices associated with the teething process in young children in some societies and cultures.



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DEDICATION

To my most beloved parents Deogratius Tibeziinda (RIP) and Rose Rwesemereza and to the unborn little angels to whom teething is a riddle hard to solve.



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Chapter 1

1 Introduction

'Teething' is a common subject of discussion among mothers, in particular among those nursing infants. It has been held responsible both by parents and health professionals alike for a wide variety of childhood illnesses. It appears to be a social construct that society has coined to express the experience the child goes through during the first six to twenty four months of childhood. Teething according Jablonski, (1982) is the entire process, which results in the eruption of the teeth. Hullah *et al.*, (2000) defined teething as "the biological expression of tooth movement, in a predominantly axial direction, from the tooth's developmental position within the jaws to its emergence in the oral cavity". Guerini (1909) reported on different ancient published works. According to Guerini (1909) Hippocrates stated in the fourth century BC that, "teething children suffer from itching of the gums, fever, convulsions, and diarrhoea." Guerini reported an association between teething and illness described in the Hindu and Egyptian writings, as well as in the works of Aristotle, Homer, and Celsus. Guerini also contended that many of these early authors associated the emergence of teeth with childhood mortality.

Various authors' opinions on teething vary and some have associated teething with a variety of local and systemic signs and symptoms. Published literature has continued to appear to be non-committal on the issue of teething. It has been reported that though teething has frequently been implicated in the aetiology of low grade fevers, diarrhoea or both, the supporting scientific data are not strong (Johnsen, 1996; Nowak

and Crall, 1999). Nowak and Crall (1999) stated that “teething is a natural phenomenon that usually occurs with no problems. Nevertheless, some infants exhibit signs of systemic distress, including a rise in temperature, diarrhoea, dehydration, increased salivation, skin eruptions and gastrointestinal disturbances”. On teething Johnsen (1996) said, “As the teeth penetrate the gums, inflammation and sensitivity sometimes occur (*teething*). The child may become irritable, and salivation may increase markedly”. Johnsen further stated that “there is little evidence that systemic disturbances such as fever, facial rashes, or mild diarrhoea, can result from teething”. The observations made by these researchers would presuppose that health professionals have a different view about the problem. Wake and Hesketh (2003) and Macknin *et al.*, (2000) found health professionals to associate numerous local and systemic signs and symptoms to teething. Among the various local and systemic signs and symptoms that have been associated with teething are; irritability gingival irritation, increased saliva secretion, fever, sleep disturbance, loss of appetite, ear infection, and diarrhoea. While different authors have reported different signs and symptoms, drooling, fever, and diarrhoea have been reported to be the most prevalent. Beliefs in teething are common among parents (Wake, Hesketh, and Allen, 1999), among physicians (Ashley, 2001) and among child health professionals (Wake and Hesketh, 2003). Ashley (2001) argues that the signs and symptoms that are associated to teething could be a result of the parents’ attempt or desire to behavioural changes with an anxiety-reducing diagnosis. On many occasions these signs and symptoms blamed on teething have been the reason for mothers’ or caregivers’ clinic or hospital attendance. Ashley further contends that all that both parents and physicians associate

with teething could be developmental and not as such a sign or symptom of teething. Teething signs and symptoms have only been attributed to the deciduous teeth exclusively.

In the clinic, understanding the patient's illness demands an interpretive approach that assesses the meaning of symptoms within the context of the patient's background. If it is the clinicians' purpose to understand the thoughts of the patients or patients' attendants, the whole analysis of the patients' or patients' attendants' experience must be based on their concepts not on the clinician's. While the clinician employs subjective understanding of the context of symptoms, s/he should also focus on determining the objective biological mechanisms that underpin such symptoms.

Local and systemic signs and symptoms of teething ought to remain a constant independent of one's ethnic background or place of abode; however the label it carries is determined by societal perceptions or understanding. Mothers have attributed several symptoms to their infants teething. That mothers believe their children suffer during teething should not so easily be denied or dismissed and is not helpful to the parent (Miller, 1985). Different authors have published different reports on the mothers' attributes. In an Australian survey of parents, Wake *et al.* (1999) found Australian parents to attribute pain (85%), irritability (82%), sleep disturbance (78%), mouthing/biting (78%), drooling (77%), red cheeks (75%), fever (70%), nappy rash (50%), and infections (48%) to teething. Many of the parents in these studies believed that teething could cause serious health problems (35-55%).

In different societies, the cluster of symptoms (diarrhoea, fever, loss of appetite, etc) that the health professionals refer to as ‘teething’ has been branded a disease entity (Graham *et al.*, 2000 and Mogensen, 2000). This branding of a disease entity arises as a result of the several attributable symptoms cohering in the given specified populations and members of those given populations responding to the manifestations in a similarly patterned fashion (Angel and Angel, 1993).

Parent or caregiver understanding of and belief about an illness – in this case teething, can have a profound impact on clinical care of the children. They could encumber preventive efforts, be an obstacle to medical care. This in turn could result in use of ineffective or harmful remedies. Studies have shown parental beliefs and understanding about illnesses to be associated with vaccination delays in children (Flores, 2000). Sodemann *et al.*, (1999) found diarrhoea perceived to be caused by teething to impede consultation.



Despite the existence of ample evidence of varied racial and cultural beliefs in the efficacy of home remedies and their influence on health-seeking behaviour among adults, there is a dearth of research that examines the extent to which parental or guardian understanding of teething and traditional health beliefs permeate their attitudes about seeking professional health care services for their children.

1.1 The problem statement

Teething discomfort to an infant and to the mother/caregiver has been a subject of debate for more than five thousand years (Guerini, 1909 and King, 1994). In certain circles of the society it has been reported to be associated with worm infestation. Teething has also been reported to be a risk to infant morbidity and mortality in some

developing countries as a consequence of attributed early childhood gastroenteritis (Mogensen, 2000). Health professionals and the society have different views in regard to the issue of teething. Are the gastroenteritis and febrile conditions, which different communities have attributed to teething a consequence of lack of knowledge, or of embedded traditional practices as a result of culture, or due to parental/caregiver different lived experiences? To effectively intervene and allay the fears associated with teething in some communities it would be of paramount importance for us health professionals to understand what it is that mothers understand for teething. There is a need to establish whether the understanding differs from one society to another.



Chapter 2

2 Literature review

2.1 Introduction

In this chapter various publications relating to the subject of teething and the attributed local and systemic signs and symptoms are reviewed and discussed. This chapter also reviews the literature for reasons as to why mothers seek out different treatment modalities for their teething child, the role of society in child health, societal beliefs and dental folklore.

2.2 Understanding



Disease of one kind or another has afflicted mankind in all times and places. Thus, in all human groups there exists a body of belief about the nature of disease, its cause, cure and possible avoidance, as well as a whole range of therapeutic practices many of which are the exclusive property of, and are dispensed or supervised by a group of men or women who vary both in their degree of technical and occupational specialization.

(Zola IK 1972)

A mother's response to her child's illness depends largely on her understanding of that illness. This also determines the value and adequacy of care provided for that child in the family. At the time of writing there is no report of research that was found which had been conducted with the sole intention of investigating the mothers'

understanding of 'teething' and their personal experience of their infants' teething. To our knowledge also, there are no published works that were found to have reported on studies done in Uganda and any other country (in this case South Africa) with an intent of getting the mothers' understanding, and their experience, of their infants' teething. However there have been reports on findings on different signs and symptoms that have been associated with teething. Teething is regarded as an illness to the mother (Mogensen, 2000). For that reason mothers seek remedies from different sources for the situation. To the physician though, teething is a physiologic process. Illness refers to the subjective experience of disease that only the individual has access to. Disease refers to the organic/functional pathology that is a result of some disease process (Angel and Angel, 1993). Feelings are clearly a mirror of the underlying overall state of health, and for the individual the subjective experience is, for all meanings and reasons, the reality. The way the mother feels about her infant's health determines how she reacts and whether she seeks medical care. Angel and Angel (1993) argue that subjective experience is a complex product of one's cultural, social, and psychological status as well as physical status. The power cultural differences could have on the experience of health and illness has been studied. Bracht *et al.*, (2002) found cultural differences to play a vital role in the parents' emotional responses to and perceptions of the child's illness, utilization of health services, and interaction with health professionals. The mother's psychosocial status could significantly affect her response towards questions concerning her child. Health and illness in a strictly clinical sense are determined by such factors as genetic endowment, nutrition and exposure to pathogens (Helman, 1994). Health is shaped by

social factors that increase or decrease one's exposure to health risks. It could be argued any factor that impinges a woman's educational progress (e.g. early pregnancy compounded by low socio-economic status) has adverse effects on the child's health. Anthropological, sociological and psychological literatures make it abundantly clear that subjective assessments of health are not unmediated reflections of something we might consider as "true health" but rather represent mental and linguistic constructions that are influenced by an individual's culture and social class (Helman, 1994; Rubel and Garro, 1992). Unfortunately, if groups with different social characteristics (e.g. colour or ethnicity) concerning health differently than other groups, researchers who use such information to compare health levels can quite easily attribute substantive differences in health to what are actually differences in the way the individuals from these different groups respond. It is important not to ignore the fact that subjective information is influenced by social class and cultural factors. This helps in understanding how accurate the information is and how much confidence we can have in group comparisons based on self reported data.

Culture, social class and parenthood status could affect the child's health and a mother's decisions concerning appropriate medical care for the child. The importance of not underestimating the patient's or caregiver's beliefs and what shapes their beliefs has been stressed (Helman, 1991). People's perception and understanding of an illness illuminate the understanding of their health seeking behaviour. This is highlighted in Nuwaha (2002) and Mogensen (2000). On perceptions of malaria in Mbarara, Uganda, Nuwaha (2002) noted a divided opinion about what causes convulsions, with most of the respondents in the study saying that convulsions were

caused by ‘*emizimu/eyabwe*’ (avenging ancestral spirits). Nuwaha further notes that in both focus group discussions and semi-structured interviews respondents in the author’s study were of the view that convulsions and splenomegaly are best treated by traditional medicine. Nuwaha (2002) quotes one of the respondents in the study saying ‘if you do not want your child to die, leave hospital when it gets convulsions’. In ‘False teeth and real suffering... in eastern Uganda’, Mogensen (2000) reported the explanation given by one of the respondents that “false teeth have come because new things were introduced one after the other ... women these days eat pork and they eat chicken” Respondents in Mogensens’s study were of the view that avoiding fever and diarrhoea would protect the child from getting false teeth. They all believed that false teeth could only be treated by a traditional healer.



2.3 Social class

Angel and Angel (1993) forwarded a suggestion that social class could be measured as income or level of formal education. They also stated that poor maternal social factors were highly likely to influence or affect a child’s actual health status. The authors stress culture and social class’ ability to influence a mother’s perspective of severity of symptoms. This in turn could constrain her decisions concerning her appropriate response to these symptoms. Education like age, as a social class predictor is associated with changes in attitude. Fosu (1981) acknowledged that the more educated a person is, the more likely s/he is to show a scientific attitude toward diseases. It hence follows the more educated a mother is the the higher the probability that she would use the healthcare services.

Knowledge of the health culture of a given population is very crucial if the prevention or control of a given health problem is to be successful. Helman (1991) asserted the need for the doctors to know their patients' or caregivers' understanding of and beliefs about cause and significance of their given illness as the patient's belief and understanding could influence their healthcare seeking behaviour. According to Fosu (1981) people can be better understood only when their cognitive structures about themselves, their universe, and the relationship between them and their universe have been adequately grasped. Fosu (1981) stated that the Berekuso , a rural community in Ghana, regard the cause of disease as the most important factor in disease classification, and that it was the most important factor in determining the type of remedy sought. Knowledge of patients' or caregivers' perspectives and how they make sense of an illness experience is important in planning and conferring appropriate health care. It has been argued that the broader social context in which childhood illness occur could influence health care seeking behaviours of parents (Curry *et al.*, 2002).

2.4 Society and illness

According to Helman (1994) when many people in a culture or community agree about the pattern of an illness, including signs and symptoms, origin, significance, and treatment, it becomes an illness with a recurring identity. This could be true regarding societal understanding of teething. Rubel and Garro (1992) who defined health culture as the information and understanding that people have learned from

family, friends, and neighbours as to the nature of a health problem, its cause, and its implications, argued that patients or patient attendants use their health culture to interpret their or their patients' symptoms, give them meaning, assign them severity, organize them into a named syndrome, decide with whom to consult, and for how long to remain in or without treatment. Patients or patients' attendants respond to illness depending on how they perceive it. On the basis of the health belief model [HBM] (Rosenstock, 1966; Rosenstock, 1982), the mothers' response to their infants' illness will depend on;

- i) Whether they believe their infants susceptible to the condition.
- ii) How serious or severe do they think the illness is.
- iii) Their weight of the benefits of taking preventive measures.
- iv) The costs involved.



A given civilization's interpretation of symptoms will prompt search for care. There is evidence that rather than the symptoms themselves, it is the varying interpretations of their meaning and what they imply for a functioning social life that motivate members of a given society or culture to seek healthcare (Zola, 1973). A patient's or patient attendant's interpretation of symptoms and how s/he acknowledge the sickness will in most cases influence his/her decisions on when and from whom to seek professional assistance. One of the factors that Patcher, Bernstein, and Osorio (1992) forwarded that could have central importance with regard to the expression of illness and the strategies taken to deal with the episode is culturally appropriate services. These authors defining '*empacho*' in the eyes of those who have had it say

“it is” an illness that occurs when something in the stomach gets “stuck” there (usually food or saliva). Patcher *et al.*, (1992) reported their respondents to give indigestion, constipation, bloating of the stomach, vomiting, diarrhoea, lack of appetite, headache, fever and chills as symptoms of ‘*empacho*’. As to what causes ‘*empacho*’, responses were centred around food. They also stated that children could get ‘*empacho*’ during teething.

Studies have reported the parents’ search for knowledge about their child’s illness. Parents seek information either because the doctors have been unable to provide full information with regard to a given illness or because the parents perceived that the doctors have little or no knowledge about the illness. Parents’ search for knowledge has been suggested to be a way for parents to restore order in a chaotic existence (Starke and Möller, 2002).

The mothers’ perception and interpretation of teething is best understood from the societal perspective. Societal understandings, oftentimes explicitly, sometimes more subtly, influence its members’ initial admission of changes in their physical or mental wellbeing. Societal understanding could be associated to the decision as to the time when to seek, and place where to seek professional care or advice. Societal understanding can impede preventive efforts, delay or complicate medical care, and result in the use of neutral or harmful remedies. In Bracht *et al.*, (2002) a mother is reported to have argued that doctors could be having all knowledge about medicine, but they (the parents) knew more about their daughter. This mother complained that doctors do not listen.

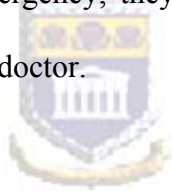
Baba and Kay (1989) reported from their findings that in Southern Sudan it is widely believed that “the unerupted deciduous canine tooth is the cause of diarrhoea vomiting and fever in infants”. According to these authors this commonly held misconception and colloquially known as ‘*Lugbara*’ tooth belief was so imbedded in the population that it regarded treatment for such illnesses with western medicine in contempt. Guided by their understanding the Southern Sudan population believes that removal of the offending tooth is the only effective cure for these dangerous illnesses.

The fact that culture limits the perceptions, explanations and behaviour options that individuals have for understanding and responding to illness is clearly documented in the literature (Flores and Vega, 1998; Helman, 1994; Angel and Angel, 1993; Rubel and Garro, 1992). Flores and Vega, (1998) reported that Latino parents were much more likely (46%) than African-American parents (15%) to incorrectly believe that childhood immunizations prevent colds and/or diarrhoea. In search of barriers to health care access for the Latino children, following a logistic regression analysis, Flores and Vega (1998) found culture and incorrect belief to be significantly associated with delayed immunization status at 3months of age for Latino children. Mexican-American mothers were likely to attribute diarrhoea to a combination of food not settling in the stomach, decomposed food, and dentition (76%) than to infection (42%). Angel and Thoits (1987) reported that disease labelling and evaluation is significantly influenced by the input of family and friends. They went ahead to say that decisions taken by individuals with regard to healthcare are culturally dependent and are determined by the labelling and evaluating process.

2.5 Society and child health:

Kikwilu and Hiza (1997) highlighted the role of elders in society in the course of treatment of child illness. These authors in their study in a Tanzanian sample found 45% of their respondents to have obtained advice from esteemed persons of the society to take their child to a traditional healer to have their child's tooth bud extracted. Explanation for the action being that the esteemed persons and the parents were of the view that the child's persistent diarrhoea and fever was due to 'meno ya nylon' (a colloquial referring to unerupted primary canines) and that recovery was from the extraction of the tooth buds. Oyejide and Aderinokun (1992) studied the effects of prematurely erupted teeth in the Yoruba of Nigeria. The authors respondents to label a child with premature eruption of teeth (i.e. a child with natal or neonatal teeth) to be either a curse or an embarrassment to the family (52.9%), an evil child (53.7%). On management of premature eruption and lack of eruption, Oyejide and Aderinokun (1992) reported 41% of their respondents recommending traditional healers. Commenting on their findings the blame went to those of older age as custodians of traditions, and because of the degree of influence in the decision making processes. Parental source of understanding of and advice for childhood illness has been found to play a role in impeding health care access for children (Flores and Vega, 1998). In their review Flores and Vega (1998) found the initial source of advice for mothers to be nonmedical in the majority (68%) of cases. They reported 33% of parents receiving advice about asthma from either a relative or friend and only 31% of these reported the advice to be helpful. It has been reported that the

rural Southeast Asian cultures only seek help from orthodox health practitioners when home remedies are not successful (Buchwald, Panwala and Hooton, 1992). Roy, Torrez, and Dale (2004) reported that research based on data from a national sample collected by the National centre for Health Statistics failed to find a significant association between the use of Curanderos (practitioner of a folk healing system of Latin America) and poverty status and ability to pay among Mexican Americans. The authors argued that these people relied on Curanderos, herbalists, and home remedies because these treatments fit into their cultural understanding. Roy *et al.*, (2004) found a high association between ethnicity and the belief that some home remedies were better than prescribed drugs for curing illness. In the study 22% of the guardians believed that unless it was an emergency, they would rather treat their child with home remedies than take them to a doctor.



2.6 Dental folklore

Dental folklore embraces the view/belief that the teething/eruption of the primary teeth is often responsible for local and systemic symptoms of general illness in infants. Findings are documented in the literature by both dentists and paediatricians on the extent to which teething troubles are a cause of local and systemic upsets or how the systemic upsets are the cause of teething troubles. Teething has always been regarded as one of the milestones in health of the child. According to Radbill (1965) parents could not rejoice until the child had safely survived the period of dentition (i.e. the period the primary teeth erupt). It is put forward that the problem of teething

discomfort to an infant has been an issue of debate for more than five thousand years (King, 1994; Gueirini, 1909). Traditional beliefs on the issue have not been entirely supplanted by scientific findings. Different communities worldwide are reported to associate/to have associated eruption of deciduous teeth with diarrhoea and fever. The Yoruba community of Nigeria is reported to believe that eruption of the deciduous teeth causes diarrhoea (Adetunji, 1991). Wake and Hesketh (2002) found between 30% and 50% of interviewed health professionals most closely concerned with children to believe that teething predisposes to infections. Holan and Mamber (1994) described a belief held in rural areas in Ethiopia, Sudan and Tanzania that unerupted primary canines cause diarrhoea, vomiting and fever. Mothers living in these rural areas are reported to have had the children's primary canine gouged out to relieve the child of diarrhoea and vomiting. Recently it was reported that Tanzanians still believed that there was a fatal disease affecting children called 'meno ya nailoni' (nylon teeth – referring to the less developed nature of the tooth bud) which manifests itself as fevers and/or diarrhoea (Kikwilu and Hiza, 1997). Irrational belief and misdiagnosis has continued to lead to improper treatment. It was reported by Welbury *et al.*, (1993) that unerupted primary teeth are believed to cause diarrhoea, vomiting, and fever in infants in some parts of Africa. And that this belief was deeply imbedded that modern medicine for such conditions was either held in contempt or given second place to traditional practices. Rodd and Davidson (2000) reported the Somalians to view the unerupted primary canines with superstition and believed it caused of all sorts of childhood ailments. This belief resulted in infants being

subjected to the unwarranted crude and traumatic tooth bud extraction by traditional healers.

History has it that in the second century AD children were thought to die of ‘teeth, fevers and convulsions’. The fevers and convulsions were blamed on teething (Kowitz and Loevy, 1993). In their review of the history of paediatric dentistry Kowitz and Loevy stated that by the 2nd century AD it was thought that children died of ‘teeth, fevers and convulsions’ and that it was not quite certain as to whether the fevers and convulsions were due to teeth. The authors contend that it was difficult then to know what was happening in the child’s development and that much attention was given to the development of the teeth. The Sumerians are reported to have associated teething with worm infestations (Guerini, 1909; Radbill, 1965; King, 1994) and today there are some tribesmen reported to associate teething with worm infestations (Mogensen, 2000). Studies have found parents to associate teething with episodes of vomiting, fever, diarrhoea and various other disturbances (Carpenter, 1978). Graham *et al.*, (2000) reported on strong cultural beliefs that swellings of the gums among infants younger than 18 months of age are the cause of persistent fevers and diarrhoea. Radbill (1965) reports on documentations in Hippocratic twenty fifth aphorism: “At the approach of dentition, itching of the gums, fevers, convulsions, diarrhoea, occur, especially when the canine teeth are cut and in those who are particularly fat and are constipated.” The emergence of deciduous teeth has been associated with childhood mortality for thousands of years (Wynbrandt 1998; Guerini, 1909). Dally (1996) gave high infant mortality rates during 6 months and 2 years (the age of cutting the primary teeth) as reasons as to why teething was for a

long time believed to be a common cause of death among infants. In the developing countries high mortality and high morbidity associated with early childhood gastroenteritis and febrile conditions have been reported. Parents in these countries in search of cause have associated these illnesses with teething (Mogensen, 2000).

Teething is thought to be the cause of folk illnesses in some communities. The Puerto Ricans are reported to believe that teething causes ‘*empacho*’ (Pachter Bernstein and Osorio, 1992). The symptoms of *empacho* were found to overlap with the biomedical symptom clusters of certain biomedical diseases such as gastroenteritis, milk allergy, lactogen intolerance and intestinal obstruction in children. In northern Uganda “false teeth” or *Gidog* is a folk illness which denotes erupting canines. They are believed to cause fever, diarrhoea and any other infant illness (Accorsi *et al.*, 2003).



2.7 Beliefs and attitudes

Studies have shown that beliefs about causes of illness are likely to affect the choices of treatment (Azevedo, Prater and Lantum, 1991; Rubel and Garro, 1992; Goldman, Pebley, and Gragnolati, 2002; Nuwaha, 2002; Roy, Torrez, and Dale, 2004). In their study in the eastern province of Cameroon, Azevedo *et al.*, (1991) found 71.3% of their respondents to be of the view that any disease caused by a sorcerer could only be treated by a traditional healer. Rubel and Garro 1992 found the belief in folk illness among the Mexicans to impede proper disease management. Goldman *et al.*, 2002 found rural Guatemalan mothers’ beliefs about the cause of the child’s illness to

affect the likelihood of seeking healthcare. They found mothers with the belief that their child's illness was due to folk cause to seek help from a curer than from a doctor. Roy *et al.*, 2004 found parental beliefs to influence the choice of treatment for the respondents' children. Forty percent of the respondents believed that some home remedies were still better than prescribed drugs for curing illness. Nuwaha 2002 found parents who believed that their child's fever was due to ancestral spirits not to have the child treated with orthodox western medicine.

2.7.1 Diarrhoea

In a study of Tzotzil-speaking Mayans in the highlands of Chiapas, Mexico, Granich *et al.*, (1999) found perceived diarrhoea severity to influence choice of treatment. The more severe the diarrhoea the higher was the probability of seeking help from a traditional healer. The studied community was found not to use oral rehydration therapy (ORT), but rather used traditional healers because of the users' perceived lack of effectivity of ORTs. Following a HealthCom sites' search Yoder and Hornik (1994) came to a conclusion that the judgements of mothers about episodes of illness had not often been the object of survey research on diarrhoea. Yoder and Hornik realised the importance of understanding the effect of perceived severity of diarrhoea in the choice of treatments by mothers and carers. Flores (2000) commented that patient belief can have a profound impact on clinical care. Flores reported that inaccurate parental beliefs were found to be associated with vaccination delays in children. It has been argued that the broader social context in which childhood illness

occur could influence health care seeking behaviours of parents (Curry *et al.*, 2002). In a survey carried out with an intent of gaining an understanding of local cultural beliefs about childhood ear infections, more parents (67%) were found to attribute ear infections in young children to teething than to the immaturity of their immune system (Curry *et al.*, 2002). De Zoysa *et al.*, (1984) made a case of a need to have a clear understanding of local attitudes and beliefs about a disease if professional health workers were to act as agents of change.

In the editorial of the Bulletin of the World Health Organization, Parashar, Bresee and Glass (2003) reported that diarrhoea accounts for 21% of all deaths at under five years of age and that it causes 2.5 million deaths per year. Sodemann *et al.*, (1999) reported in their study of maternal perception of diarrhoea that diarrhoea was perceived as caused by teething and this impeded consultation no matter how severe diarrhoea was. Yoder and Hornik (1994) noted maternal beliefs concerning the disease and efficacy of treatment sought to be very influential among the many factors besides knowledge that could influence a mother's choice of treatment for diarrhoeal disease in a young child. They argued that the more severe the mother considered an illness, the more likely she is to give treatment herself or seek treatment elsewhere. An association between increased use of healthcare services with increasing maternal knowledge of a disease and understanding of the choice of treatment has been documented in the literature. Sodemann *et al.*, (1996) reported an 80% reduction in the likelihood of seeking consultation when the mother perceived the diarrhoea as caused by teeth eruption.

Flores (2000) reported diarrhoea to be attributed more to difficulties such as unsettled or decomposed food or dentition problems, rather than infectious causes.

Stapleton (1989) reported 75% of Nepalese mothers in a study and 50% of mothers in North India to blame their children's diarrhoea on teething. Román *et al.*, (2003) in their study of acute viral gastroenteritis in a Spanish child population reported intestinal mixed infections to be the major cause of acute infectious diarrhoea in the paediatric population. The role of specific micro organisms in the aetiology of diarrhoea has been investigated and reported on. Among the under fives in Ifakara (Tanzania), diarrheogenic *Escherichia coli* were found to be the predominant enteropathogens (Vargas *et al.*, 2004). Appenzeller *et al.*, (2002) reported adenoviruses to account for 5-15% of intestinal tract infections in the under five children.

Goldman, *et al.*, (2002) reported diarrhoeal and respiratory illnesses to account for more deaths among under fives than any other infectious disease. Olango and Aboud (1990) found the major factor associated with adequate diarrhoeal home treatment to be the mother's knowledge about the causes and treatment of diarrhoea.

Stefanini (1987) reported on one of the health related beliefs of the Acholi community in northern Uganda. The author reported that the Acholi related gingival swellings that occur in infants during the eruption of the canine teeth to "telak" or "ebino". "Telak" or "ebino" is widely believed to cause diarrhoea, fever, convulsions, and failure to thrive. According to the belief the gingival swellings are commonest at the age of 4months to 12months (which is the age when the first eruption is expected). Stefanini rightly concludes by saying partial success and indirect positive

results should not satisfy health workers whose main goal must be to make people fully understand what is dangerous to their wellbeing.

2.7.2 Fever

Fever is a vague term used by many communities to describe a generalized malaise (Guyatt and Snow, 2004). Studies have shown that a rise in temperature could arise from different causative factors bacterial and viral agents have been found to be offenders in this (Brook, 2003). The current understanding of how the communities respond to the fevers derives from the reported treatment seeking behaviours among the under five years of age children. Fever in children has been defined as a rectal temperature equal or greater than 38°C (Appenzeller *et al.*, 2002; Baraff, 2003) or an oral temperature equal or greater than 37.8°C (Brook, 2003). According to Baraff, (2003) fever is believed to rank among the most common presenting complaints of the children and infants presenting in the emergency department and that it also represents a normal physiologic response that could result from the introduction of an infectious pathogen into the body. Baraff (2003) further states that fever is hypothesized to play a role in fighting and overcoming infections. Fever has been found to be associated with infections (Peiris *et al.*, 2003; Brook, 2003; Craig and Schunk, 2003). In their study in a Hong Kong sample Peiris *et al.*, (2003) found fever to be highly associated with Human metapneumovirus. It has been postulated that 7% of all febrile children aged than two years with a temperature greater than 38°C will have pneumonia. Occult pneumonia has been reported to be one of the causes of

febrile conditions in infants and children. Baraff (2003) reported that occult pneumonia could be present in 26% of the children presenting with fever of unknown origin and WBC count greater than 20,000/mm³. Pneumonia was found in 40% of patients with signs and symptoms suggestive of pneumonia and in 26% of those without clinical evidence of pneumonia. Leach *et al.*, (1992) reviewing publications on human herpes virus, they found human herpesvirus-6 to be widely prevalent in all populations studied and to be occurring usually in early childhood and to be responsible for paediatric clinical problems such as febrile conditions and rashes. Fever is reported to be systemic response of the body to proinflammatory cytokines, IL-1, and TNF. Shapira *et al.*, (2003) reported fever to be a result of a cascade of events that begins with pathologic infection, the lipopolysaccharide of the bacterial wall, or the synthesis and release of cytokines in the body by activated monocytes. The presence of gingival crevicular fluid cytokines was also found to correlate to some of the attributed clinical symptoms of teething. IL-1 β and TNF α levels were found to correlate with fever and sleep disturbances, while IL-8 was found to correlate with gastrointestinal disturbances.

2.8 Teething signs and symptoms

Commenting on teething Leung (1989) asserted that the literature on the subject and its complications is contradictory, subjective and often unscientific. A review of the literature on the subject of teething reveals several subjective observations and few well-documented reports on the effects of teething (Halestrap, 1971; Cohen, 1977;

Stefanini, 1987; King, 1994; Dally 1996; Ashley, 2001; McIntyre and McIntyre, 2002). Varying opinions regarding local and systemic signs and symptoms attributed to teething in the infant have been tendered (Seward, 1971; Seward, 1972; Carpenter, 1978; Baba and Kay, 1989; McIntyre and McIntyre, 2002; Peretz *et al.*, 2003; Cunha *et al.*, 2004). Leung (1989) found that prior to the emergence of the tooth the gums swell, they are painful, and the infants may chew on fingers, excessively drool, and become irritable and restless. This paralleled the observations of that also dogs show increased salivation, loss of appetite, and irritability during teething. Jaber, Cohen and Mor (1992) observed and reported elevated temperatures in 33% of a sample of babies three days prior and three days after eruption of the tooth. They recorded a fever of $\geq 38^{\circ}\text{C}$ on the day of eruption and also reported otitis media, diarrhoea, and cough to be associated with teething of the infants under their study. Leung (1989) reported change of bowel habits, increased mouthing and biting, colic, cough, haemorrhage under the gums, eye blinking and maternal stress to be blamed on teething. King (1994) reported on morbid conditions and diseases to be associated with teething to include fever, convulsions, diarrhoea, vomiting, bronchitis, infantile paralysis, cholera, tetanus, meningitis, and insanity.

A survey carried out among primary care paediatricians found 90% to believe that teething was responsible for irritability, eating problems, wakefulness, and rashes (Honing, 1975). The Acholis (a tribe in the northern part of Uganda) have been reported to gouge out the infants' canines reason being infantile fevers (Pindborg, 1969; Halestrap, 1971). The communities of North-East Brazil have been found to associate childhood diarrhoea with teething. These communities are reported to view

diarrhoea as a manifestation of an underlying condition, teething, and an obligatory part of growing up (de Zoysa *et al.*, 1984). Bennett and Brudno (1986) suggest that a human teething virus could be responsible for the febrile conditions in children during the eruption of their primary teeth. These authors claim to have ‘isolated’ the human teething virus from 99% of the teething infants’ saliva by electron microscopy. According to Bennett and Brudno, the human teething virus is uniquely shaped viral particle with a diameter of 140nm. They state that this virus belongs to a family of RNA viruses masticoviridae. From his observations, James (1954) reported watery eye, flushed cheek, runny nose, mild fever, narcolepsy simple cough and anorexia to be observed during teething. In a prospective study, biting, drooling, gum-rubbing, facial rash, decreased appetite for solids, and elevated temperature were found to be significantly ($p < 0.01$) associated with the emergence of the tooth (Macknin *et al.*, 2000). Close to tooth eruption Macknin *et al.*, (2000) observed increased congestion, stool looseness, stool number and decreased sleep duration. Wake, Hesketh, and Lucas (2000) reported all parents in their study to have reported their child having suffered teething symptoms. There was a high correlation between symptoms reported for a parent’s own child and those believed to be experienced by children in general ($r = 0.79$, $p < 0.001$).

A survey of paediatricians on recognition and management of teething diarrhoea, revealed a 35% of respondents believing in an association between diarrhoea and tooth eruption (Coreil, Price, and Barkey 1995). When asked to indicate the possible explanations for their believed association these paediatricians gave a variety of perceived causes of teething ranging from diarrhoea to change in eating habits (49%)

, increased salivation 44%, stress 31%, viremia 13% and bacteremia 11%. From these figures is a noteworthy finding of a popular belief that tooth eruption causes changes in bowel function. In another study (Wake and Hesketh, 2002) of five groups of child health professionals 9%-50% of the respondent health professionals believed that teething predisposes to infections, most commonly colds and ear infections. Wake and Hesketh (2002) found health professionals to attribute irritability, drooling, biting objects, sleep problems, inflamed gums, and red cheeks to teething. Peretz *et al.*, (2003) in their study reported drooling to be significant during the eruption of the incisors, diarrhoea and fever during the eruption of canines, and diarrhoea alone during the eruption of molars.

2.9 Reported cases



Different authors, documenting case reports, have reported an association between the eruption of the primary dentition and the attributed signs and symptoms to teething. From his observations in a general practice James (1994) submitted that there is a relationship between eruption of the primary dentition and the attributed signs and symptoms. Carpenter (1978) did an observational study for six months on six cases. Five children in Carpenter's study at least experienced irritability, four experienced diarrhoea, 4 experienced rhinorrhea and two experienced febrile conditions. In all cases the symptoms cleared on the day of or a day or two following the emergence of the tooth in the child's mouth. Stewart (1982) reported a case of a child who due to gum irritation had scratched the gums to the point of causing traumatic gingivitis

which action would cease with the eruption of the offending tooth. Drawing from a case report Wilson, Badgett and Gould (1986) hypothesised that increased production of oral secretions along with local inflammation that occurs during teething could predispose colonisation of the middle ear from organisms residing in the oropharynx, as a consequence could hence lead to otitis media.

Nunn (1993), reporting on two cases of teething associated with eruption cysts and pyogenic granulomas, urged for caution while contemplating active intervention. Teething has been reported to trigger acute graft versus host disease. Shapira *et al.*, (1996) reported a case of five month old with a macular rash, marked swelling of the anterior mandibular region and diarrhoea. The rash did not respond to steroid therapy but resolved four days after the completion of teeth eruption. The authors reported the recurrence of the rash with the eruption of the central and lateral maxillary incisor teeth. Lin Chai (2001) reported a case of own daughter's granular-like appearing watery stools during teething which condition ceased with appearance of the erupting teeth. Highlighting the dangers associated with the blanket diagnosis of 'teething', Wilson and Mason (2002) reported a case of misdiagnosis and misuse of a topical medicament in a teething child. The case presented by Wilson and Mason (2002) highlights the problems of teething as a diagnosis. The initial misdiagnosis of teething in the case presented compromised a patient's life.

Recently Balicer and Kitai (2004) reported a case of and highlighted Methamoglobinemia as a possible side effect of topical teething preparations.

According to Darmady (1978) the eruption of incisors produces a marked desire to chew. Darmady following a review opinionated that with each teething process babies

have increased buccal and nasal secretions which causes a post pharyngeal drip resulting in a productive cough and sometimes otitis media (OM). This author cautioned on making the diagnosis of a febrile convulsion due to teething stating that this should only be made with a positive finding of swollen red gums, and exclusion of other causes e.g. tonsillitis, OM, urinary tract infection (UTI) or meningitis (Darmady 1978).

2.10 A need for caution

The concept of tooth eruption causing discomfort has been challenged by several authors. Attributing concurrent symptoms to teething could risk missing out on the right diagnosis and hence improper treatment of the true cause. On teething disturbances, Seward (1971) presented three different schools of thought; one that believed that teething produce a great many disturbances local and systemic in nature. The second school of thought that supported the idea that with teething mild disturbances are a common and expected consequence of what is primarily a normal physiological process. And the third school of thought that negated any association between tooth eruption and the attributed signs and symptoms. Proponents of this third school of thought argued that eruption of the dentition is a normal process, disease disturbance can not occur; and teething will produce nothing else but teeth (Seward 1971). Barlow, Kanellis and Slayton (2002) found a big difference between the number of dentists, pediatricians and parents that attributed diarrhoea to teething. They tried to explain the difference in terms of curricula and experience. In a dental

baby clinic (Cunha *et al.*, 2004) 95% of the mothers were reported to associate eruption of deciduous teeth with some type of symptomatology. Of the 1104 (95%) children manifesting some kind of symptomatology, 46% (n = 510) were reported to associate eruption of deciduous teeth with fever, 39% (n = 427) with disturbed sleep, 35% with diarrhoea and 26% with runny nose. In a Turkish sample (Baykan *et al.*, 2004) more than 86% of the interviewed mothers reported their children to have experienced five or more of the symptoms attributed to teething. These authors also reported 67.8% of the mothers to associate teething with fever and 49% to associate it with diarrhoea. These could be subjective empirical observations without scientific foundation.

Studies disputing the association of teething with local and systemic symptoms have been reported on in the literature. That teething is responsible for occurrence of systemic disturbances is said to remain an area of disagreement among dentists, physicians and parents (Carpenter, 1978). Warry (1990) in disagreement with those attributing local and systemic signs and symptoms to teething stated that teething is a misdiagnosis it coincides with the stage of physiologic development when the child's active immunity is struggling to take over from passive immunity of the mother and often results in ENT or gastro-intestinal infection in a child with an obviously oral fixation who will naturally suck or chew their fingers. Some of the literature has been quoted saying that growth of teeth can cause no more upset than the growth of hair (James, 1954). Massaramo (1992) was doubtful; as to the possibility of parents being precise in deciding when their child is teething. Massaramo's doubt was based on the fact that the emergence of a tooth was not a single identifiable event but rather a

process that takes place over many days. Illingworth (1969) echoes a caution against doctors wrongfully ascribing convulsions, fever, bronchitis and diarrhoea to teething. Radbill (1965) reported on documented recommendations against over treating the ills of dentition. The association between teething and infection has been contested by Leung (1989). He argues that this association is entirely coincidental, since infants in the teething months are susceptible to a wide variety of infections because of low antibody levels. Holt, Roberts, and Scully (2000) refuted the belief that teething could cause diarrhoea or bronchitis, however they were of the view that it could cause or be associated with gingival haematomas, eruption cysts, irritability, disturbed sleep, cheek flushing, drooling, a rise in temperature or circumoral rash.

Hulland *et al.*, (2000) in their sample found gum swelling during teething to be at odds with parental beliefs reported elsewhere. While Hulland *et al.* reported a 37%-48% of gum swelling, Wake *et al.*, (1999) did not find it to be a belief among their Australian sample.

On teething, Grundy and Shaw (1983) had this to say “Teething is often regarded as a mythical disorder possibly by those who have had little to do with babies and have never had a disturbed sleep”. They attributed gum inflammation, flushing of the cheeks, increased salivation and fluid intake, irritability, sleep disturbance, choking, and circumoral rash to teething and recommended sugar-free teething rusks, topical analgesics and teething rings. Wake *et al.*, 1999 in their survey reported 78% of the mothers to associate teething with sleep disturbance.

Ear infection, next to the common cold, is the most commonly diagnosed illness among children in their first two years of life. Paradise *et al.*, (1997) found 91.1% of

the children under their observation to have suffered from an ear infection by age two. These authors found an inverse relationship between maternal education and the infants' ear infection. Wilson Badgett and Gould (1986) were speculative that any infection or colonization forming around newly erupted teeth could contribute to systemic findings including otitis media.

Commenting on sleeplessness, Ferber (1987) had to say that social disturbances could undermine good sleep at any age. Ferber cites among the many causes of sleep disturbances; what a child associates with falling asleep, night time feeding, poor and inconsistent limit setting, social stresses, medical factors (illness, allergy, and pain medication) and circadian and schedule disturbances e.g. inherent biologic factors and irregular sleep or wake patterns. According to Khan *et al.*, (1985) sleep disturbances, restlessness and crying could arise as a result of parental anxiety, adverse environmental conditions, brain malformation or chromosomal abnormalities, airway obstruction, and lactogen intolerance. In their study Khan *et al.*, (1985), all the children had sleep disturbance by prolonged crying. These infants had tolerated artificial diet well but not milk. These authors advised to rule out cow's milk allergy in cases of intractable insomnia.

While drooling, fever, irritability and refusal to eat have been reported to be attributed to teething by many authors, there is a need to always rule out infections of the retropharyngeal space. Various studies have found these signs and symptoms to be highly associated with retropharyngeal space infections (Craig and Schunk, 2003; Kelly Isaacman, 2002).

While many signs and symptoms have been attributed to teething, a lot remains unexplained. Kumate and Isibasi (1986) observed that fever, anorexia, and vomiting could arise as a consequence of diarrhoeal episodes of microbial origin. They argued that diarrhoea could arise as a result of several factors related to human behaviour, organization of public health systems, education, food technology, environmental sanitary conditions and educational level. McIntyre and McIntyre (2002) on teething had to say that “Although many of the conditions historically thought to result from teething are now accurately diagnosed as specific clinical entities, the enigma of teething continues to endure as a somewhat wastebasket diagnosis, when no cause can be found for a particular sign or symptom.

The symptoms of elevated temperature and skin rash could be explained by viral and bacterial infections which teething infants are prone to suffer from. The human herpes virus-6 is now generally known to be ubiquitous in children of teething age it is thought to be responsible for elevated temperatures and facial rash in these children (Leach, Sumaya, and Brown, 1992; and King, 1994). Disagreements do exist among health professionals as to which signs and symptoms are in reality responsible for or associated with teething. Though several of these signs and symptoms could be explained by alternative non-teething aetiologies, parents continue to testify that their children have experienced teething symptoms. Swann (1979) stated that physiological hyper salivation and infantile eczema occur at three months; mouthing and biting of an object is a normal behaviour at six months and upper respiratory tract infections are common between ages of six months and three years. Cohen (1977) commenting on systemic disturbances attributed to teething said many of these systemic

disturbances especially the infectious diseases often manifest oral symptoms before the systemic manifestations of the diseases and cautioned on exaggeration of the oral symptoms. Swann (1979) argued that there was no evidence that tooth eruption either provoked convulsions in the normal child or that it caused fever. Explaining children's illnesses in terms of teething by both health professionals and parents could lead health professionals to ignore significant symptoms or mis-diagnose serious disease. Misdiagnosed primary herpetic gingivostomatitis is thought to be cause of some of the infants' teething difficulties (King *et al.*, 1992).

2.11 The management of teething

Studies have documented and reported on different preparations used in the treatment of teething discomfort. Ashley (2001) reported on use of chilled vegetables, teething rings and rattles, and cold wet flannels. Use of or recommendation to use lignocaine-containing topical gels (Wray, 1990; Ashley, 2001; McIntyre and McIntyre, 2002; Baykan et al; 2004), gels containing benzyl alcohol (Leung, 1989; Balicer and Kitai; 2004), and Choline salicylate-based products has been documented. Bentley-Phillips (1969) reported on use of salicylamide teething jelly and its observed side effects. Radbill (1965) cautioned on overtreating the ills of dentition. Radbill reported on the evolution of preparations for treatment of teething discomfort and the use of amulets to protect the infant from the dangers of teething, as well as from many other evils. Jones (1971) reported the use of teething lotion containing oil of cloves and oil of saffrafrass. Baykan *et al.*, (2004) reported on the use of gum massage, use of natural

herbal medicine and traditional rituals in a Turkish sample. Studies (Al Wahab, 1987; Baba and Kay, 1989; Hiza and Kikwilu, 1992; Mogensen, 2000; Graham *et al.*, 2000; Dewhurst and Mason, 2001), have reported on mutilating practices practiced amongst certain tribes in Africa intended for the cure of teething symptoms. McIntyre and McIntyre (2002) reported on use of alternative holistic medicine for teething and lancing. This included blistering, bleeding, placing leeches on the gums, and applying cautery to the back of the head.

Azevedo, Prater and Lantum (1991) found peoples beliefs to highly influence the choice of treatment modality in a Cameroonian sample. In their study in a Cameroonian population these authors found the community to believe that certain diseases, such as leprosy, epilepsy, tuberculosis, yellow fever (jaundice), convulsions, and all mental illnesses, as well as sterility, can only be adequately treated by the traditional healer, which caused people not to visit the health care centres, except as a last resort.

The role of previous childrearing experience and experience with the particular child who is ill in parental perception of the child's illness has been reported on (Goldman, Pebley, and Gragnolati 2002). The role played by other household members', neighbours', and friends' advice in the mothers' health care seeking behaviour for their children can not be underestimated. Goldman *et al.*, (2002) stated that a young mother staying with her in-laws may feel comfortable getting advice from her in-laws about her child's health.

The role of household members and other members of the family in infant care has been reported on in the literature (Lebese, Netshandama and Shai-Mahoko, 2004; and

Cocks and Dold, 2000). Cocks and Dold in their study among a Xhosa speaking community of eastern Cape South Africa reported on a mother perceiving her 6-months old daughter's crying to be induced by the daughter's seeing evil spirits bought *Doepa* (a manufactured traditional African medicine) to smear onto her head and *Duiwelsdrek druppels* (a Dutch remedy) over her body for protection from the evil spirits. It is reported that the mother's action was from the husband's suggestion. An indepth review of studies of sleep problems in childhood has been given (Adair and Bauchner, 1993). Adair and Bauchner have argued in their review that sleep problems in childhood are multifactorial. These authors on discussing sleep problems call attention to feeding, co-sleeping, food allergy insomnia, and psychosocial stressors among the many causative factors.

The role played by the mother's education in a child's health has been studied. Cleland and van Ginneken (1988) found a linear relationship between maternal education and childhood mortality. The more educated mothers were able to make use of existing health services both for preventive and curative purposes. There is evidence in the literature supporting existence of a negative correlation between child mortality concentration and women education. Women with equal to or greater than secondary education have been found to take more advantage of modern health care structures in caring for their children (Kuate-Defo and Diallo, 2002). These authors in their study of child mortality clustering within African families further stated that educated mothers are more aware of the nutritional problems their children may face, and are better prepared to deal with them. However they found bio-demographic variables to play a more important role than the socio-economic status of the parent.

Seward (1972) noted that infants from both higher and lower social groups experienced the same degree of disturbances. Hence it is evident that the social economic status of the parent has no role to play in the signs and symptoms that parents associate with teething.

The above literature discourse provides basis for the argument that culture limits the individual's perceptions, explanations and behaviour options for understanding and responding to illness. It is implicit then that society's understanding could be associated to influences of parental decision to seek professional care or advice for their ill child. The way society perceives illness could impede preventive efforts, delay or complicate medical care, and result in the use of neutral or harmful remedies. Hence the holistic management of the child's teething discomfort demands grasping the parents' cognitive structures about themselves, their universe, and the relationship between them and their universe. Curry *et al.*, (2002) argue that the broader social context in which childhood illness occur could influence health care seeking behaviors of parents.

2.12 The aims and objective of the study

The aim of this study was to explore the mothers' experience of their child's teething.

The objectives of the study were;

- To determine what mothers understood by the term teething.
- To establish the signs and symptoms mothers associate with teething.
- To ascertain the treatment sought by mothers for their child's teething.
- To investigate how mothers in different settings (Uganda and South Africa) understand and respond to teething.

Chapter 3

3 Research Design and Methodology

This chapter describes the research design, research methodology, sampling procedure, data capturing, and data analysis that were employed in the study.

This study is a descriptive cross-sectional survey. Descriptive studies according to Bowling (2002), literally describe the phenomenon of interest and observed associations in order to estimate certain population parameters, for testing hypotheses and for generating hypotheses about possible cause and effect associations between variables.



This study was conducted at three sites. In Kampala, Uganda, the study setting was the child health and development centre at Mulago Hospital. In Cape Town, South Africa, the study setting was East Ridge Well-baby Clinic, Mitchells Plain, and Gugulethu Well-baby Clinic, Gugulethu Day Hospital.

Convenience sampling was employed for data capturing. It was deemed easy to get/interview mothers with babies at well-baby clinics. The population of mothers at these clinics was thought to be sufficient to save time and costs. Only mothers with babies' age between six months and thirty months attending the well baby clinics were interviewed face to face. The mother had to be attending the clinic with child

and the interview questions were directly related to the child the mother was with at the time of the interview.

The sample size was derived from the formula;

$$n = z^2 [p(1-p)]/d^2$$

according to Kish and Leslie (1965). Where $z = 1.96$ (standard normal deviate); $p =$ prevalence, in this case study we assumed 5.5% to be the expected frequency of mothers attributing local and systemic signs and symptoms to teething. The 5.5% was obtained from a similar study (Kikwilu and Hiza 1997) done to determine the prevalence of tooth bud extraction and socio-environmental factors influencing the practice. With an expected prevalence of 5.5% and an expected precision (or margin of error) $d = 4\%$ with 95% confidence interval, the needed sample size at every site was derived to be 125 mothers , giving a total of 375 mothers from the three sites. The expected precision d for this study is 4%.

3.1 Inclusion criterion (Subjects)

Included in this study are mothers attending the well-baby clinics at the three different sites with children age range 6months – 30 months. The mothers attended the clinics for a variety of reasons. Some attended to weigh their babies, to consult the health visitor about their progress, for immunization of the child or to get nutrient

foods. Mothers were considered for the study because most of the time the child is with the mother and she is usually the one who first notices the slightest deviation from the child's normal behaviour or appearance. Elsewhere differences in fathers' and mothers' responses to childhood illness have been reported (Melnik *et al.*, 2004). Mothers have been reported to have more control and responsibility for the everyday life of their children (Starke and Möller, 2002). To qualify to be included in the study, the child the mother was attending with also had to have at least one tooth in the mouth erupted or erupting. The mother had to voluntarily consent to participate in the study. The lowest limit of mothers to be interviewed was determined to be mothers with babies age six months because this is considered to be the mean age of appearance of the first primary tooth in the baby's oral cavity. Thirty months was taken to be the upper limit because at about this age the child is expected to have a full set of the primary teeth and also to minimize recall bias. With the help of research assistants well versed in local languages, the sampled mothers were interviewed in the language they felt comfortable with (English, or Luganda or Xhosa languages). The questionnaire was transcribed in English, translated into Luganda and Xhosa languages then back to English and then pre-tested before finally being employed in the study (**Appendices I-IX**).

The mothers with babies younger than six months of age, and those with babies older than thirty months of age and mothers within the range of 6months-thirty months but without a tooth in the mouth were not interviewed/included in this study.

Prior to being taken into the field, the questionnaire was tested among mothers (not included in the study) on 10% of the derived sample per site to make sure that language used was clear to and understandable by the mothers.

3.2 Information obtained

From the mothers the information obtained included: the socio-demographic information of the subjects, the mothers' understanding of teething, what they attributed to teething, and their opinion as to what causes diarrhoea and fever, their treatment options thereof and how they responded to their infants' teething. Also sought was the mothers' source of understanding of teething, their infants' first tooth to erupt, age at first eruption and tooth eruption of which tooth they (mothers) associated with local and systemic signs and symptoms. Mothers were asked to express how their infants' teething affected them, their opinion as to what causes diarrhoea and fever, their opinion as to what should be done in case their child had diarrhoea and/or fever, and how they responded to their infant's attributed teething signs and symptoms.

The questions asked included;

- The mother's highest level of education
- Marital status of the mother
- Employment status of both husband and wife
- Maternal age

- What the mothers understood by 'teething'
- From whom the mothers had gained knowledge about teething
- The first tooth to erupt
- Child's age
- Child's age at the eruption of the first tooth
- Whether tooth eruption was accompanied by discomfort
- Which tooth was accompanied by discomfort
- The type of the discomfort
- The mother's own experience of the infant's teething

The mothers were asked whether their child had each of the following attributed local signs and symptoms; drooling, cheek redness, gingival swelling/inflammation, gingival irritation, diarrhoea, fever, restlessness, chest infection, malaise, ear infection, pulling at ears, sleep disturbance, constipation, smelly urine plus any other one that they attributed to their child's teething. The mothers who associated local and systemic signs and symptoms to their child's teething were asked to state the number of days their child had had the discomfort prior to and after the appearance of the tooth in the child's mouth. These mothers were also asked as to whether there was any other member of their household who had had similar signs and symptoms to that of their child. The mothers were asked for their opinions on what causes diarrhoea and fever and for their appropriate choice of treatment for diarrhoea and fever. They also had to state to whom they had taken their child for treatment for their attributed signs and symptoms. They were asked to state as to whether the child had been given

teething powder, teething jelly, teething syrup, analgesics, home remedy, teething rings or any other medication for teething.

3.3 Data handling and management

The captured data was entered into the excel spreadsheet and using SAS statistics software data was analyzed. Descriptive statistical data analysis and some correlations were done.

The number of mothers attributing different signs and symptoms from the different sites was established. Data from the different sites was analyzed individually then the data were pooled and analyzed together. Finally a comparison between Kampala and the other sites was accomplished. This was done in the light of getting a comparison between Uganda and South Africa. Prior to comparing data from Kampala with that from Cape Town, data from the two sites in Cape Town were compared. Data were analyzed for the mothers' opinion to the cause of diarrhoea and fever, opinions towards and choice of treatment for the attributed symptoms.

In analysing the data we are comparing the five groups of mothers (i.e. the mothers that associated local symptoms only, the mothers that associated systemic symptoms only, the mothers that had '*erroneous*' attributes to teething, the mothers that attributed both local and systemic signs and symptoms, and the mothers that had no blame) relative to site and source of knowledge (which are categorical variables) as well as relative to birth order, level of education, and age (which are ordinal

variables). For the categorical variables we used the ordinary Chi-square test and for the ordinal variables we used the(Kruskal-Wallis test)/Wilcoxon Rank Sum test.



3.4 Ethical statement

The ethical approval for this study was sought and obtained prior to the commencement of the study from the institutional ethical committees; The University of the Western Cape senate research Committee through the Faculty Research Committee, Faculty of Dentistry and WHO Oral Health Collaboration Centre University of the Western Cape and Makerere University Senate Research Committee through the Ethics and Research Committee, Faculty of Medicine Makerere University Kampala and from the answerable site managers. Following thorough explanation of the aims and objectives of the study and what participating in the study would entail to the interviewees (mothers) a written consent was sought and obtained from every interviewee. The mothers/interviewees were explained on and assured of confidentiality with regard to the obtained data, and its handling. Requests for consultations and treatment from the mothers were directed to the appropriate authorities for management.

Chapter 4

4 Results

4.1 Introduction

This chapter presents the results of the study such as the sample size, mothers' understanding of teething, the local and systemic signs and systems that mothers from the three different sites attributed to teething, the mothers' experience of their child's teething, their source of information about teething, their opinion as to what causes fever and diarrhea and treatment sought for their child. For data analysis

The captured data was entered into Microsoft excel spread sheet. For data analysis SAS (Statistical Analysis Package) package version 8.02 was used. The level of significance testing for this study was set at 0.01. To test the null hypothesis of no difference in the proportions in each category for the different groups, a chi-square test was done. Where there was significance, pair-wise comparisons were done.

4.2 Sample size

A total of 375 mothers were interviewed (125 at each site). The respondent mothers' age range was 16 – 45 years of age (Figure 1). With only one mother not revealing her age. The mothers aged 25 years of age or below equaled to 65.6% in Kampala, 48.8% in Gugulethu and 45.6% in Mitchells Plain.

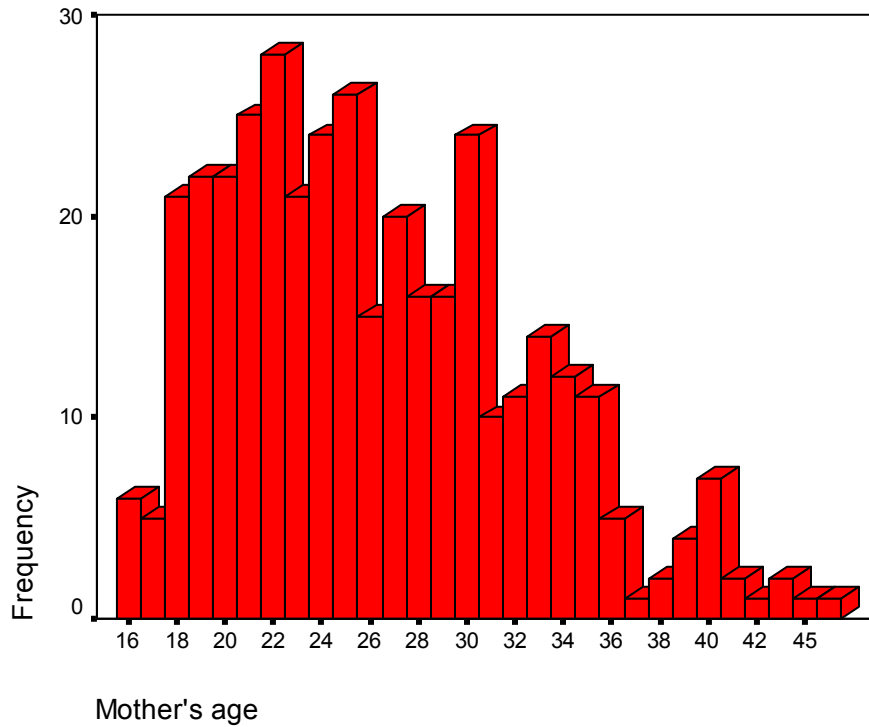


Figure 4.1 Age distribution of interviewed mothers. The majority of the mothers were below 26years of age.



4.2.1 Variables

The variables have been categorized into several groups to facilitate data analysis;

- The popularly attributed local signs and symptoms.
- The popularly attributed systemic signs and symptoms.
- The erroneously attributed signs and symptoms.

Accordingly the mothers have been grouped into those;

- That associate local signs and symptoms.

- That associated systemic signs and symptoms.
- That associated both local and systemic signs and symptoms
- That had erroneous perception
- That had nothing to blame.

Included in the group of those mothers attributing local signs and symptoms only were those mothers associating at least one of these; drooling, cheek redness, gum swelling or redness and gum irritation to the eruption of their child's primary dentition. The mothers included in the group associating systemic signs and symptoms only were those attributing at least one of these; diarrhoea, fever, chest infection, and loss of appetite to their child's eruption of the primary dentition. The group of mothers associating both local and systemic signs and symptoms consisted of those mothers ascribing at least any combination from the local signs and symptoms only and from systemic signs and symptoms only with no mention of erroneous signs and symptoms. The erroneous group consisted of those mothers attributing at least one of the following; ear infection, pulling of ears, constipation, smelly urine, and vomiting to the eruption of their child's primary dentition.

4.2.2 Understanding

There was a significant difference in the proportion of mothers who had an understanding of teething among the three groups of mothers (p-value is <0.0001). Pairwise/further analysis of the mothers' understanding of Mitchells Plain and Gugulethu (the two Cape Town groups) revealed a significant difference (p<0.0001).

When Kampala was compared to Mitchells Plain, excluding Gugulethu, a p-value of 0.027 was obtained which was not significant at the 0.01 level. However when Kampala was compared to Gugulethu excluding Mitchells Plain a p-value of 0.0001 was obtained which was significant at the 0.01 level. From **Table 4.1**, 30 mothers in Kampala, 6 in Gugulethu and 37 in Mitchells Plain did not know the meaning of teething. Thirty mothers in Kampala, 5 in Gugulethu and 24 in Mitchells Plain were of the view that teething is the appearance of baby teeth in the child's mouth. Of the 116 mothers having other sorts of explanation of teething, 57.6% were from Gugulethu.

There was no significant difference among the three sites in the children's age at first eruption p-value for Kruskal-Wallis test = 0.69. For those variables not yielding a statistically significant value between the mothers in Cape Town and those in Kampala pair-wise analyses were not warranted, hence were not done and due to the large number of variables, variables that had no significant association were excluded from comparisons.

Table 4.1 Mothers' understanding of teething per site

	Don't know	Appearance of baby teeth	The diarrhoea with appearance of baby teeth	The fever with appearance of baby teeth	Others	Total (N)
Kampala n (%)	30 (24.0)	30 (24.0)	34 (27.2)	15 (12.0)	16 (12.8)	125
Gugulethu n (%)	6 (4.8)	5 (4.0)	24 (19.2)	18 (14.4)	72 (57.6)	125
Mitchells Plain n (%)	37 (29.6)	24 (19.2)	17 (13.6)	19 (15.2)	28 (22.4)	125
Total N (%)	73 (19.5)	59 (15.7)	75 (20.0)	52 (13.9)	116 (30.9)	375 100.0

This table presents the proportions of mothers' expressed understanding of teething at the different sites. Only 59 mothers admitted that teething was the eruption of the primary dentition. Pair-wise comparisons produced a statistically significant value ($p < 0.0001$).

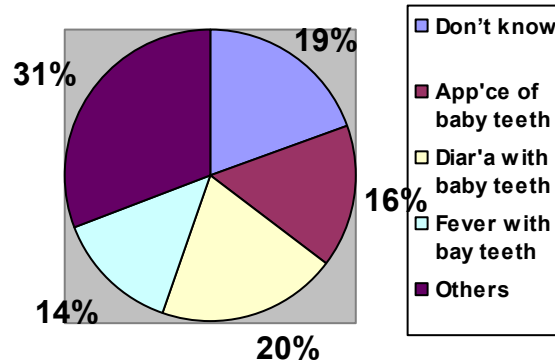


Figure 4.2 Mothers' understanding of teething (overall)

Presented in figure 4.2 are the overall results of the mothers' understanding of teething. Of the 375 interviewed mothers 19.0% said they did not know the meaning

of teething. Of these 30 mothers were from Kampala, 6 from Gugulethu and 37 from Mitchells Plain. Most mothers 31% had varied understanding of teething. Only 16% responded by saying that teething was the appearance of baby teeth in the child's mouth.

4.2.3 Mothers' ascribed signs and symptoms to own child's teething

Over all the number of mothers without any erroneous beliefs was relatively small. From (**Table 4.2**) below only ten (2.7%) mothers out of 375 attributed local signs and symptoms only to teething. Five out of the ten mothers attributing local signs and symptoms only were found in Kampala and five in Mitchells Plain. Seven mothers out of the ten attributing systemic signs and symptoms only were found in Kampala and three in Mitchells Plain. The distribution of mothers associating both local signs and symptoms was 46.4% (n=58) were respondents from Kampala, 16.0% (n=20) in Gugulethu and 20.0% (n=25) were respondents from Mitchells Plain. Only four mothers had 'nothing to blame'. Two hundred and forty eight mothers (66.1%) had erroneous attributions to teething, with Gugulethu having the biggest number of mothers associating erroneous signs and symptoms to teething. The proportion of mothers associating erroneous signs and symptoms to the eruption of their child's primary dentition differed from site to site. 42.4% of the respondents in Kampala, 83.2% of the respondents in Gugulethu, and 72.8% of the respondents in Mitchells Plain were found to associate erroneous signs and symptoms to the eruption of their

child's primary dentition. A comparison of the mothers by site revealed a statistically significant value $p < 0.0001$.

Table 4.2 Different signs and symptoms attributed to teething at different sites.

	Kampala	Gugulethu	Mitchells Plain	Total N (%)
Local only n (%)	5 (4.0)	0 (0.0)	5 (4.0)	10(2.7)
Systemic only n (%)	7 (5.6)	0 (0.0)	3 (2.40)	10 (2.7)
Local + systemic n (%)	58 (46.4)	20 (16.0)	25 (20.0)	103 (27.5)
No blame n (%)	2 (1.6)	1 (0.8)	1 (0.8)	4 (1.1)
Erroneous n (%)	53 (42.4)	104 (83.2)	91 (72.8)	248 (66.1)
Total N (%)	125 (33.3)	125 (33.3)	125 (33.3)	375 (100.0)

The majority of the mothers in Cape Town (n=195) associated own child's primary teeth eruption with erroneous signs and symptoms than was the case in Kampala ($p < 0.0001$)

Table 4.3 shows the distribution of mothers according to their levels of education. The majority of the mothers in this study had attained secondary level of education (n=232).

The mothers in Kampala with no education or with only primary education constituted 41.6% (n=52) of the site sample, while in Gugulethu this percentage was 11.2% (n=14), and in Mitchells Plain it was 21.6 % (n=27). Mothers with secondary education comprised 40% (n=50) in Kampala, 80.8% (n=101) in Gugulethu, and 64.8% (n=81) in Mitchells Plain. (Table 2)

Table 4.3 Distribution of mothers according to level of education

	No/Primary school	Secondary school	Tertiary school	Total N
Kampala n (%)	52 (41.6)	50 (40.0)	23 (18.4)	125
Gugulethu n (%)	14 (11.2)	101 (80.0)	10 (8.0)	125
Mitchells Plain n (%)	27 (21.6)	81 (64.8)	17 (13.6)	125
Total n (%)	93 (24.8)	232 (61.9)	50 (13.3)	375 (100.0)

The majority (61.9%) of the mothers had secondary level of education. A larger minority (41.6%) of the mothers in Kampala had no or primary level of education.

Table 4.4 Child's birth order and attributed signs and symptoms

	1 st child	2 nd child	3 rd child	4 th + child	Total N (%)
Local only n (%)	2 (1.1)	7 (6.4)	0 (0.0)	1 (2.7)	10 (2.7)
Systemic only n (%)	3 (1.7)	3 (2.7)	3 (5.8)	1 (2.7)	10 (2.7)
Local + systemic n (%)	52 (29.6)	32 (29.1)	11 (21.2)	8 (21.6)	103 (27.5)
No blame n (%)	2 (1.1)	1 (0.9)	1 (1.9)	0 (0.0)	4 (1.1)
Erroneous n (%)	117 (66.5)	67 (60.9)	37 (71.2)	27 (73.0)	248 (66.1)
Total n (%)	176 (46.9)	110 (29.3)	52 (13.9)	37 (10.0)	375 (100.1)

This table presents mothers' attributed signs and symptoms to own child's eruption of the primary dentition by child's birth order. The majority of the respondents presented with their 1st or 2nd born child. Child birth order versus attributed signs and symptoms did not yield a statistically significant value (p=0.5111 Kruskal-Wallis test)

Of the interviewed mothers 46.9% (n=176) presented with their first born child, 29.3% (n=110) presented with their second born child (**Table 4.4**). Of the mothers presenting with their first born child, 29.5% associated both local and systemic symptoms and 66.5% (n=117) had erroneous attributes about teething. A high proportion of mothers with fourth born or higher were more likely to ascribe erroneous signs and symptoms 73.0% (n=27 out of 37 mothers). A comparison of mothers by child's birth order was not statistically significant (p=0.5111).

Table 4.5 Mother's level of education and attributed signs and symptoms

		Primary or None	Secondary	Tertiary	Total N (%)
Local only	n (%)	1 (1.1)	8 (3.5)	1 (2.0)	10 (2.7)
Systemic only	n (%)	5 (5.4)	4 (1.7)	1 (2.0)	10 (2.7)
Local + systemic	n (%)	33 (35.5)	52 (22.4)	18 (4.8)	103 (27.5)
No blame	n (%)	2 (2.2)	2 (0.9)	0 (0.0)	4 (1.1)
Erroneous	n (%)	52 (55.9)	166 (71.6)	30 (60.0)	248 (66.1)
Total	n (%)	93 (24.8)	232 (61.9)	50 (13.3)	375 (100.0)

This table is a presentation of the relationship between the mothers' education and their attributed signs and symptoms to the eruption of their child's primary dentition. There was no significant relationship between the mothers' education level and their attributed signs and symptoms ($p=0.2471$ Kruskal-Wallis test).

When the mothers' attributed signs and symptoms were analyzed in relation to their level of education, level of education was not found to play any significant role. The p-value was found to be equal to 0.2471 (Kruskal-Wallis test). Thirty three mothers (35.5%) of those with primary/no education were found to attribute both local and systemic signs and symptoms to teething, 52 mothers (55.9%) of those with primary or no education were found attribute erroneous local and systemic signs and symptoms to the eruption of their child's primary dentition, fifty two mothers (22.4%)

of those with secondary education attributed both local and systemic signs and symptoms, while 166 (71.6%) mothers of those with secondary school education attributed erroneous signs and symptoms. Thirty (60.0%) mothers of those with tertiary education associated erroneous signs and symptoms to the eruption of their child's primary dentition. Of the ten mothers attributing local signs only 8 had secondary education. Of the mothers attributing systemic signs and symptoms only, 5 had no/primary education (**Table 4.5**).



Table 4.6 Mother's age and attributed signs and symptoms

		≤20years of age	21 – 25 years of age	26 – 30 years of age	31+ years of age	Total N (%)
Local only	n	0	3	3	4	10
	(%)	(0.0)	(2.4)	(3.3)	(4.8)	(2.7)
Systemic only	n	0	7	1	2	10
	(%)	(0.0)	(5.7)	1.1	(2.4)	(2.7)
Local + systemic	n	26	35	25	17	103
	(%)	(34.2)	(28.2)	(27.5)	(20.2)	(27.5)
No blame	n	0	3	1	0	4
	(%)	(0.0)	(2.4)	(1.1)	(0.0)	(1.1)
Erroneous	n	50	76	61	61	248
	(%)	(65.8)	(61.3)	(67.0)	(72.6)	(66.1)
Total	N	76	124	91	84	375
	(%)	(20.3)	(33.1)	(24.3)	(22.4)	(100.1)

In this table the findings of the relationship of the mothers' age and their attributed signs and symptoms to own child's eruption of the primary dentition is presented. Mother age does not appear to play a statistically significant role in attributing signs and symptoms to own child's eruption of the primary dentition ($p=0.1567$ Kruskal-Wallis test)

When the mothers' age was compared to their attributed signs and symptoms, it was found not to be statistically significant $p=0.1567$ (Kruskal-Wallis test). None of the mothers age 20 or below (**Table 4.6**) attributed local signs and symptoms or systemic signs and symptoms only. Seven mothers (5.7%), of those aged between 21 and 25 years of age attributed systemic signs and symptoms only, 35 (28.2%) of those

mothers in the 21-25years of category associated both local and systemic signs and symptoms to the eruption of their child's primary dentition, three mothers in this age group had nothing to blame and 76 (61.3%) mothers in this age group associated erroneous signs and symptoms to teething. Fifty (65.8%) mothers of those aged 20 years or less associated erroneous signs and symptoms to teething. Sixty one (67.0%) mothers of those aged between 26 and 30 years of age and 61 (72.6%) mothers of those aged thirty one years of age and above had erroneous signs and symptoms associated to the eruption of their child's primary dentition. Seventeen (20.2%) mothers of those aged 31 years of age and above associated both local and systemic signs and symptoms.



Table 4.7 Mother’s source of knowledge of teething and attributed signs and symptoms

		Relatives friends	Health worker	Personal opinion & experience	School & reading	Never heard of	Total N (%)
Local only	n	6	0	3	0	1	10
	%	3.2	0.0	2.5	0.0	3.6	(2.7)
Systemic only	n	6	0	1	2	1	10
	%	3.2	0.0	0.8	11.8	3.6	(2.7)
Local systemic	+ n	50	5	31	4	13	103
	%	26.4	22.7	26.1	23.5	46.4	(27.5)
No blame	n	3	0	1	0	0	4
	%	1.6	0.0	0.8	0.0	0.0	(1.1)
Erroneous	n	124	17	83	11	13	248
	%	65.6	77.3	69.8	64.7	46.4	(66.1)
Total	N	189	22	119	17	28	375
	%	50.4	5.9	31.7	4.5	7.5	100.0

In this table results of analysis for any relationship between the mothers’ source of knowledge of teething and their attributed signs and symptoms to own child’s teething are presented. Mothers from all groups associated erroneous signs and symptoms in high proportions. Source of information was not found to have a statistically significant difference (p=0.4123 Kruskal-Wallis test)

The analysis of the mothers’ source of knowledge in relation to their attributed signs and symptoms did not yield a statistically significant result p=0.4123 (Kruskal-Wallis test). The majority of the mothers 50.4% (n=189) as seen from **Table 4.7** received

their information on teething from either their relatives friends neighbours or elders within their community. Of the 189, one hundred and twenty four mothers (65.6%) had erroneous signs and symptoms attributed to the eruption of their child's primary dentition and 50 mothers (26.5%) associated both local and systemic signs and symptoms to the eruption of their child's primary dentition. One hundred and nineteen mothers (31.7%) claimed to have gained knowledge about teething from their experience or as a personal opinion and of these 83 mothers (69.8%) associated erroneous signs and symptoms to their child's teething. Only 22 mothers recalled having ever gained information from a health worker and of these twenty two 77.3% associated erroneous signs and symptoms to their child's eruption of the primary dentition. Twenty eight mothers claimed never having heard of teething and of the 28, 46.4% associated both systemic and local signs and symptoms to their child's eruption of the primary dentition, and 46.4% associated erroneous signs and symptoms to their child's eruption of the primary dentition. Seventeen mothers said they had gained knowledge about teething from school and reading.

Table 4.8 Attributing diarrhoea and opinion on what causes diarrhoea

	Erupting teeth	Don't know	Unhygienic conditions	Others	Total N (%)
Yes n	100	74	62	41	277
%	90.0	62.2	67.4	83.8	(73.9)
No n	15	45	30	8	98
%	13.0	37.8	32.6	16.3	(26.1)
Total N	115	119	92	49	375
%	30.7	31.7	24.5	13.1	100.0

This table is a representation of the analysis of the mothers' opinion on what causes diarrhoea and their response as to whether they associated own child's primary dentition eruption with diarrhoea. The results yielded a statistically significant value ($p < 0.0001$)

The analysis of mothers' opinion on what causes diarrhoea in relation to as to whether they attributed diarrhoea to teething (**Table 4.8**), yielded a statistically significant result ($p < 0.0001$). The distribution of the mothers according to their opinion on the causes of diarrhoea was as seen in table 7. Of the mothers with the opinion that erupting primary dentition causes diarrhoea, 87.0% associated diarrhoea to the eruption of their child's primary dentition, 62.2% of the mothers who said they did not know what causes diarrhoea associated diarrhoea to the eruption of their child's primary dentition. Of the mothers with the opinion that diarrhoea is due to unhygienic conditions 67.4% associated diarrhoea to the eruption of their child's primary dentition and of the group of mothers other different opinions on what causes diarrhoea 83.7% associated diarrhoea to the eruption of their child's primary dentition.

Table 4.9 Mothers attributing fever and opinion on causes of fever over all

	Erupting teeth	Don't know	Diarrhoea	Infection/low immunity	Mosquitoes	Draft	Others	Total N (%)
Yes n	90 89.1	48 60.8	4 57.1	22 81.5	41 62.1	24 58.5	40 74.1	269 (71.7)
%								
No n	11 10.9	31 39.2	3 42.9	5 18.5	25 37.9	17 41.5	14 25.9	106 (28.3)
%								
Total N	101 26.9	79 21.1	7 1.9	27 7.2	66 17.6	41 10.9	54 14.4	375 100.0
%								

This table is a representation of the analysis of the mothers' opinion on what causes fever and their response as to whether they associated own child's primary dentition eruption with fever. The results yielded a statistically significant value ($p < 0.0001$)

The analysis for any association between the mothers' associating the eruption of their child's primary dentition and their opinion on what causes fever (**Table 4.9**), yielded a statistically significant result ($p < 0.0001$). The distribution of mother's response as to what causes fever was; Of the 101 mothers with the opinion that erupting primary dentition causes fever, 89.1% gave an affirmative answer to the question as to whether they thought the eruption of their child's primary dentition caused fever in their child. Of the mothers saying they did not know what cause fever 60.8% associated fever with the eruption of their child's primary dentition. Four mothers (57.1%) of those with the opinion that diarrhoea causes fever associated

fever to the eruption of their child’s primary dentition. Twenty two mothers with the view that fever is due to lowered immunity/infection attributed fever in their child to the eruption the eruption of their child’s primary dentition. Sixty six mothers were of the opinion that fever is due to mosquito bites. Of these 66 mothers 62.1% associated fever to the eruption of their child’s primary dentition. Of the 41 mothers with the opinion that fever is due to draft 24 associated the eruption their child’s primary dentition and fever in their child.

Table 4.10 Mothers’ experience of their infants’ teething at the different sites

		Not affected	Worried	Scared	Others	Total N (%)
Kampala	n	68	22	24	11	125
%		53.1	18.3	48.0	14.3	(33.3)
Gugulethu	n	9	81	10	25	125
%		7.0	67.5	20.0	32.5	(33.3)
Mitchells Plain	n	51	17	16	41	125
%		39.8	14.2	32.0	53.3	(33.3)
Total	N	128	120	50	77	375
%		34.1	32.0	13.3	20.5	100.0

The mothers’ experience of their child’s teething at the three different sites is presented in this table. Comparisons resulted into a statistically significant value ($p < 0.0001$)

Table 4.10 shows the distribution of the mothers by site and what their experience of their child's teething was. The analysis of the mothers' experience of their child's teething by site yielded a statistically significant result ($p < 0.0001$). The mothers' response in Kampala revealed that 68 mothers were not affected by the eruption of their child's primary dentition (53.1% of the 128 mothers of the total sample not affected), while in Gugulethu, nine mothers and in Mitchells Plain 51 mothers were not affected by what their child was going through. Out of the 120 mothers that expressed having been worried by the state of their child as a result of the erupting primary dentition, 67.5% were in Gugulethu, 18.3% in Kampala and 14.2% in Mitchells Plain. Twenty four mothers in Kampala, ten in Gugulethu and sixteen in Mitchells Plain reported having been scared by what the eruption of their child's primary dentition presented with.



Table 4.11 Involvement of a household member

		None	Yes	Total N (%)
Kampala	n	108	17	125
	%	86.4	13.6	(33.3)
Gugulethu	n	67	58	125
	%	53.6	46.4	(33.3)
Mitchells Plain	n	102	23	125
	%	81.6	18.4	(33.3)
Total	N	277	98	375
	%	73.9	26.1	100.0

This table presents the mothers' response as to whether any other member of the household had similar signs and symptoms in particular systemic that they associated with own child's eruption of the primary dentition. The analysis yielded a statistically significant value ($p < 0.0001$).

As to whether there was any other member of the household having similar signs and symptoms that the mother was attributing to teething, the mothers' responses (**Table 4.11**) differed. The analysis revealed a statistically significant figure ($p < 0.0001$). In Kampala, 108 mothers out of 125 reported no involvement of any household member, while in Gugulethu only 67 out of 125 reported no involvement of a any household member. In Mitchells Plain 102 out 125 reported no involvement of a household member.

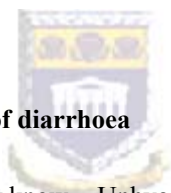


Table 4.12 Mothers' opinion to causes of diarrhoea

		Erupting teeth	Don't know	Unhygienic conditions	Others	Total N (%)
Kampala	n	31	17	61	16	125
	%	24.8	13.6	48.8	12.8	(33.3)
Gugulethu	n	61	48	6	10	125
	%	48.8	38.4	4.8	8.0	(33.3)
Mitchells Plain	n	23	54	25	23	125
	%	18.4	42.3	20.0	18.4	(33.3)
Total	n	115	119	92	49	375
	%	30.7	31.7	24.5	13.1	100.0

This shows the results of analysis of the mothers' opinion on what causes diarrhoea per site.
($p < 0.0001$)

The mothers' opinion to what causes diarrhoea on the over all is represented in figure 3 below. Out of 375 mothers, 31.7% did not know the cause of diarrhoea with Kampala, Gugulethu and Mitchells Plain having 14.3% (n=17), 40.3% (n=48) and 45.4% (n=54) respectively (**Table 4.12**). The result of the analysis for any association by site of the mothers' opinion on what causes diarrhoea yielded a statistically significant figure ($p < 0.0001$). The mothers that were of the opinion that erupting primary dentition causes diarrhoea consisted of 24.8% of the respondents in Kampala, 48.8% (n=61) of the respondents in Gugulethu and 18.4% (n=23) of the respondents in Mitchells Plain. Sixty one mothers in Kampala, six mothers in Gugulethu and 25 mothers in Mitchells plain attributed diarrhoea to unhygienic conditions,

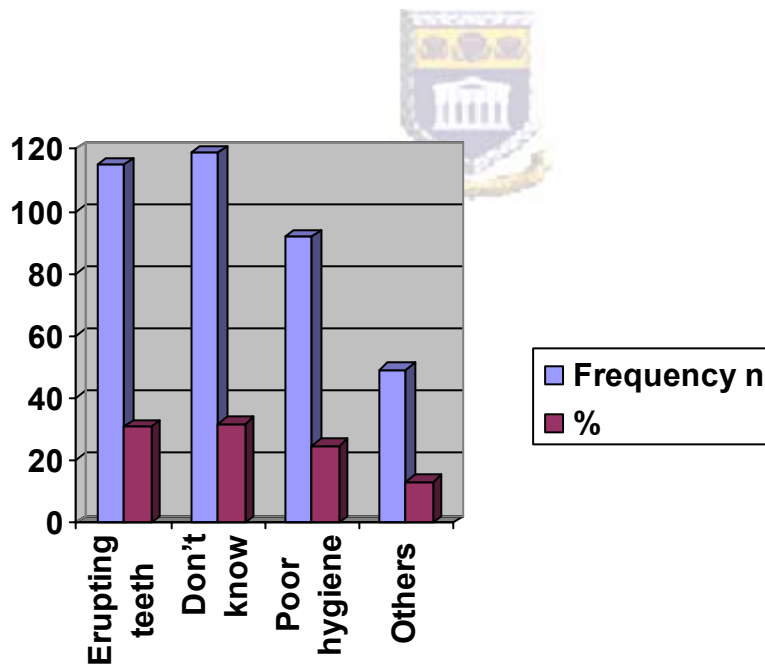


Figure 4.3 Mothers' opinion to what causes diarrhoea

Table 4.13 Mothers' opinion on what causes fever at the different sites

	Erupting teeth	Don't know	Diarrhoea	Infection/low immunity	Mosquitoes	Draft	Others	Total N (%)
Kampala	19	22	4	5	66	0	9	125
n	15.2	17.6	3.2	4.0	52.8	0.0	7.2	(33.3)
%								
Gugulethu	51	27	0	1	0	32	14	125
n	40.8	21.6	0.0	0.8	0.0	25.6	11.2	(33.3)
%								
Mitchells Plain	31	30	3	21	0	9	31	125
n	24.8	24.0	2.4	16.8	0.0	7.2	24.8	(33.3)
%								
Total	101	79	7	27	66	41	54	375
n	26.9	21.1	1.9	7.2	17.6	10.9	14.4	100.0
%								



This table presents the results of the mothers' opinion on what causes fever by site. Mothers differed in opinion per site. The result was statistically significant ($p < 0.0001$).

Over all 26.9% (n=101) (**Figure 4.3**) mothers were of the opinion that the erupting primary teeth cause fever. The make up of the 101 (**Table 4.13**) mothers having the opinion that erupting primary teeth cause fever was; 40.8% (n=51) of the respondents in Gugulethu, 24.8% (n=31) of the respondents in Mitchells Plain, and 15.2% (n=19) of the respondents in Kampala. Sixty six mothers in Kampala were of the view that fever is due to mosquito bites, while 32 mothers in Gugulethu were of the view that fever is due to draft. Thirty mothers in Mitchells Plain did not know the causes of

fever. A comparison of the mothers' opinion to what causes fever by site yielded a statistically significant figure ($p < 0.0001$).

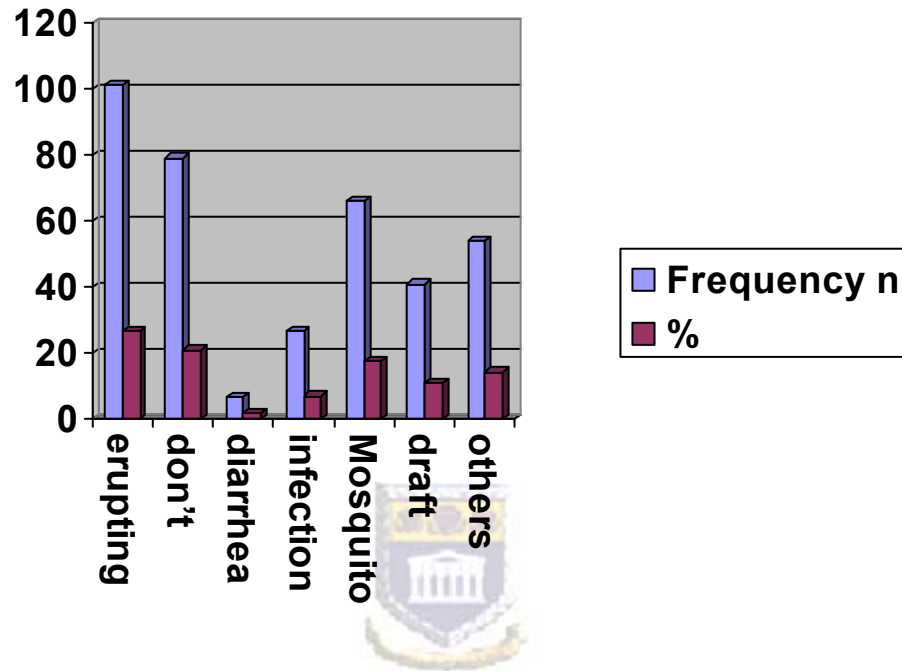


Figure 4.4 The mothers' opinion as to what causes fever. A large proportion of mothers thought erupting primary dentition causes fever.

Table 4.14 Mothers' opinion on how to treat diarrhoea

	Anti-diarrhoeal	Fluid replacement	Others	Seek medical attention	Total N (%)
Kampala n	5	57	6	57	125
%	23.8	31.5	11.5	47.1	(33.3)
Gugulethu n	11	59	26	29	125
%	52.4	32.6	50.0	24.0	(33.3)
Mitchells Plain n	5	65	20	35	125
%	23.8	35.9	38.5	28.9	(33.3)
Total N	21	181	52	121	375
(%)	(5.6)	(48.3)	(13.9)	(32.3)	(100.0)

This table presents the results of the analysis of the mothers' opinion on how to treat diarrhoea by site. A high proportion of the mothers had good knowledge on how to respond to childhood diarrhoea. The analysis mothers' opinion by site produced a statistically significant value ($p < 0.0001$).

The mothers' responses when asked of their opinion on how to treat the diarrhoea was as follows; of the total of 181 mothers having the view to treat diarrhoea with oral rehydration therapy 57 (31.5%) mothers were respondents from Kampala, 59 (32.6%) mothers were respondents from Gugulethu and 65 (35.9%) mothers were respondents from Mitchells Plain (**Table 4.14**). The proportion of the mothers with view of seeking medical attention for their child's diarrhoea was; 57 (47.1%) mothers were respondents from Kampala, 29 (24.0%) mothers were respondents from Gugulethu

and 35 (29.0%) mothers were respondents from Mitchells Plain. The mothers in Kampala and Mitchells Plain were reluctant to use antidiarrhoeals. There were five mothers in Kampala 23.8% of the 21 mothers, 5 mothers in Mitchells Plain and 11 (52.4%) mothers in Gugulethu with the view of employing antidiarrhoeals for their child's diarrhoea. The comparison of the mothers' opinion on treatment of diarrhoea by site yielded a statistically significant figure ($p < 0.0001$).

Table 4.15 Mothers' opinion on how to treat fever

		Anti-malarials	Seek medical attention	Don't know	Pain killers	Buy medicine	Home remedy	Total N (%)
Kampala	n	10	86	2	9	12	6	125
	%	90.9	46.7	15.4	12.5	29.2	11.1	(33.3)
Gugulethu	n	0	63	8	24	25	5	125
	%	0.0	34.2	61.5	33.3	61.0	9.3	(33.3)
Mitchells Plain	n	1	35	3	39	4	43	125
	%	9.1	19.0	23.1	54.2	9.8	79.6	(33.3)
Total	N	11	184	13	72	41	54	375
	(%)	(2.9)	(49.1)	(3.5)	(19.2)	(10.9)	(14.4)	(100.0)

This table presents the results of analysis of the mothers' opinion on how to respond to childhood fever per site. The mothers opinions resulted in a statistically significant value ($p < 0.0001$)

The results of the mothers' responses as to their opinion on how to treat the fever are presented in **Table 4.15**. Ten mothers (90.9%) of those of the view of using

antimalarials were respondents from Kampala, 86 (46.7%) mothers of those of the view of seeking medical attention were respondents from Kampala, 63 (34.2%) mothers of those of the view of seeking medical attention were respondents from Gugulethu and 35 (19.0%) mothers of those with the view of seeking medical attention were respondents from Mitchells Plain, while 24 mothers in Gugulethu, 39 in Mitchells Plain, and 9 in Kampala of were of the view of using pain killers for their child’s fever. In response to the same question, 25 in Gugulethu, 12 in Kampala and 4 in Mitchells Plain thought they would buy medicine. A comparison of the mothers opinion on how to treat the fever by site revealed a statistically significant figure ($p < 0.0001$).

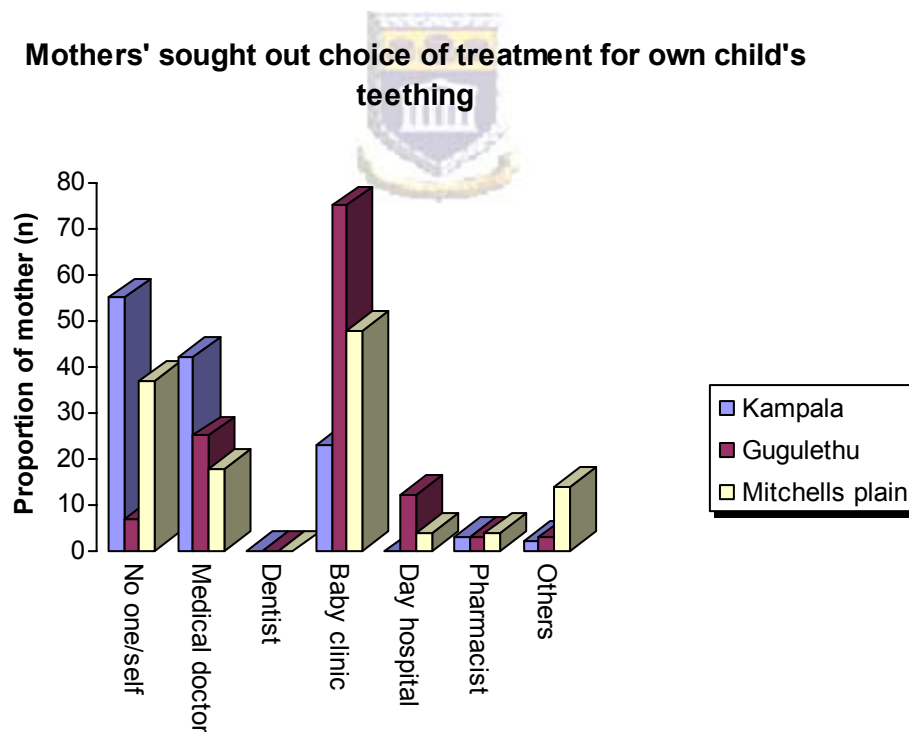


Figure 4.5 presents results of the responses to the question where they had sought assistance from for the child’s teething discomfort. No single mother sought help from a dentist.

Table 4.16 Mothers' sought out choice of treatment for the child

		No one/self	Medical doctor	Dentist	Baby clinic	Day hospital	Pharmacist	Others	Total N (%)
Kampala	n	55	42	0	23	0	3	2	125
	%	55.6	49.4	0.0	15.8	0.0	30.0	10.5	(33.3)
Gugulethu	n	7	25	0	75	12	3	3	125
	%	7.1	29.4	0.0	51.4	75.0	30.0	15.8	(33.3)
Mitchells Plain	n	37	18	0	48	4	4	14	125
	%	37.4	21.2	0.0	32.9	25.0	40.0	73.7	(33.3)
Total	N	99	85	0	146	16	10	19	375
	(%)	(26.4)	(22.7)	(0.0)	(38.9)	(4.3)	(2.7)	(5.1)	(100.0)

This table presents the results of analysis of the mothers' sought out choice of treatment for own child's teething discomfort. The majority of the mothers sought medical attention. Data comparisons resulted into a statistically significant value ($p < 0.0001$).

The mothers' responses as from whom they sought assistance for their child's discomfort due to the erupting primary dentition are represented in **Table 4.16**. Of those not seeking assistance, fifty five (55.6%), 7 (7.1%), and 37 (37.4%) mothers were respectively respondents from Kampala, Gugulethu and Mitchells plain. These mothers claimed to have managed their child's discomfort by themselves. Of the 375 mothers, 85 had sought medical assistance of which forty two mothers (49.4%) in

Kampala, 25 (29.4%) in Gugulethu and 18 (21.2%) in Mitchells Plain sought attention from the medical doctor. None of the mothers from the three sites sought attention from a dentist. Twenty three (15.8%) in Kampala, 75 (51.4%) from Gugulethu and 48 (32.9%) from Mitchells Plain sought attention from the baby clinic. A comparison between sites yielded a statistically significant figure (p-value <0.0001).

Table 4.17 Mothers response to their child's diarrhoea


		No treatment	Fluid replacement	Others	Total N (%)
Kampala	n	54	25	46	125
	%	40.9	17.9	44.7	(33.3)
Gugulethu	n	21	66	38	125
	%	15.9	47.1	36.9	(33.3)
Mitchells Plain	n	57	49	19	125
	%	43.2	35.0	18.5	(33.3)
Total	N	132	140	103	375
	(%)	(35.2)	(37.3)	(27.5)	(100.0)

This table presents the results of analysis of the mothers' response to their own child's teething associated diarrhoea per site. Comparisons revealed a statistically significant value (p<0.0001).

In **table 4.17** the mothers' responses as to how they responded to their child's diarrhoea are presented. Of the 132 mothers not rendering any treatment for their

assumed erupting primary dentition caused diarrhoea, 54 (40.9%) mothers were respondents from Kampala, 21 (15.9%) mothers were respondents from Gugulethu and 57 (43.2%) mothers were respondents from Mitchells Plain. Over all 140 (37.3%) mothers employed oral rehydration therapy for their perceived own child's erupting primary dentition induced diarrhoea. Of these 25 (17.9%) mothers were from Kampala, 66 (47.1%) mothers were from Gugulethu and 49 (35.0%) were from Mitchells Plain. A comparison of the mothers' response for their perceived child's erupting primary dentition induced diarrhoea by site yielded a statistically significant figure (p-value<0.0001).

Table 4.18 Mothers' response to their child's fever



		No treatment	Others	Analgesics	Total N (%)
Kampala	n	48	46	31	125 (33.3)
	%	56.5	32.2	21.1	
Gugulethu	n	14	60	51	125 (33.3)
	%	16.5	42.0	34.7	
Mitchells Plain	n	23	37	65	125 (33.3)
	%	27.1	25.9	44.2	
Total	N	85	143	147	375
	(%)	(22.7)	(38.1)	(39.2)	(100.0)

This table presents the mothers' response to their own child's attributed teething fever by site. The analysis yielded a statistically significant value (p<0.0001).

When the mothers were asked on how they responded to their perceived child's erupting primary dentition induced fever, 85 (22.7%) of the mothers gave no treatment to their child, 143 (38.1%) of the mothers employed all sorts of treatment and 147 (39.2%) used analgesics (**Figure 4.4**). From **Table 4.18**, 56.5% mothers of those that preferred no treatment were respondents from Kampala, 16.5% mothers were respondents from Gugulethu and 27.1% mothers were respondents from Mitchells Plain. The distribution of the mothers using analgesics for their perceived child's erupting primary dentition induced fever was; 21.1% mothers were from Kampala, 34.7% mothers were from Gugulethu and 44.2% mothers were from Mitchells Plain. The comparison of the mothers' response to their child's fever by site yielded a statistically significant figure ($p\text{-value} < 0.0001$).

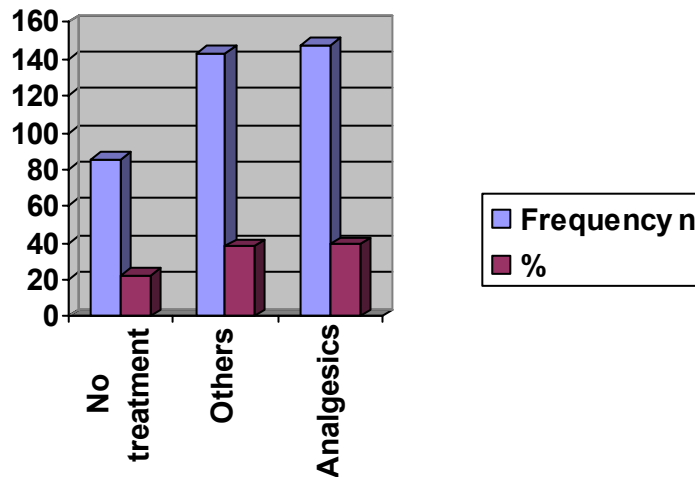



Figure 4. 6 The mothers' response to their child's fever

When asked what they used for the relief of their child's erupting primary dentition local discomfort, 70 (68.6%) mothers in Kampala, 9 (8.8%) in Gugulethu and 23 (22.6%) in Mitchells Plain used analgesics; 5 (12.5%) mothers in Kampala, 22 (55.0%) in Gugulethu and 13 (32.5%) in Mitchells Plain used home remedies; and 50 (21.5%) mothers in Kampala, 94 (40.3%) in Gugulethu and 89 (38.2%) in Mitchells Plain employed other different treatment modalities or a combination of more than one treatment modality (**Table 4.19**). A comparison of the mothers' choice of treatment modality by site yielded a statistically significant figure ($p\text{-value}<0.0001$).

Table 4.19 Mothers' choice for relief of their child's erupting primary dentition induced local signs and symptoms.



		Analgesics	Home remedies	Others	Total N (%)
Kampala	n	70	5	50	125 (33.3)
	%	68.6	12.5	21.5	
Gugulethu	n	9	22	94	125 (33.3)
	%	8.8	55.0	40.3	
Mitchells Plain	n	23	13	89	125 (33.3)
	%	22.6	32.5	38.2	
Total	N	102	40	233	375
	%	(27.2)	(10.7)	(62.1)	(100.0)

This table presents the results of the mothers' response with regard to their choice of treatment modality for their own child's local teething discomfort by site. The analysis yielded a statistically significant value ($p<0.0001$).

Table 4.20 What relieved the discomfort best for the mothers

		Others	Nothing	Analgesics	ORS	Good hygiene	Home remedy	Total N (%)
Kampala	n	36	20	19	14	31	5	125
	%	52.2	37.7	39.6	33.3	24.0	14.7	(33.3)
Gugulethu	n	8	7	22	21	54	13	125
	%	11.8	13.2	45.8	50.0	41.7	38.2	(33.3)
Mitchells Plain	n	25	26	7	7	44	16	125
	%	36.8	49.1	14.6	16.7	34.1	47.1	(33.3)
Total	N	69	53	48	42	129	34	375
	(%)	(18.4)	(14.1)	(12.8)	(11.2)	(34.4)	(9.1)	(100.0)

This table presents the mothers' opinion on what relieved own child's attributed teething discomfort. The analysis yielded a statistically significant value ($p < 0.0001$)

When the mothers were asked what they thought relieved their child's teething discomfort, 53 (14.1%) of the mothers thought that their child had no relief not until the offending tooth had erupted, 129 (34.4%) thought improved general hygienic conditions helped in relieving the child's discomfort (**Table 4.20**). 37.7% mothers in Kampala, 13.2% mothers in Gugulethu and 49.1% mothers in Mitchells Plain thought nothing brought relief for their child except the eruption of the primary teeth causing the discomfort. Forty eight mothers of which 39.6% in Kampala, 45.8% in Gugulethu and 14.6% in Mitchells Plain thought their child had relief from pain killers. Of the mothers having the view that their child had relief from using oral rehydration therapy 50.0% were respondents from Gugulethu, 33.3% were Kampala and 16.7%

were Mitchells Plain residents. Comparison of data by site on the mothers opinion on what relieved their child's discomfort yielded a statistically significant figure (p-value<0.0001).

Table 4.21 Restlessness per site

		Kampala	Gugulethu	Mitchells Plain	Total N (%)
Yes	n	48	107	103	258 (68.8)
	%	38.4	85.6	82.4	
No	n	77	18	22	117 (31.2)
	%	61.6	14.4	17.6	
Total	N	125	125	125	375
	(%)	(33.3)	(33.3)	(33.3)	(100.0)

This table presents results of the mothers' association of own child's teething and restlessness per site. The results were statistically significant (p<0.0001)

The mothers that associated restlessness with the eruption of the child's primary dentition were 258 (68.8%) (Table 4.21) of these, 38.4% in Kampala, 85.6% in Gugulethu and 82.4% in Mitchells Plain were of the opinion that when the child's primary dentition erupting he becomes restless. A comparison of the data by site of the mothers' association of restlessness and teething yielded a statistically significant value (p<0.0001).

Table 4.22 Malaise per site

		Kampala	Gugulethu	Mitchells Plain	Total N
					(%)
Yes	n	68	83	35	186 (49.6)
	%	54.4	66.4	28.0	
No	n	57	42	90	189 (50.4)
	%	45.6	33.6	72.0	
Total	N	125	125	125	375
	(%)	(33.3)	(33.3)	(33.3)	(100.0)

The results of data analysis for the mothers' association of their own child's teething with malaise per site are presented in this table. The results were statistically significant ($p < 0.0001$)



The mothers that associated malaise with the eruption of their child's primary dentition were 186 (49.6%) (**Table 4.22**). Among the interviewees in Kampala 54.4% were of the view that during the eruption of the primary dentition, malaise is due to/a consequence of the erupting primary teeth. While in Gugulethu 66.4%, and in Mitchells Plain 28.0% were of the same opinion. A comparison by site of the mothers' association of malaise and the eruption of their child's primary dentition yielded a statistically significant value ($p < 0.0001$).

Table 4.23 Sleep disturbance per site

		Kampala	Gugulethu	Mitchells Plain	Total N (%)
Yes	n	11	68	75	154 (41.1)
	%	8.8	54.4	60.0	
No	n	114	57	50	221 (58.9)
	%	91.2	45.6	40.0	
Total	N	125	125	125	375 (100.0)
	(%)	(33.3)	(33.3)	(33.3)	

The results of data analysis for the mothers' association of their own child's teething with sleep disturbance per site are presented in this table. The results were statistically significant ($p < 0.0001$)



The mothers that were found to associate sleep disturbance (**Table 4.23**) with their the eruption of their child's primary dentition were 154 (41.1%). 91.2% of the mothers in Kampala did not think that sleep disturbance was associated with the eruption of the primary dentition, while 54.4% of the mothers in Gugulethu and 60.0% of the mothers in Mitchells Plain thought that the eruption of the primary dentition was associated with their child's sleep disturbance. A comparison by site of the mothers' association of their child's sleep disturbance and eruption of their primary dentition yielded a statistically significant value ($p < 0.0001$).

When the data was analyzed for any relationship between the child's birth order and restlessness (**Appendix X Table 4.24**) the results did not yield a statistically significant figure $p = 0.6140$ – Kruskal-Wallis test). The mothers responded with

69.3% of the first child, 70.9% of second child, 65.4% of the third child and 64.9% of the fourth child and above having the eruption of the primary dentition associated with restlessness.

When the data was analyzed for any relationship between the child's birth order and malaise the (**Appendix X Table 4.25**), results did not yield a statistically significant figure ($p=0.9047$ – Kruskal-Wallis test). The mothers responded with 50.6% of the first child, 45.5% of the second child, 59.6% of the third child and 43.2% of the fourth and above child malaise associated with eruption of the primary dentition.

When the data was analyzed for any association between the child's birth order and sleep disturbance (**Appendix X Table 4.26**) the results did not yield a statistically significant figure ($p=0.7418$ – Kruskal-Wallis test). The mothers, in 60.2% of the first child, 56.4% second child, 61.5% 3rd child and 56.8% 4th child and above did not associate the eruption of their child's primary dentition with the child's sleep disturbance.

When the data were subjected to analysis for any association between mothers' level of education and restlessness (**Appendix X Table 4.27**) the results did not yield a statistically significant figure ($p=0.0897$ – Kruskal-Wallis test). 93 mothers had no/primary education, 232 mothers had secondary education, and 50 mothers had tertiary education. Among the mothers with no/primary education 58.1% thought the eruption of their child's primary dentition caused the child's restlessness, while among those with secondary and tertiary education the proportions were 73.7% and 66.0% respectively.

When the data were subjected to analysis for any association between the mothers' level of education and the mothers' associated malaise to the eruption of their child's primary dentition (**Appendix X Table 4.28**) the results did not yield a statistically significant figure ($p=0.1103$ – Kruskal-Wallis test). One hundred and eighty six mothers attributed their child's malaise to eruption of the child's primary dentition. Of these 53.8%, 50.4% and 38.0% had primary/no education, secondary education and tertiary education respectively.

When the data were subjected to analysis for any association between the mothers' level of education and the mothers' perceived child sleep disturbance associated with the eruption of the child's primary dentition (**Appendix X Table 4.29**) the results did not yield a statistically significant figure ($p=0.1063$ – Kruskal-Wallis test). One hundred and fifty four mothers attributed their child's sleep disturbance to eruption of the primary dentition, while the remaining 221 mothers did not of which 69.9%, 53.9% and 62.0% had primary/no education, secondary education, and tertiary education respectively.

When the data were subjected to analysis for any association between the mothers' age and restlessness (**Appendix X Table 4.30**) the results did not yield a statistically significant figure ($p=0.0975$ – Kruskal-Wallis test). Two hundred and fifty eight mothers attributed their child's restlessness to the eruption of the primary dentition, while the remaining 117 mothers did not. Of which 48 were aged ≤ 20 years of age, 85 were aged between 21 and 25 years of age, 60 were aged between 26 and 30 years of age and 65 were aged 31 years of age and above.

When the data were subjected to analysis for any association between the mothers' age and their child's malaise (**Appendix X Table 4.31**) the results did not yield a statistically significant figure ($p=0.4354$ – Kruskal-Wallis test. Of the mothers associating their eruption of the primary dentition to their child's malaise, 55.3% ($n=42$ out of 76) were aged ≤ 20 years of age, 48.4% ($n=60$ out of 124) were between 21 and 25 years of age, 47.3% ($n=43$ out 91) were between 26 and 30 years of age and 48.8% ($n=41$ out 84) were 31 years of age and above.

When the data were subjected to analysis for any association between mothers' age and their child's sleep disturbance (**Appendix X Table 4.32**) the results did not yield a statistically significant figure ($p=0.2443$ – Kruskal-Wallis test). 63.2% of the mothers aged ≤ 20 years age, 59.7% of the mothers aged between 21 and 25, 59.3% of the mothers aged between 26 and 30 years of age and 53.6% did not associate the eruption of the primary dentition with their child's sleep disturbance.

Table 4.33 Mother's source of knowledge on teething and restlessness

		Relatives and friends	Health worker	Personal opinion	School/reading	Never heard of	Total N (%)
Yes	n	131	19	88	7	13	258
	%	69.3	86.7	74.0	41.2	46.4	(68.8)
No	n	58	3	31	10	15	117
	%	30.7	13.6	26.1	58.8	53.6	(31.2)
Total	N	189	22	119	17	28	375
	(%)	(50.4)	(5.9)	(31.7)	(4.5)	(7.5)	(100.0)

The results of data analysis for the mothers' source of knowledge of teething and their association of their own child's teething with restlessness per site are presented in this table.

The results were statistically significant ($p=0.0017$ Kruskal-Wallis test)

When the data were subjected to analysis for any association between the mothers' source of knowledge on teething and restlessness the results yielded a statistically significant figure $p=0.0017$ (**Table 4.33**). 69.3% of the mothers reporting to have received knowledge from either relatives, or friends, or neighbours or from the elders in their community associated restlessness with their child's eruption of the primary dentition. 86.4% of the mothers that said they had received information about teething for the first time from a health worker, associated restlessness with their child's eruption of the primary dentition. Of the mothers reporting to have received information about teething for first time from reading or from school, 41.2% associated their child's restlessness with the eruption their child's primary dentition.

When the data were subjected to analysis for any association between the mothers' source of knowledge on teething and their own attributed teething child's malaise (**Table 4.34 Appendix X**) the results were not statistically significant ($p=0.0784$ Kruskal-Wallis test). The differences between the mothers associating and those not associating malaisewith own child's teething was minimal.

When the data were subjected to analysis for any association between the mothers' source of knowledge on teething (**Table 4.35 Appendix X**) and their association of own child's eruption of the primary dentition with sleep disturbance the results were not statistically significant ($p=0.0960$ Kruskal-Wallis test).

5 Discussion

In this chapter the findings of this study are discussed in relation to the objectives of the study and what has been published in the literature. The discussion focuses on the aim of the study which was to explore the mothers' experience of their child's teething and the specific objectives of the study which were;

- To determine what mothers understood by the term teething.
- To establish the signs and symptoms mothers associate with teething.
- To ascertain the treat sought by mothers for their child's teething.
- To investigate how mothers in different settings (Uganda and South Africa) understand and respond to teething.

The study sample in this survey was 375 (79% response rate) consenting mothers. The high response rate in this study is a pointer towards the hope in successful future interventions aimed at paediatric oral health promotion and preventive care in the studied communities. The mothers that were approached and refused to participate in the study were 80 (21%). Similar response rates to the findings in this study have been reported by other authors elsewhere. Hulland et al, 2000 reported a 78% response rate. This could probably be explained by the mothers' degree of willingness to talk about their child rearing experiences. Some mothers would back out because they never saw a single personal benefit or a benefit for their child.

Both mothers and health professionals have blamed protean signs and symptoms to teething. The previous studies and reports that have evaluated and reported on these protean signs and symptoms associated to teething did not report on the mothers understanding of teething (Seward, 1971; Wake et al, 2000; Barlow et al, 2002;

Baykan et al, 2004; Cunha et al, 2004). This renders difficult the findings of this study to be compared with previous data. Hence the data presented in this study are compared with those reporting on signs and symptoms that mothers and/or caregivers have reported to be associated with their children's teething. It would be prudent though to assume that the degree of health knowledge and parental attitude to child health are a significant predictor of the child health care. This assumption being correct, it would follow then that the better informed or armed with the right information on what erupting primary dentition is likely to cause or not to cause, the better the care a mother would offer to her child during the eruption of the child's primary dentition. Mothers need to know to differentiate mild febrile conditions due to erupting primary dentition and febrile conditions due to any other infection.

The findings of this study revealed that mothers understood teething differently from one site to the other. Their view of teething differed from that of the health professionals. Thirty four (27.2%) mothers in Kampala thought teething was "diarrhoea with appearance of teeth". With a similar thought were 24 (19.2%), and 17 (13.6%) mothers in Gugulethu and Mitchells Plain respectively (**Table 4.1**). There was a diversity of responses in relation to what mothers understood by teething (others group). The proportion of mothers in this group was 57.6% in Gugulethu, 22.4% in Mitchells Plain and 12.8% in Kampala. The wide range of mothers' responses to what they understood by teething offers reason to begin to comprehend why mothers in this study and in other findings responded to their child's primary dentition eruption the way they did. This elucidates on the mother's pathway to seeking help for a teething child. Only 4.8% of the mothers in Gugulethu said they

did not know the meaning of teething while the numbers were slightly higher in Kampala and Mitchells Plain, 24.0% and 29.6% respectively. This could in part probably provide an explanation as to why a high percentage of mothers in Gugulethu – 83.2% (Table 1) associated erroneous signs and symptoms to teething.

Presented in figure 5.1 are the overall results of the mothers' understanding of teething. Of the 375 interviewed mothers 19.5% said they did not know the meaning of teething. Of these 30 mothers were from Kampala, 6 from Gugulethu and 37 from Mitchells Plain. Most mothers 31% had varied understanding of teething. Only 16% of the mothers in this survey understood teething by the way it has been defined in the literature by Jablonski (1982) - the entire process which results in the eruption of teeth. The level of the mothers' understanding can not be overlooked if the profession is to be of any value to such a mother seeking solace for a child's discomfort due to unexplained aetiologies. Successful professional efforts to modify parental and/or caregiver perceptions and behaviour and hence minimize harmful cultural and/or traditional practices reported elsewhere to be associated with teething will grow out of an understanding of what society understands by teething by the profession. The profession needs to be reminded that it is only the person who considers himself to be ill that will seek assistance for the purpose of getting well. Such a person will seek help from where he believes to get optimum help. The same applies to the mother with a child having unexplainable discomforts. The role played by how one understands his illness in seeking professional help has been stressed elsewhere. Flores (2000) reported that patient beliefs could impede preventive efforts or result in use of neutral or harmful remedies. Flores found parental beliefs to be associated with

delays in children immunisations. Elsewhere, Olango and Aboud, 1990 found poor diarrhoeal treatment to be associated with the mothers' lack of knowledge about the causes and consequences of diarrhoea. It therefore follows from the findings of this study, and from those that have probed the role of knowledge in disease management, that the understanding of the mothers' understanding of teething could be the major player in reducing harmful practices to the teething child in some communities that has continued to contribute to the continued mythology about the problem.

Local and systemic signs and symptoms have been reported to be associated to the eruption of the primary dentition by different authors since the 5th century (Guerini, 1909; Seward, 1971). For ease of analysis the signs and symptoms the mothers associated with the eruption of their child's primary dentition were pooled into three groups namely local signs and symptoms only, systemic signs and symptoms only and erroneous signs and symptoms. The proportion of mothers associating local signs and symptoms only (**Table 4.2**) to the eruption of their child's primary dentition was 2.7% (n=10) of the 375 mothers. A similar proportion of mothers associated systemic signs and symptoms only. These proportions are understandable as might be next to impossible to find a mother ascribing particular symptoms and not the other. The proportion of mothers associating both local and systemic signs and symptoms was 27.5% (n=103), while those associating erroneous signs and symptoms was 66.1% (n=248). Having so many mothers ascribing erroneous signs and symptoms could have arisen as a result of a mere ascribing a single erroneous sign and symptom automatically placed such a mother to the erroneous group. The analysis of the data for any association between associated signs and symptoms revealed a statistically

significant value ($p < 0.0001$). From the findings of this study, the highest proportion of respondent mothers (86.7%) at least associated gum irritation with eruption of their child's primary dentition. These findings are consistent with findings elsewhere. Cunha et al, (2004) following their observation reported 85% of children manifesting gum irritation with the eruption of the primary dentition, Baykan et al, (2004) reported an 80.3% of mothers reporting gum irritation in a Turkish sample, and Wake et al, (1999) reported a 78% of the parents associating gum irritation to the eruption of their child's primary dentition in an Australian sample. Findings from this study reveal that only 4 mothers had nothing to blame. The very low percentage of no blame (1.1%) highlights how teething is distressing to the mother. This finding is in agreement with reported findings in the literature. Baykan et al, (2004) reported 1.2% of their sample reporting that their child did not have any discomfort during the eruption of the primary dentition, Wake et al, (1999), in their survey had only one mother believing that teething causes no problems, however, Seward (1971), in her longitudinal study found 26% of her sample to have nil disturbance reported.

When asked how they responded to their child's teething discomfort (**Table 4.15**), the mothers response resulted into a statistically significant finding per site ($p < 0.0001$). A big proportion of mothers in Gugulethu ($n=115$) and Mitchells Plain ($n=74$) consulted with health professionals more than was the case in Kampala ($n=68$). These findings could be a reflection of how important these mothers at the different sites viewed the signs and symptoms that they associated to their own child's eruption of the primary dentition, how severe they perceived these signs and symptoms to be and the process of deciding when to seek health care a professional in the three different settings.

According to Zola (1972) people possess accommodation both physical, personal, and social to illness symptoms and when this accommodation breaks down that the person forced to seek medical attention. It could be argued here that the degree of accommodation of the attributed signs and symptoms to own child's eruption of the primary dentition differs from one site to the other and from mother to mother. From the findings of this study, it could be argued that as long as the 55 mothers in Kampala (**Table 4.15**) could accommodate the attributed signs and symptoms to own child's eruption of the primary dentition, they never saw reason to seek professional health care. A possibility though is that these mothers could have had consultations within the household or family until they could no longer accommodate the discomfort to the child.

A reminder though is that despite the efforts that health professionals in different countries have embarked on to educate the masses about the dangers of different beliefs, traditional beliefs do not necessarily disappear. This gives another explanation for the difference in the findings of this study. Dependent on what any given mother in this study thought the cause of own child's discomfort was and how she conceptualised the discomfort and its consequences could have motivated such a mother's course in seeking health care for her child. The mothers' response to their own child's discomfort during the child's primary dentition eruption, is consistent with findings from other studies (Rubel and Garro, 1992) that have studied what triggers an individual to seek medical assistance. The other explanations that could be considered are ethnic origin, socio-economic status of the parents, and access to health care and parental health beliefs. Cultural beliefs of an individual have been

shown to affect such individual's health beliefs. The findings of Graham *et al.*, (2000) and Mogensen, (2000) clearly illustrate this. Worth noting also is an undeniable fact that parents will make the choice of treatment for their child because it makes sense to them within their cultural perspective. While much has been reported on what signs and symptoms different strata of society (either parents or health professionals) associate with the eruption of the primary dentition, there remains a dearth of research that examines the extent to which parental or guardian traditional health beliefs permeate their attitudes about seeking professional health care for their teething child. This argument is cemented by the findings of Azevedo *et al.*, (1991) in a Cameroonian study where they found people giving up on the traditional healer only when the traditional medicine-man is unable to provide satisfactory treatment and/or cure. Dependent on place of abode and access to health care this could apply in a teething child scenario where a mother may choose not to seek orthodox medical help until she has exhausted all other possibilities.

Analysis for any association between mother's education and attributed signs and symptoms to own child's eruption of primary dentition did not yield any significant finding ($p=0.2471$ Kruskal-Wallis test). This appears to be in agreement with what has been reported elsewhere. Barlow *et al.*, (2002) and Wake and Hesketh, (2003) reported both parents and health professionals to have reported to associate both local and systemic signs and symptoms to the child's eruption of the primary dentition. These authors' works try to depict the demise of research and the health profession to clarify what teething is or is not. Probably one could argue that looking at formal

education in isolation of the informal would be doing a disservice of one to the other. Subjecting the data for analysis for an association if any between mother's age (**Table 4.5**) and attributed signs and symptoms, did not yield a significant finding ($p=0.1567$). A possible explanation would be, when information is encrypted into someone's understanding it remains so until new and probably more sound information to the perceiver is obtained to dislodge the old information. The mothers that are encountered here in the study could probably have not received better and sufficient information regarding primary dentition eruption to allay their concern than what they have. This could probably serve as an explanation for why when the child birth order and mother's source of information on teething were analysed for any association between them and the attributed signs and symptoms did not yield any significant findings respectively (**Tables 4.3 & 4.6**).

In the literature the link between maternal education and child health, and infant mortality has been documented. Colle and Grossman (1978) in search of determinants to paediatric care utilisation found mother's schooling to have a positive effect on utilisation of paediatric care and adoption of preventive measures. Fosu (1981) in a Ghanaian sample, found 52% of the respondents with no schooling to classify disease as of supernatural cause. Fosu found a linear relationship between disease classification and level of education. Cleland and van Ginneken (1988) postulated that education could inculcate a sense of personal responsibility for, and control of over the welfare of the child, replacing the more resigned fatalistic outlook of the uneducated mother. Al Wahab (1987) reported a 47.3% of the respondents taking their child for primary canine tooth bud extraction to have no schooling. However the

findings of this study (**Table 4.4**) found maternal education not to be significantly associated with the mother's attributed signs and symptoms to their child's eruption of the primary dentition ($p=0.2471$ Kruskal-Wallis test). The finding that formal education is not significantly associated with the mother's attributed signs and symptoms to their child's eruption of the primary dentition, could probably be explained by several factors; firstly; the differences in the distribution of mothers in the different educational categories could have limited the ability to discern any potential difference, secondly; mothers at the different sites could most likely have had similar informal education which was not an aspect of this study and thirdly; the fact that all the three centres are located in cities, hence the effects of social environmental factors that come with city life. With regard to education it would be prudent to think that city dwellers are well facilitated in terms of health care facilities, however only 5.9% of the total sample claimed to have obtained their information on teething from health workers while 50.4% claimed to have been first informed about teething from their relatives, friends, neighbours or elders (**Table 4.6**). These findings are a pointer to the dearth of interaction between health care providers and their clients and also a pointer to the entrenched cultural beliefs of the respondents.

Maternal age from the findings of this study (**Table 4.5**) is not significantly associated with the attributed signs and symptoms to child's eruption of the primary dentition. Prior reports on signs and symptoms attributed by mothers to their own child's eruption of the primary dentition did not report on a possible relationship between maternal age and teething signs and symptoms. Studies on risks to infant mortality and utilisation of health care facilities have reported a relationship with

mother's age. Mother's old age among the Berekuso of Ghana (Fosu, 1981) was highly associated with a belief of supernatural cause of disease, Colle and Grossman (1978) found high mortality rates in children born of teenage mothers.

Mother's source of knowledge about teething had no significant association with the attributed signs and symptoms. Despite the result, the percentage of mothers attributing erroneous signs and symptoms was high (65.6%). It could be postulated here that due to the mothers' main source of knowledge about their understanding of teething being either relatives or friends and personal experience they associate erroneous signs and symptoms to the eruption of their child's primary dentition. As revealed in table 4.6 mothers hardly claim to have gained knowledge about teething from a health worker.

Mothers in this study associated diarrhoea to the eruption of their child's primary dentition. The analysis yielded a statistically significant value ($p < 0.0001$). From this study 30.7% of the mothers thought eruption of the primary dentition was responsible for the child's diarrhoea during this period. The findings of this study are in agreement with the findings of previous studies. Baykan *et al.*, (2004) in a Turkish sample reported a 49% of the mothers associating diarrhoea to the eruption of their child's primary dentition, in an Australian study Wake *et al.*, (2000) found parent-reported loose stools to be significantly associated with own child's primary tooth eruption (OR 1.86, $p < 0.05$). However, Macknin *et al.*, (2000) in a Cleveland prospective study did not find any association between eruption of the primary dentition and diarrhoea. The reported diarrhoeal association with eruption of the primary dentition could be explained by; parental opinion which is possibly

prejudiced by the behavioural changes they see in their child and their desire to have a diagnosis or what to blame, and probably by the subjectivity of the information reported. The other possible reason for association of diarrhoea with teething is the period of the eruption of the primary dentition is time when the child is changing diet which could possibly affect the digestive system reacting with less tolerance of the newly introduced food stuffs. Besides diet, another explanation for the findings in this study of the association between diarrhoea and eruption of the primary dentition could be poor sanitation and overcrowding. Another explanation for the findings in this study could be poor knowledge or lack of knowledge as to what causes diarrhoea as evidenced by the findings of this study. From the findings of this study, 48.8% of the respondents in Kampala, 4.8% in Gugulethu and 20.0% in Mitchells Plain thought diarrhoea was due to unhygienic conditions, while 24.8% of the respondents in Kampala, 48.8% in Gugugulethu and 18.4% in Mitchells Plain thought it was due to erupting primary dentition. Those who said they did not know the cause were 13.6% in Kampala, 38.4% in Gugulethu and 43.2% in Mitchells Plain. According to Groenewald *et al.*, (2003) respiratory infections account for 11% deaths among children 0-4years of age in Mitchells Plain and for 4% among children of the same age group in Nyanga. (The two sub districts where the sites of the study are located in Cape Town), while diarrhoea on the other hand accounts for 6% in Mitchells Plain and 15% in Nyanga. Bukenya (1982) reported diarrhoea to be a major health problem in Uganda leading to high infant mortality rates and contributing to malnutrition. Mbonye (2004) reported diarrhoea prevalence among children aged less than two years in Semabaule district Uganda to be 40.3%. These reported findings could

probably serve an explanation for difference in findings in this study. Mothers in Gugulethu attributed diarrhoea to their child's eruption of the primary dentition more so than was the case with those in Mitchells Plain. Mothers in Mitchells Plain attributed chest infection to their child's erupting primary dentition more than was the case with Gugulethu. Possibly this also serves a revelation of the burden placed by diarrhoea on the society and an alternative explanation of parental association of own child's diarrhoea with erupting primary teeth. Caution has to be taken in the diagnosis of childhood diarrhoea. Blaming the erupting dentition for the child's diarrhoea could have serious consequences. Health workers as well as parents ought to be reminded that at this age diarrhoea could be due to many factors including cow's milk protein intolerance (Kahn *et al.*, 1985), acquired carbohydrate intolerance (Kahn *et al.*, 1985; Lee and Boey, 1999) and intestinal infections (Cama *et al.*, 1999). Bearing in mind parental health beliefs in relation to diarrhoea, much harm could be prevented by counselling mothers on the possible causes and presentation of diarrhoea and on how and how not to respond to it.

Like diarrhoea fever has similarly been reported by various authors to be associated with the eruption of the primary dentition both by parents and health professionals. The results of this study tend to agree with some of previous reported findings. Of the mothers having the opinion that fever in the age group of 0-36months is due to the eruption of the primary dentition, only 10.9% (**Table 4.8**) did not associate eruption of own child's primary dentition with fever. The findings of this study revealed a statistically significant relationship between ascribing fever to own child's primary dentition eruption and opinion on what causes fever ($p < 0.0001$). As is the case with

diarrhoea the explanation for the significant findings could be poor knowledge or lack of knowledge of what causes fever. This is evidenced by the findings of the study where of the total number of respondents associating fever with own child's eruption of the primary dentition, 33.5% had the opinion that the fever was due to the eruption of the primary dentition. The others did not know the cause of fever outright or had something else to blame. For example a mother in Kampala when asked what causes fever her opinion was crawling, several mothers in Mitchells Plain thought fever was due to change of seasons and others thought it was normal to have fever, while some mothers in Gugulethu thought bathing a child very often causes fever.

When asked to express their feelings about own child's teething or the impact own child's teething have given them, the mothers' responses varied. Analysis of mothers' experience of own child's primary dentition eruption by site (**Table 4.9**) yielded a statistically significant value ($p < 0.0001$). Response from the mothers differed between sites. Sixty eight mothers in Kampala, 51 in Mitchells Plain and only 9 in Gugulethu said they were not affected by own child's eruption of the primary dentition. More mothers in Gugulethu ($n=81$) had a worrying experience of own child's primary dentition eruption than those at the other two sites. The difference in experience could probably have a number of explanations including; the perceptions and beliefs abiding in the three different communities under study, and the child's general state of health during primary dentition eruption. While much has been reported on the signs and symptoms that mothers ascribe to own child's eruption of the primary dentition, no study was found that addressed parental stress associated with the own child's teething. Forty five percent of the mothers in this study were

either worried or scared by their child's state of health during the eruption of the primary dentition. Some mothers expressed loosing out by not going to work as a consequence of attending to the child. Various authors have highlighted harmful practices to the child as a consequences of the parental association different signs and symptoms to the eruption of own child's primary dentition. Graham et al; (2000), Iriso *et al.*; (2000), and Mogensen (2000) reported the removal of the developing canines in young children in search of a remedy for childhood diarrhoea. Advocates of the practice are reported to believe that these incipient canines are the cause of the child's fever, diarrhoea and other illnesses. Understanding maternal experience of the child's eruption of the primary dentition could go far in educating them about what teething is and is not. Probably this could bring down the reported consequences of such practices.



In response to the question as to whether there was any other member of the household having similar signs and symptoms as the child had presented with, several mothers were affirmative. They reported a household member having chest infection, diarrhoea or fever among others. There was a statistically significant association by site (**Table 4.10**). It is dangerous for parents to continue blaming the erupting teeth and covering up possible underlying causes of the child's upsets and/or local distress. This victim blaming is evidenced in the Maltese case reported by Wilson and Mason (2002) where an initial misdiagnosis of teething compromised a patient's life.

Noteworthy findings from this study are the maternal popular belief that the eruption of the primary dentition causes diarrhoea and fever (Stapleton, 1989; Sodemann *et*

al., 1999; Wake *et al.*, 1999; Baykan *et al.*, 2004), and lack of sufficient knowledge as to what causes diarrhoea (Olango and Aboud, 1990). This popular belief though has caused setbacks for programmes for home management of diarrhoea using oral rehydration therapy. The analysis of the mothers' opinion on what causes diarrhoea revealed a dearth of knowledge of understanding of diarrhoea. The analysis yielded a statistically significant value ($p < 0.0001$). Thirty one mothers (**Table 4.11**) in Kampala, 61 in Gugulethu and 23 in Mitchells Plain were of the view that diarrhoea is due to erupting primary dentition in children, while 61 mothers in Kampala, 25 in Mitchells Plain and only 6 in Gugulethu were of the view that diarrhoea was due to unhygienic conditions. Fifty four mothers in Mitchells Plain, 48 in Gugulethu and 17 in Kampala said they did not know what causes diarrhoea. The mothers' response to the management of own child's diarrhoea per site (**Table 4.13**) yielded a significant value too ($p < 0.0001$). A large proportion of mothers ($n=302$) had sufficient information on the management of childhood diarrhoeal diseases. These findings could probably be explained by the different beliefs that society has associated with and/ or acquired knowledge about diarrhoeal diseases. On how these respondents responded to own child's teething diarrhoea, they revealed multiple pathways followed (**Table 4.16**). The analysis of the mothers' response to their child's teething diarrhoea per site yielded a statistically significant value ($p < 0.0001$). The treatment ranged from no treatment to the extent of having incipient canines extracted. A mother in Kampala had this to say '*omwana ebinnyo bamala kubimukulamu nalyoka awona*' literary meaning that they had to have the child's incipient canines extracted to recover from the diarrhoea and fever. In search of remedy for their child's teething

diarrhoea a father and mother in Mitchell Plain had to wrap a fried egg in a napkin around their child's abdomen. They admitted having been advised by their parents to do so and that they believed in the advice which they followed. These two examples illustrate the effects of teething beliefs on child health and further stress the need for health professionals in these studied communities to understand how mothers understand and represent teething in order to offer specific advice adapted to their (mothers') specific understanding. Although these could be isolated cases they illuminate the effects of beliefs on health care. The findings of this study also evidence the need for health workers to inform mothers on diarrhoea its causes and consequences.

The findings with regard to what causes fever (**Table 4.12**) were to some extent similar to those of diarrhoea. The majority of the mothers in Kampala (n=66) ascribed fever to mosquitoes bites, while 51 mothers in Gugulethu and 31 in Mitchells Plain were of the view that fever was due to erupting primary dentition. These findings could probably be explained in terms of environmental factors. Uganda is a malarial endemic country. It is understandable that such a big proportion of mothers could associate their child's fever to mosquito bites and yet none of the mothers in Cape Town ever mentioned this. What is of concern are the figures of the mothers who said they did not know the cause of fever in children (17.6% - 24.0%). While caution has to be taken in generalising the findings of this study, these data call for the health workers' attention to increase their efforts in educating the masses on disease dynamics especially with regard to fever and diarrhoea fever. When asked for an opinion on the management of fever (**Table 4.14**), the analysis per site yielded a

statistically significant value ($p < 0.0001$). Their response ranged from not knowing to different home remedies. The mothers' range of opinion from not knowing to home remedy desires an input from health professionals as to the causes and management of childhood fevers. Less than half ($n=184$) of the respondents were of the opinion that they would seek medical attention for their own child's fever. Eighty six mothers in Kampala, 63 in Gugulethu and 35 in Mitchells Plain were of the view of seeking medical attention from a health professional. Eighty six mothers in Mitchells Plain, 54 in Gugulethu, and only 27 in Kampala would take a choice of medicating their child if they suspected teething fever.

Mothers responded to their child's teething fever with a multiple of pathways (**Table 4.17**). The analysis of the mothers' response to own child's fever per site resulted into a statistically significant value ($p < 0.0001$). Their response ranged from no treatment to extraction of tooth buds. Either acting out of distress or belief, some of the actions taken by some mothers are illustrated by the following comments from some of the respondents. A comment from a mother in Kampala was '*Nze omwana ebinyo bamala kubimukulamu nalyoka awona omussujja*' literally meaning "Me my child had to undergo the extraction of the false teeth to recover from the fever". In response to how the child's fever was managed a mother in Cape Town said they *dipped potato chips in vinegar wrapped it in a napkin then around the child's head to remedy the teething fever*. These findings and those from the past (Al Wahab, 1987; Welbury *et al.*, 1993; Holan and Mamber, 1994; Graham *et al.*, 2000; Mogensen, 2000; McIntyre and McIntyre, 2002) illustrate the beliefs surrounding the eruption of the primary dentition and the management of the signs and symptoms that mothers have ascribed

to their child's teething. Some of these practices in the name of home remedy by parents could be harmful to the child in some instances they have compromised the child's health to the point of loss of life. This is evidenced by a case witnessed by the researcher at the data capturing site in Kampala where a mother lost her child just before she could see a healthcare provider. This particular mother had had her child's tooth buds gouged out. There could be more such cases which have gone unreported in society. These findings further stress the need of probing into parental understanding of own child's oral disease and health to be able to devise better intervention measures. This further stresses the need for concerted effort at informing the mothers about what eruption of the primary dentition is and what it is not. This could better be achieved if child health care professionals work as a team.

The mothers' choice of treatment for the local signs and symptoms as seen in Table 18 differed from one site to the other. While in Cape Town mothers employed teething gel, teething syrup or teething powder frequently, in Kampala these were hardly used. It appears here that marketers and the media have highly influenced the masses.

Mothers at the three different sites responded to the eruption of own child's primary dentition differently. The mothers' choice of treatment for the relief of their child's discomfort could have been influenced by what is on the market or by what they had been advised to use. This is evidenced by the proportion of mothers in Cape Town employing teething powder, teething syrup, teething gel and teething toys to relieve the child's discomfort which in Kampala hardly surfaced (**Table 4.18**) and what they believed to have worked best for them (**Table 4.19**). Comparisons per site in both

cases resulted in a statistically significant value ($p < 0.0001$). The remedies included the honey and cinnamon, teething necklaces, home concoctions, extraction of the incipient canines or nothing. On several occasions mothers admitted having used what they had been advised by the child's grandmother to use. This illustrates the mother's desire to know what is happening with her child and willingness to use any recommendation as long as it would bring relief to the child. In this regard elders and the community at large play a very crucial role. If the health professionals do not provide information about their child's health then they (the mothers) probably will go with what any other source of information provides. This has been evident from the results of this study (**Table 4.33 & Tables 4.32 & 4.34 in Appendix X**), where only 22 mothers were found to claim that they had information on teething from a health professional.

The findings of this study are consistent with findings from previous studies (Wake *et al.*, 2000; Baykan *et al.*, 2004; Cunha *et al.*, 2004) in regard with the mothers' response to whether they ascribed to own child's primary dentition's eruption restlessness, malaise and sleep disturbance. Comparisons by site yielded statistically significant findings (p values in all cases are less than 0.0001). The difference in the proportion of mothers ascribing restlessness, malaise and sleep disturbance at the three different sites to own child's eruption of the primary dentition (**Tables 4.20-4.22**) could probably be explained by the difference in parenting skills and cultural differences. These aspects of child care were not the focus of this study. Mothers in Cape Town associated restlessness with own child's eruption of the primary dentition. There is a need to differentiate when restlessness, malaise or sleep disturbance is truly

due to the erupting teeth or due to some other underlying causes. Otherwise such beliefs impede treatment and could cause unwarranted harmful effects to the child. Findings from this study failed to establish a significant relationship statistically (**Table 4.23 and tables 4.24-4.31 in Appendix X**) between child birth order, mother's age and mother's level of education with attributed signs and symptoms to the eruption of the child's primary dentition (p-values were greater than 0.01). There is one exception (restlessness and mothers' source of knowledge) with a significant relationship (**Table 4.32 – Appendix X**). The literature is also silent about these variables. There was no report found which addressed any relationship if there is one between parental age, parental level of education, and child birth order and signs and symptoms associated with eruption of the primary dentition. However Wake et al., 2000 in an Australian study found that child age could potentially confound any observed relationships between tooth eruption and attributed signs and symptoms.

Chapter 6

Conclusion

This study has established that the belief by parents in eruption of the primary dentition causes several signs and symptoms exist on a large scale in society across cultures and national boundaries. Also that some parents across cultures and beyond national borders believe in traditional practices or home remedies for a cure for these signs and symptoms. Despite the difference in what is practiced from one region to the other some of these practices are harmful to the child. These findings elucidate the effectivity of previous campaigns (Stefanini, 1987; Bwengye, 1989; Kikwilu and Hiza, 1997) against traditional harmful practices related to the eruption of the primary dentition and the need for health workers to pull up their sleeves and address this issue with greater concern. However though it calls for more research in understanding parental perception of the eruption of the primary dentition and their understanding of what teething is and is not. This is a pointer to the need for longitudinal observational studies to clarify whether and to what extent erupting teeth cause discomfort to the child. In every case site was highly significant ($p < 0.0001$). This is a pointer for a need to establish different cultural beliefs and traditions surrounding the eruption of the primary dentition so as to have society specific programmes. From the literature different schools of opinion with regard to whether eruption of the primary dentition causes the ascribed signs and symptoms were established. One school continue to pontificate that primary dentition eruption is responsible for the ascribed signs and symptoms. The other school of thought

completely denies this in view of no serious signs and symptoms could accompany a purely physiologic process. From the literature, American authors to-date continue to find it difficult to disregard the old views and beliefs related to the subject entirely. Only further research might be in position to clarify the issue.

Mothers associated fever with the eruption of their child's primary dentition in this study. There was a statistically significant association between associating fever with the eruption of the primary dentition and mother's opinion as to what causes the fever ($p < 0.0001$). This study did not find any association from the mothers' perspective any indicator to what Bennet and Brudno (1986) postulated. They claimed that fever during the process of primary tooth eruption is caused by the human teething virus. They argued that at the beginning of life the virus becomes subclinical in the alveolar crypt until its stimulation by eruptive movements provoking the fever and other signs and symptoms as well.

Some of the ascribed signs and symptoms could either be on the border line or a consequence of the eruption of the primary dentition or as a result of disturbances of the digestive or respiratory systems. Possible reasons for views on the subject of teething being divergent could be; the nature of the gathered information. Most of the reports or publications have been based on parental opinion which is possibly prejudiced by the behavioural changes they see in their child and their desire to have a diagnosis or what to blame. The other reason could be the difficulty associated with differentiating normal physiologic and psychological changes with the signs and symptoms ascribed to the eruption of the primary dentition. The difficulties

associated with setting up a random controlled trial study to establish evidence relating to signs and symptoms associated to teething.

The findings of this study highlight the importance of understanding how mothers understand and represent teething in these studied communities by the healthcare professionals in order to offer specific advice adapted to their specific understanding. The beliefs established in this study could be an impediment to the health profession in the management of common issues in child development and lead to late diagnosis of important illnesses and/or compromise child health.

There is need for additional prospective studies on effects of tooth eruption on bowel function and fever, and for health care professionals to educate parents on what teething is and what it is not, when the ascribed signs and symptoms are an indication of erupting primary teeth and when not. Noteworthy is for health care providers not to attribute signs and symptoms of potentially serious illnesses to teething before ruling out their possible causes.

Limitations and strength of the study

- The data presented here was derived from the information that was obtained from mothers rendering it to be mainly subjective. Hence a caution not to generalise it as could be biased.
- Due to time and financial limitations only mothers were interviewed or considered for the study. It would have been more prudent to get the views of child health care professionals which could possibly have minimised the bias. This would have rendered comparison of parental and child health care professionals' perceptions.
- The data capturing instrument in this study had been employed elsewhere. It consisted of both open ended and close ended responses. It was adopted and tested before taking it into the field.
- The study design was a cross sectional survey. A prospective observational study would have been much better though this would also be limited by the difficulties involved in setting a randomised controlled trial kind of study which is next to impossible.
- The richness of the study were not expounded due to the grouping of signs and symptoms. Analysis of individual signs and symptoms could probably have yielded better results.
- This study was the first to attempt to explore the mothers' understanding of own child's teething. The previous studies were done elsewhere and reported

on signs and symptoms only. Hence the difficulty in finding a study to compare with the findings of the mothers' understanding of teething of this study.

- The sampling procedure used here was both purposive and random. Respondents were randomly selected from mothers attending well-baby clinics which reduced chances of bias which could probably have arisen as a result of gathering information from sick child clinics.

8 Recommendations

- Further studies exploring both the child health care professionals' and the mothers' understanding of teething.
- Further studies aimed at an in-depth exploration which could probably provide a deeper insight into the mothers' understanding of teething. Triangulation would probably have provided more information.
- Prospective observational studies will be valuable to probably clarify and/or evidence the signs and symptoms that could be associated with the eruption of the primary dentition.
- Educate mothers what teething is and what it is not and how to respond to the various ascribed signs and symptoms to teething.

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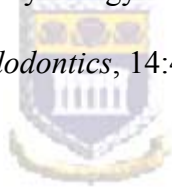
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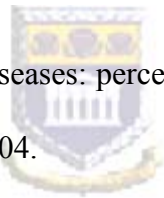
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Appendix I The mothers' experience of teething: A comparative study.

QUESTIONNAIRE

Registration no

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Please kindly give us details below about your child.

(Fill in numbers in the boxes on your right denoting the correct answer)

A. Personal Details:

1. Child's Name:

Address:.....

.....



Registration No

Child's age (months)

Gender: male=1; female=2

2. What is the child's sibling position in the family?

(Please indicate by writing the number in the box)

3. What was the birth weight of the child? (grams)

4. Was the child: premature 1
Full term 2

5. How would you describe your child's usual behavior?

(Try to elicit the child's usual behaviour)

Subdued 1
Normal 2
Hyperactive 3



6. What is the highest level of education you have attained?

(Establish the caregiver's level of education)

Primary 1
Secondary 2
Tertiary 3

7. Who is currently employed in the family?

Mother only 1
Father only 2
Both 3
None 4

Registration no

--	--	--

8 Who looks after your child?

--

- | | |
|----------------|---|
| Mother/self | 1 |
| Nursery/crèche | 2 |
| Other | 3 |

9. What is your marital status?

- | | |
|-------------------|---|
| Married | 1 |
| Single | 2 |
| Divorced /widowed | 3 |

--

10. Mother's age in years

(Try to establish how old was the mother at the birth of this child? In case of caregiver establish age)

--	--



B. Parents memory of the child's teething period.

1. What do you understand by 'teething'? (*In mother's own words*)

2. From whom did you gain knowledge about teething? (*In mother's own words*)

Registration no

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3. Would you agree with the statement; “Teething and eruption of teeth mean the same thing?”

- Strongly agree 1
- Agree 2
- Not sure 3
- Disagree 4
- Strongly disagree 5

--	--

4. Which was the first tooth to erupt?

(First tooth to erupt please indicate the FDI classification)

- Incisor 1
- Canine 2
- Molar 3



5. How old was the child when s/he had her/his first tooth erupt?

(Please indicate eruption age in months)

--	--

3. Was teething accompanied by any discomfort? Yes=1; no =2

(Please elicit as to whether any of the teeth was accompanied by discomfort)

--

4. During the eruption of which tooth was the teething experience/discomfort?

Incisors	Yes	No
Canines	Yes	No
Molars	Yes	No

Registration no

--	--	--

5. When was the experience (how many days before and after the emergence the tooth)?

(Allow the mother to give her own figures)

6. What was the type of discomfort? Yes=1; No=2

	Incisor	Canine	Molar
R			
e			
g			
i			
s			
t			
r			
a			
t			
i			
o			
n			
n			
o			

7. What other experiences did the child have during that time? *(In the mothers own words)*

Registration No

--	--	--

8. How would you describe your own experience during your child's teething?

9. Who else in the family had a similar experience? (*In mother's own words*)

10. In your opinion what causes diarrhea?

11. In your opinion what causes fever?


--	--	--

12. What should be done for a child having diarrhea?

13. What should be done for a child with a fever?

14. To whom did you take your child for treatment or advice?

--

- 
- No –one/self 1
 - Medical doctor 2
 - Dentist 3
 - Baby clinic 4
 - Day hospital 5
 - Pharmacist 6
 - Other 7
 - Please specify.....

15. How did you treat the diarrhea?

16. How did you treat the fever?

Registration no

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17. Were any of the following agents used for this child's teething discomfort? Yes =1 No = 2 (Please specify the agent used in the box against it)

Teething powder

Teething syrup

Analgesics

Home remedies

Specify

Teething toys

Others

Specify



18. Which remedy/remedies worked best for you?

Thank you

Title: The mothers' experience of their infants' teething: A comparative study.

Introduction: Studies show that both mothers/caregivers and teething infants experience distress and discomfort during the infants' teething period. It is reported that mothers/caregivers will try out every possibility to remedy the situation.

What is the study about? It is assumed that despite the strides in development and education mothers in different communities continue to go through similar experiences and try to find solutions to the infant's distress. This study will assess the mothers' experience of their children's teething period.

Who is to participate in the study?

The main part of the study involves collecting information from you on your experience of your child's teething period.

You were selected because you have a child between the ages 6months and 36months. We are requesting you to answer the questions that we have prepared for you. We are interested in the information about you, your baby, and the way you care for your child.

In accepting to participate in the study you are allocating to us a few minutes of your time to answer the questions.

Is there risk involved? There is no risk associated with participating in this study. It involves no treatment or procedure that could cause harm, injury or discomfort to you or your child. It involves collecting

information by answering our questions. The answers to the questions will be recorded.

What do I benefit from the study? Participants will not benefit directly from their participation in the study. We hope the results will contribute to the understanding of caregivers' experience of the teething period so as to help health workers respond and advise mothers more appropriately.

What if I don't want to participate? Participation in this study is entirely voluntary.

Participants are perfectly free to withdraw from the study at any time – even in the middle of the interview. Failure to participate will not bias or affect the treatment you will receive at the clinic.

We assure all information gathered during the course of the study will be kept completely confidential. Only Dr. Kasangaki (the researcher), Dr. Harnekar (the supervisor), and the research assistants collecting the data will have access to the data. All the data will be coded for identification. The results of the study will be published in scientific journals in an anonymous form. All data will be kept for a period of five years after which they will be destroyed.

For further information or any queries please do not hesitate to call Dr. Kasangaki at
021-370 4493

THANK YOU

Appendix III

CONSENT FORM

I.....(name) having been well explained and informed of the intentions and benefits of the study, voluntarily consent to participate in the study. I have been made aware that there are no direct benefits, no treatment will be carried out, and that there are no risks involved. Confidentiality has been assured.

Signature,

witness

Date (dd/mm/yyyy)
(dd/mm/yyyy)

Date



Enyanjula. Okunonyereza kulaga nti bamaama na baana baabwe abato abamera amanyo bayisibwa bubi mukiseera ekyokumera kwa amannyo. Kigambibwa nti ba maama bano bakola kyonna ekisoboka okulaba abaana baabwe nga bafuna emirembe.

Okunonyereza kuno kuli kuki? Kisubirwa nti newankubadde waliwo enkulakulana nobuyigirize okuba obwawagulu mubitundu ebitali bimu bamaama babulibwa emirembe mu kaseera akokumera amannyo okwa abaana babwe.

Ani ayina okwetaba mukunonyereza? Okunonyereza kuno kwa kukunganya ebikwata ku ngeri gye wayisibwamu ngo'omwana ono amera amannyo.

Waloneddwa olwokubeera no mwana ali wakati we myezi mukaaga na 30. Tusaba odemu ebibuuzo byetugenda okukubuza. Twagala okumanya ebikufaako, ebifa kumwana nengeri gyewarabiramu omwana ono. Okukiriza okwetaba mukunonyereza kuno oja kuba otuwaayo eddakiika entono ennyo eze biseera byo.

Mulimu okukosebwa oba obuvune? Nedda tewali nakamu. Tewali bujanjabi bwoona obukwatagana nokunonyereza, tewali kigenda kukolebwa ekiyinza okukuletera obuvune.

Nina kyenfunamu? Bwewetaba mukunonyereza gwe kenyini tolina kyofunamu. Tusubira ebinaba bivudde mukunonyereza bija kuyamba abebyobulamu okuyamba bamaama babaana mu kiseera ekyokumera amannyo.

Bwemba sagadde kwetaba mukunonyereza?

Ggwe osalawo okwetaba mukunonyereza. Oli wandembe obutetaba mukunonyereza kuno oba obutagenda mumaaso akaseera kona. Obutetaba mukunonyereza tekijja kulemesa bujanjabi bwonoonya.

Twagala okukukakasa nti byona byotuwa byakusigara nga byakyama. Dr. Kasangaki ne Dr. Harnekar bokka mpozi nabayambi baabwe be baja okumanya ebikwata kubetabye mukunonyereza. Ebinaaba bivudde mukunonyereza byakukubibwa mu butabo bwa science. Byona byotuwa byakuterekebwa okumala emyaka etaano oluvanyuma tujja kubyonona.

Bwoba oyiina kyoyogala okumanya ekisingawo kuba esimu No. 532803.

Webale nyo.

Appendix V OKUKIRIZA OKWETABA MUKUNONYEREZA

Nze.....(amanya) nyinyonyoleddwa bulungi ebigendererwa n'omugaso gwokunonyereza kuno, nga siwalilizibwa nzikiriza okwetaba mukunonyereza kuno.

Banyonyode nti nze kenyini sirina kyenfunamu, okunonyereza tekumpa bujanjabi, era nti okunonyereza tekuleeta bukosefu gyendi. Nkakasibwa nti byona byembawa byakusigala nga bya kyaama.

Omukono

Abaddewo

Ennakku zomwezi

Ennakku zomwezi



Appendix VI The mothers' experience of teething: A comparative study.

QUESTIONNAIRE

Registration no

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Tusaba otuwe ebikwata kumwanawo ono.

A. Ebikwata ku mwana

1. Amanyanya gomwana.....

Mubeera wa?.....

.....



Registration no

Emyaka gyomwana (mu myeezi)

Mulenzi = 1

Muwala = 2

2. Ono omwana wakumeka?

3. Omwana ono yazalibwa ngalina buzito ki? (gm)

4. Omwana yazalibwa: atuuse = 1
ngatanatuuka = 2

5. Omwana ono yeyisa atya?

Mukakamu = 1
Talina mutawana = 2
Tatula wansi muzanyirize = 3

6. Okusoma wakoma mu kibiina ki?



Primary 1
Siniya 2
Kolleji/university 3

7. Ani akola?

Maama womwana = 1
Taata womwana = 2
Fembi = 3
Tewali akola = 4

8. Ani alabirira omwana ono nga toliwo?

Maama (nze mwenyini) 1
Nursery 2
Abalala 3
(Nyonyola)

Registration no

9. Oli mufumbo?

Yee = 1
Siri mufumbo = 2
Nava mubufumbo/ ndi namwandu = 3

10. Olina emyaka emeka?

B. Okumera kwamanyo g'omwana (Nga bwekunyonyolebwa maama wo mwana)

1. "Okwenunula"! Kitegeeza ki? Oba Okitegeera otya?

2. Endowoza ekwata ku kigambo "okwenunula" wagifuna otya?

3. Olowooza " Okwenunula n'okumera amannyo bitegeeza kyekimu"?

Nkigumiza = 1
Nzikiriza = 2
Mbusabusa = 3
Sikiriza = 4
Sikigumiza = 5

4. Linyo ki eryasoka okumera?

Agomumaaso = 1
Essongezo = 2
Geggo = 3

5. Omwana yalina emyezi emeka okumera erinyo erisooka?

6. Omwana yatawanyizibwa okumera ammannyo?

Yee = 1 Neda = 2

7. Linnyo ki eryaleeta obuzibu mukumera?

Agomumaso Yee Neda

Registration no

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Songezo
Geggo

Yee
Yee

Neda
Neda

8. Obuzibu bwaliwo ddi? (ennaku zali meka ng'amannyo teganifuluma oba nga gamaze okufuluma mu kibuno).

9. Omwana yakalubirirwa atya?

	Agomumaso	Songezo	Geggo
Amalusu gali mangi			
Yafuna emisuwa kumatama			
Yazimba ekibuno/yamyuka ekibunno			
Yadukana			
Yafuna omusujja/omuliro			
Yekyaawa			
Yafuna ekifuba			
Yanafuwa /Teyalina bulamu			
Yalwala amatu			
Yesika amatu			
Yagana okulya			
Yalemwa okwebaka			
Yesiba mulubuto			
Yafuka omusulo oguwunya obubi			
Ebirara (Nyonyola)			

10. Buzibu ki obulala omwana bweyafuna mu kiseera kino ekyokumera amnyo?

11. Gwe nga maama womwaana wayisibwa otya?

12. Muntu ki omulala awaka eyalina embeera ng'eyomwana?

13. Olowoza kiki ekileta ekidukano?

Registration no

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14. Olowoza kiki ekileta omusuja?

15. Kiki ekisanye okukolerwa omwana ng'alina ekidukano?

16. Kiki ekisanye okulerwa omwana nga alina omusuja?

17. Omwana bamujanjabira wa?

- | | | |
|---------------------|---|---|
| Tewali/nze mwenyini | = | 1 |
| Ewa doctor | = | 2 |
| Owomusawo w'amanyo | = | 3 |
| Mu clinic eyabaana | = | 4 |
| Ku outpatient | = | 5 |
| Pharmacy | = | 6 |
| Awalala(Nyonyola) | = | 7 |

18. Wakozaako kubimenyedwa wamanga?

- | | | |
|--|---|---|
| Teething powder(powder Asiigibwa kubibuno) | = | 1 |
| Teething syrup | = | 2 |
| Erikendeza kubulumu | = | 3 |
| Edagala eganda -
Nyonyola | = | 4 |
| Toys | = | 5 |
| Ebirara nyonyola | = | 6 |

19. Kiki ekyasinga okukola?

WEBALE NYO

Appendix VII

Consent

Mnandichazelwe ndaziswa ngenjongo nangomvuzo wesisifundo; ukuvuma ukuthabatha inxaxheba kwesisifundo. Ndazisiwe ukuba akho mivuzo, alukho nyango oluyakuthatyathwa; akukho ngozi ibandakanyiweyo. Imfihlakako iyakuqinisekiswa.

Ukusayina

Ingqina

Umhla (dd/mm/yyyy)

Umhla (dd/m/yyyy)



Appendix VIII

Ukukhula kwamazinyo abantwana

A. **inkcukacha zomutwana**

Registration No

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1. igama lomutwana:.....

idilesi :.....



Registration No

Iminyaka (iinyanga)

Isini

2. Ngumutwana wesingaphi?

3. Wayeveyisha kangakanani umutwana ?

4. Wazalwe phambi kwexesha umtwana 1

Wazalwe ngexesha elifanelekileyo 2

5. Isimo ngokuchazwa ngumzali

Unkenenkene 1

Uphakathi 2

Udlamkile 3

6. Ibanga lemfundo lamama/yomzali

kumabanga aphantsi 1

kumabanga aphezulu 2

kumabanga aphakamileyo 3

/iziko lomufundoephakamileyo

7. Ngubani ophangelayo

ngumama yedwa 1

ngutata yedwa 2

nobabini 3

akho nomnye 4

8. Ngubani ogcina umutwana

ngumama 1

ecreche 2

kwenye indawo 3

9. Utshatile 1

Uyazihlalela 2

Udivosile/ungawule umtshato 3

Umhlokazi (4)

11. Ubunemiyaka emingaphi kumutwana wokuqala?
(Mingaphi iminyaka yakho?)

--	--	--

B. Ukuvela kwamazinyo omntwana

1. Yintoni oyaziyo ngokuza kwabantwana?

2. Walufumana kubani ulwazi ngokuza kwabantwana?

3. Uyavumelana nento ethi “ ukuza kwabantwana no kukhumka yinto enye?”

.....

4. Leliphi izinyo elela kuqala ?

ngawangaphambili
 isixhobo.....
 Umhlathi.....



--	--

5. Ubengaphi umtwana kana wayenezinyo lokuqala?

--

6. Ukuvela kwamazinyo ebekhathaza na? Ewe=1; Hayi=2

7. Ngawaphi amazinyo ebekhathaza kakhulu?

Ngawangaphambili	1
Isixhobo	2
Yimihlathi	3

8. Kwakunini (bezingalphi insuku phambikokuba nasemva kokungxamisiseka kwezinyo) ?

Registration No

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- Kwiklini yabatwana 3
- Kwisibhedlele sasemini 4
- Ekhemisti 5
- Kwenye indawo engabizwanga 6
- Cacisa.....

18. Ulunyanga njani Urhudo?

19. Uyinyanga njani imfixane/icesina?

20. Ubumnika ntoni kwezizinto zindelayo. Ewe 1; hayi 2

- 1. umgubo wokupholisha iintsini
- 2. iyeza lokupholisa iintsini
- 3. iipilisi
- 4. amayeza asendlini (irati)
- 5. itoyi yokurhawuzelela iintsini
- 6. ezinye izinto ezingabizwanga

21. Ngoluphi uncedo okanye amancedo awakusebenzela ngcono wena?



Enkosi kakhulu

Appendix IX 1. Esi sifundo singantoni?

Izifundo zisibonisa ukuthi, omama okanye abancedisi emakhaya, neentsana ezizisayo zifumana ubunzima ngexesha lokuzisa komntwana. Kufumanisekile ukuba oomama nabancedi bazama zonke iinkalo ukuzama ukusombulula lombha. Kuyaqikelelwa ukuba nangona kukho iinzame ekuphakamiseni nase mfundweni oomama kwiindawo ezahlukeneyo bayaqhubeka befuna isisombululo kulento ikhataza iintsana.

2. Ngubani onokuthabatha inxaxheba kwesisi fundo?

Oyena mongo wesisi fundo kukuqokelela kuwe olunxulumene namava akho malunga nokuzisa komntwana wakho.

Ukhethe kuba unomntwana oneminyaka ephakathi kwenyanga ezintandathu neenyanga ezingamashumi anesithandathu. Sinenxaxheba ekufumaneni ulwazi malunga nawe, nomntwana wakho, nange ndlela umkhathalela ngayo umntwana wakho. Ukuvuma ukuthatha inxaxheba kwesisifundo usinika malunga namashumi amabini anesihlanu exesha lakho ukuphendula imibuzo yethu.

3. Lukhona na ungqipheko ngokuthabatha inxaxheba?

Alukho ungqipheko ngokuthabayha inxaxheba kwesi sifundo. Esi sifundo sidibanisa ukuqokelela kolwazi ngokuphendula imibuzo. Iimpendulo kule mibuzo yothi ke igcinwe.

4. Yintoni endiyifumanayo kwesi sifundo?

Abantu abathe bathabatha inxaxheba abaza abazikuwufumana ngogk nangoko umvuzo. Siyathemba ukuba iziphumo ziyokufaka igalelo elikhulu ekuncedeni abasebsnzi ngempilo ukuba bakwazi ukuphendula bacebise ngendlela engcono.

5. Ukuba andifuni ukuthabatha inxaxheba?

Ayisosinyanzelo ukuthabatha inxaxheba kwesi sifundo.

Abathabathi nxaxheba bavumelekile ukuba bangasishiya esi sifundo nangaliphi na ixesha – nangelixa lokubuzwa. Ngokunga thabathi nxaxheba loo nto ayichazi ukuthi, awuzukulufamana unyango e Kliniki.

6. Siyathembisa ukuba ulwazi esilufumane ngeli xesha lesi sifundo, luya kugcinwa ekhusini. Khuphela ngu Gqirha Kasangaki (umphengululi), Gqirha Harnakar (umhloli), nomncedisi wophengululo, abothi babe nemvume kule nkukatha. Iziphumo zesi sifundo zokufakwa kwiindaba zenzululwazi apho kungachazwa gama lamntu. Yonke lenkcukanca yokugcinwa iminyaka emihlanu, emveni koko itshatyalaliswe.

Malunga nekcukacha okanye imibuzo ndicela utsalele umnxeba ugqirha Kasangaki 021-370 4493.

ENKOSI KAKHULU

Appendix X Tables and Figures

Table 4.24 Child's birth order and restlessness

		First child	Second child	Third child	Fourth child +	Total N
						(%)
Yes	n	122	78	34	24	258
	%	69.3	70.9	65.4	64.9	(68.8)
No	n	54	32	18	13	117
	%	30.7	29.1	34.6	35.1	(31.2)
Total	N	176	110	52	37	375
	(%)	(46.9)	(29.3)	(13.9)	(9.9)	(100.0)

The results of data analysis for the mothers' association of their own child's birth order and teething with restlessness per site are presented in this table. The results were not statistically significant ($p=0.6140$ Kruskal-Wallis test)

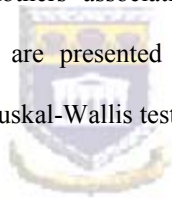


Table 4.25 Child's birth order and malaise

		First child	Second child	Third child	Fourth child +	Total N
						(%)
Yes	n	89	50	31	16	186 (49.6)
	%	50.6	45.5	59.6	43.2	
No	n	87	60	21	21	189 (50.4)
	%	49.4	54.6	40.4	56.8	
Total	N	176	110	52	37	375 (100.0)
	%	(46.9)	(29.3)	(13.9)	(9.9)	

The results of data analysis for the mothers' association of their own child's birth order and teething with malaise per site are presented in this table. The results were not statistically significant ($p=0.9047$ Kruskal-Wallis test)

Table 4.26 Child's birth order and sleep disturbance

		First child	Second child	Third child	Fourth child +	Total N
						(%)
Yes	n	70	48	20	16	154
	%	39.77	43.64	38.46	43.24	(41.07)
No	n	106	62	32	21	221
	%	60.23	56.36	61.54	56.76	(58.93)
Total	N	176	110	52	37	375
	%	(46.93)	(29.33)	(13.87)	(9.87)	(100.0)

The results of data analysis for the mothers' association of their own child's birth order and teething with sleep disturbance per site are presented in this table. The results were not statistically significant ($p=0.7418$ Kruskal-Wallis test)

**Table 4.27 Mothers level of education and restlessness**

		No/primary education	Secondary education	Tertiary education	Total N (%)
Yes	n	54	171	33	258 (68.8)
	%	58.1	73.7	66.0	
No	n	39	61	17	117 (31.2)
	%	41.9	26.3	34.0	
Total	N	93	232	50	375 (100.0)
	(%)	(24.8)	(61.9)	(13.3)	

The results of data analysis for the mothers' level of education and their association of their own child's teething with restlessness per site are presented in this table. The results were not statistically significant ($p=0.0897$ Kruskal-Wallis test)

Table 4.28 Mother's level of education and malaise

		Primary/None	Secondary	Tertiary	Total N
					(%)
Yes	n	50	117	19	186 (49.6)
	%	53.8	50.4	38.0	
No	n	43	115	31	189 (50.4)
	%	46.2	49.6	62.0	
Total	N	93	232	50	375
	(%)	(24.8)	(61.9)	(13.3)	(100.0)

The results of data analysis for the mothers' level of education and their association of their own child's teething with malaise per site are presented in this table. The results were not statistically significant ($p=0.1103$ Kruskal-Wallis test)

Table 4.29 Mother's level of education and sleep disturbance

		Primary/None	Secondary	Tertiary	Total N (%)
Yes	n	28	107	19	154 (41.1)
	%	30.1	46.1	38.0	
No	n	65	125	31	221 (58.9)
	%	69.9	53.9	62.0	
Total	N	93	232	50	375 (100.0)
	(%)	(24.8)	(61.9)	(13.3)	

The results of data analysis for the mothers' level of education and their association of their own child's teething with sleep disturbance per site are presented in this table. The results were not statistically significant ($p=0.1063$ Kruskal-Wallis test)

Table 4.30 Mother's age (years) and restlessness

		≤20	21-25	26-30	31+	Total N
		(%)				
Yes	n	48	85	60	65	258
	%	63.2	68.6	65.9	77.4	(68.8)
No	n	28	39	31	19	117
	%	36.8	31.5	34.1	22.62	(31.2)
Total	N	76	124	91	84	375
	(%)	(20.3)	(33.1)	(24.3)	(22.4)	(100.1)

The results of data analysis for the mothers' age and their association of their own child's teething with restlessness per site are presented in this table. The results were not statistically significant ($p=0.0975$ Kruskal-Wallis test)

**Table 4.31 Mother's age (years) and malaise**

		≤20	21-25	26-30	31+	Total N
		(%)				
Yes	n	42	60	43	41	186
	%	55.3	48.4	47.3	48.8	(49.6)
No	n	34	64	48	43	189
	%	44.7	51.6	52.8	51.2	(50.4)
Total	N	76	124	91	84	375
	%	(20.3)	(33.1)	(24.3)	(22.4)	(100.0)

The results of data analysis for the mothers' age and their association of their own child's teething with malaise per site are presented in this table. The results were not statistically significant ($p=0.4354$ Kruskal-Wallis test)

Table 4.32 Mother's age (years) and sleep disturbance

		≤20	21-25	26-30	31+	Total N
		(%)				
Yes	n	28	50	37	39	154
	%	36.8	40.3	40.7	46.4	(41.1)
No	n	48	74	54	45	221
	%	63.2	59.7	59.3	53.6	(58.9)
Total	N	76	124	91	84	375
	(%)	(20.3)	(33.1)	(24.3)	(22.4)	(100.0)

The results of data analysis for the mothers' age and their association of their own child's teething with sleep disturbance per site are presented in this table. The results were not statistically significant ($p=0.2443$ Kruskal-Wallis test)

**Table 4.34 Mother's source of knowledge and malaise**

		Relatives and friends	Health worker	Personal opinion	School/reading	Never heard of	Total N (%)
Yes	n	88	9	71	8	10	186
	%	46.6	40.9	59.7	47.1	35.7	(49.6)
No	n	101	13	48	9	18	189
	%	53.4	59.1	40.3	52.9	64.3	(50.4)
Total	N	189	22	119	17	28	375
	(%)	(50.4)	(5.9)	(31.7)	(4.5)	(7.5)	(100.0)

The results of data analysis for the mothers' source of knowledge of teething and their association of their own child's teething with malaise per site are presented in this table.

The results were not statistically significant ($p=0.0784$ Kruskal-Wallis test)

Table 4.35 Mother's source of knowledge and sleep disturbance

		Relatives and friends	Health worker	Personal opinion	School/reading	Never heard of	Total N (%)
Yes	n	75	14	52	5	8	154 (41.1)
	%	39.7	63.6	43.7	29.4	28.6	
No	n	114	8	67	12	20	221 (58.9)
	%	60.3	36.4	56.3	70.6	71.4	
Total	N	189	22	119	17	28	375 (100.0)
	(%)	(50.4)	(5.9)	(31.7)	(4.5)	(7.5)	

The results of data analysis for the mothers' source of knowledge of teething and their association of their own child's teething with sleep disturbance per site are presented in this table. The results were not statistically significant ($p=0.0960$ Kruskal-Wallis test)

