KNOWLEDGE, ATTITUDE AND PRACTICES OF MOTHERS ON ORAL HYGIENE OF BIOLOGICAL CHILDREN (1- 5 YEARS) IN SABO COMMUNITY, IBADAN, OYO STATE.

BY

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ABSTRACT

Dental caries is one of the most common childhood dental diseases, if left untreated can lead to significant acute and chronic conditions. Although, young children's oral health maintenance and outcomes are influenced by their parent's knowledge and beliefs, which affect oral hygiene and healthy eating habits, little information exist on this phenomenon in Oyo State. This study was designed to investigate the knowledge, attitude and practices of mothers on oral hygiene of their biological children (1-5 years) in Sabo community, Ibadan, Oyo State.

A descriptive cross sectional survey was conducted using a 3- stage sampling technique to select areas, houses and the 318 respondents. A validated semi-structured interviewer-administered questionnaire was used for data collection consisting questions on socio-demographic characteristics, knowledge measured on 14-point scale, attitude measured on 52-point scale and practice measured on 20-point scale. Knowledge score of<6, ≥ 6 - < 8 and ≥ 8 was rated poor, fair and good respectively.Attitude score of > 26 was rated positive. Practice score of 50th-60th percentile was rated good, 70th & 80th percentile as very good and 90th percentile as excellent.

The data collected was carefully entered into the statistical package for social sciences version 21 and analysed using descriptive and inferential statistics. Respondents mean age was 28.6 ± 5.5 years. Majority (91.5%) were married, 82% were Hausas, 84.0% were Muslims and 35.2% respondents had completed secondary school. Moreover, 48.7% and 55% knew the food items that can lead to tooth decay and the role of fluoride in toothpaste respectively. Respondents' over all knowledge on oral hygiene was good (60.9%) with a mean score of 8.5 ± 1.9. Respondents' mean attitudinal score was 39.1 ± 6.6 with 75% having positive attitudinal disposition towards child oral hygiene. Respondent's oral hygiene practice score for their children was 11.2 ± 3.06 with 56.1% having good practices, in this regard, 65.4% reportedly changed their child's toothbrush every three months, 89.6% used toothpaste to clean child's teeth, but 55% offered sweet and sugary products to their child. In addition, 40.3% reportedly brush child's teeth twice daily and 79.9% stated that they never took their children to the dentist whenever there is problem with the teeth. Moreover, 82.7% never did dental flossing for their children in the last three months and 89.9% had not taken them to the dentist in the last 1 year.

Respondents' level of education had no significant statistical influence on their knowledge of child oral hygiene (P = 0.996). There was a significant association between the respondents knowledge and practice of oral hygiene for their children (P = 0.00), Mothers' who have good knowledge on child oral hygiene are 0.399 times more likely to have good practice of Oral hygiene.

This study established that mothers' knowledge influences their oral hygiene practices for their children. Community level programmes that can increase mothers' knowledge on child oral hygiene and strengthen good oral health practice should be implemented by community leaders and stakeholders.

Keywords: Oral hygiene knowledge, Mothers of children ages one to five, Sabo community.
Word count: 491

DEDICATION

This work is dedicated to Almighty God, my Faithful Lord who has always been my guide and helper. To Him alone be all the glory!

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CERTIFICATION

I certify that this study was carried out by OYEDIJI, Tolulope Oyerinola in the department of health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan.

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TABLE OF CONTENTS

LIST OF TABLES

TABLES

LIST OF FIGURES

LIST OF APPENDICES

ACCRONYMS

ECC	Early Childhood Caries
SES	Socio-economic Status
SPSS	Statistical Package for Social Science
WHO	World Health Organization
NGO	Non–Governmental Organization

OPERATIONAL DEFINITION OF TERMS

KNOWLEDGE is the information and understanding about a subject. It is the awareness, consciousness or familiarity gained by experience or learning.

ATTITUDE is the predisposition or a tendency to respond positively or negatively towards a certain idea, object, person or situation which usually influences an individual's choice of action.

PRACTICE is the actual application or use of an idea, belief or method as opposed to theories relating to it. It is a customary, habitual or expected procedure or way of doing something.

ORAL HYGIENE is the practice of keeping the oral cavity clean from pathological conditions that affect the mouth like gum diseases, cavities , mouth sores and ulcers.

BIOLOGICAL CHILDREN are children conceived rather than adopted by a specified parent and therefore carrying genes from the parent.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Oral health is an essential component of good general health which also plays a major role in the child's life. Dental caries is one of the most important global oral health problems. In most developing countries, the levels of dental caries were previously low but now tend to increase (Petersen, Bourgeois, Ogawa, Estupinan-Day and Ndiaye, 2003).

Oral diseases are among the most common and widespread problems throughout the world. Poor oral health may have a significant impact on children's quality of life, which leads to general deterioration of health (Gambhir, Sohi, Nanda, Sawhney and Setia, 20 13). Children with poor oral health are more likely to miss school than those with good oral health. Pain, discomfort, sleepless nights and time missed from school or work are common problems for many children and adults around the world (Kwan, Petersen, Pine and Borutta, 2005).

Early childhood caries (ECC) is defined as "the presence of one or more decayed, missing (due to caries), or filled tooth surfaces in any primary tooth in a child less than 6 years old". ECC imposes significant threats to the physical, psychological and social well-being of young children as dental pain and subsequent tooth loss resulting in difficulty in eating, speaking, sleeping and socializing (Dentistry, 2014).

Preschool children form an innocent and compassionate segment of the society and their oral health care is given due priority as it determines the oral health status of the future generations (Guidelines on Oral Health Care for Pre-School Children, 2003). Children under the age of 5 years generally spend most of their time with parents and guardians, especially mothers, even when they attend preschools or nurseries. These early years involve "primary socialization" during which the earliest childhood routines and habits are acquired (Rajesh, Prasad, Mohanty and Javali, 2008). These include dietary habits and healthy behaviours established as norms in the home. These are dependent on the knowledge and behaviour of parents and elder siblings (Berkowitz, 2006).

Infants and toddlers are unable to care for themselves and are dependent on their parents (Abiola, Ogunbodede, Jeboda and Folayan, 2009). Mothers in particular are the primary

model for developing behaviour. During early years of the life; the chid acquire the earliest childhood routines and habits. Therefore, initiating basic good oral health habits is essential to establish appropriate dental norms that will be maintained into adult life. Mothers use to teach children proper hygiene skills, dietary habits and healthy practices (Suresh, Ravishankar, Chaitra, Mohapatra and Gupta, 2010).

Young children's oral health maintenance and outcomes are influenced by their parent's knowledge and beliefs, which affect oral hygiene and healthy eating habits. In the preventive cycle, parent's knowledge and positive attitude toward good dental care are very pertinent. It has been found that the more positive is the parents' attitudes toward dentistry; the better will be the dental health of their children (Nakre and Harikiran, 2013).

Although dental caries and periodontal diseases are the most common diseases in dentistry; they are preventable or easily controlled using simple procedures such as tooth brushing, controlling the frequency of sugar consumption, appropriate use of fluoride and periodic visits to the dentist, good oral health has not yet reached the population at large. One of the likely explanations for the high prevalence and incidence of these pathologies is their association with social, economic, political and educational conditions, and not limited to biological determining factors that interact in the aetiology of these diseases (Hausen, Kärkkäinen and Seppä, 2000).

Among the many different approaches to the prevention of dental diseases, the most cost-effective method is health education (Nakre and Harikiran, 2013). Educational and motivational programs in oral health have been implemented so that most of the population can have access to information related to problems in the oral cavity and guidelines for hygiene, as well as motivation to pay special attention to oral health (Hausen, Kärkkäine and Seppä, 2000). Educational strategies focused on parents of pre-schoolers are highly valuable, since their behaviour regarding oral health has a direct influence on the number of dental caries of their children (Okada, Kawamura, Kaihara, Matsuzaki, Kuwahara, Ishidori *et al*., 2002).

Parents' attitudes have a positive impact on the state of children's oral health; because the parents control tooth brushing and sugar consumption, the children develop positive oral health habits (Adair, Pine, Burnside, Nicoll, Gillett, Anwar *et al*., 2004). The parents are primarily responsible for almost all their children's health problems. Therefore, their role

is fundamental in raising children to practice preventive oral health throughout their lives (Shivaprakash, Elango, Baweja and Noorani, 2009).

This study will therefore assess the knowledge, attitude and practices of mothers on oral hygiene of their biological children (1-5 years) in Sabo community, Ibadan, Oyo State.

1.2 Statement of the Problem

Dental caries is the most common childhood disease, being at least 5 times more common than asthma, although it is not life-threatening, if left untreated can lead to significant acute and chronic conditions, bacteremia, early loss of tooth, malocclusion in the permanent dentition, high cost of treatment, low self-esteem and failure to thrive (Casamassimo, Thikkurissy, Edelstein and Maiorini, 2009; Olatosi and Sote, 2015).

Oral health is an important aspect of general health in infants and children and impacts the quality of life and health outcomes (Brown, Lowe, Zimmerman, Crall, Foley and Nehring, 2006). Although dental caries' levels have declined and stabilized the world over, the problem of early childhood caries (ECC) has remained persistent in many areas of the world affecting certain segments of society, especially the socially deprived (Bedi, Lewsey and Gilthorpe, 2000; Williams, Whittle and Gatrell, 2002) who remain at high-risk to this disease.

Early Childhood Caries (ECC) is a disease with multiple causative factors. It is a plaque induced infectious disease caused by endogenous bacteria. Some of the well documented factors implicated in the development of ECC include high level of cariogenic micro-organisms such as *Streptococci mutans*, which is usually transmitted to the child's oral cavity by parents or caregivers, susceptible host and fermentable carbohydrate diet (Vadiakas, 2008).

Other risk factors that have been associated with ECC include oral hygiene practices, frequent between-meal snacks, parental attitudes, educational status of mother, socioeconomic status (SES), children with chronic illness or with special health care needs, breastfeeding and bottle feeding habits especially at night, and frequent use of sweetened medication (Vadiakas, 2008).

Research has showed that mothers' dental awareness and knowledge have an important impact on their children's oral health and oral health-related behaviours. Mothers are

known to play the role of primary caregivers in the early formative years of life of their children and also the period of primary socialisation for the child. The relationship between the oral health of mothers and that of their children has been highlighted by many researchers (Vadiakas, 2008; Olatosi and Sote, 2015; Gussy, Waters, Walsh and Kilpatrick, 2006; Colak, Dülgergil, Dalli and Hamidi, 2013).

Very little is known about the preventive oral hygiene practices of children in Nigeria especially the use of a combination of fluoridated toothpaste once a day or more and restricted intake of refined carbohydrate for caries risk reduction. Multiple studies had shown that most children in Nigeria brush their teeth once a day (Kolawole, Oziegbe and Bamise, 2011). A prior study had shown that the use of fluoride containing toothpaste is widespread (Folayan, Khami, Popoola, Onyejaka and Adeyemo, 2014) and less than a third of school aged children consumed sugar less than once a day (Folayan, Khami, Popoola, Onyejaka and Adeyemo, 2014). Only 7.8% of school age children use a combination of caries risk prevention tools: consumption of refined carbohydrate once a day, continuous use of fluoridated toothpaste once a day or more and restricted intake of refined carbohydrate (Folayan, Khami, Popoola, Onyejaka and Adeyemo, 2014).

1.3 Justification of the Study

Many studies have been conducted among children and adolescents in primary and secondary schools respectively on knowledge and practices of oral hygiene but the author is not aware of studies that have examined mothers knowledge on oral hygiene of their children (ages one to five) among this study population in Ibadan North local government area. Therefore, considering this crucial and sensitive role of mothers, this study is designed to evaluate the knowledge, attitude and practices of oral hygiene among mothers of age one to-five children in Sabo community, Mokola, Ibadan and the association of their knowledge, attitude and practices with other potential determinants such as age, educational level and their working status.

The study therefore fills a critical gap by providing critical evidence about the knowledge, attitude and practices of mothers on oral hygiene of their children and also the prevalence of dental problems associated with poor practice which can then serve as a basis for other researchers. Findings from this study would assist in providing baseline information useful to designing effective oral health educational progammes at the

community level for the parents of children in order to improve oral health education/prevention programmes, consequently resulting in better dental health for these children.

The findings are useful to Policy makers to stimulate policy dialogue on how best to influence parents especially mothers to perform better oral health hygiene practice towards their children. The study also provided responses to the research questions stated below.

1.4 Research Questions

The study answered the following questions**:**

i. What is the level of knowledge on child's oral hygiene among mothers of age one to five children in Sabo community, Ibadan?
ii. What is the attitude towards child's oral hygiene among mothers of age one to five children in Sabo community, Ibadan?
iii. What are the practices of child's oral hygiene among mothers of age one to five children in Sabo community, Ibadan?

1.5 Broad Objective

The study investigated the Knowledge, Attitude and Practices of Mothers on oral hygiene of their biological children (1-5 years) in Sabo community, Ibadan.

1.6 Specific Objectives

The study was guided by the following objectives:

i. To assess the level of knowledge on child oral hygiene among mothers of age one to five children in Sabo community, Ibadan.
ii. To examine the attitude towards child oral hygiene among mothers of age one to five children in Sabo community, Ibadan.
iii. To identify the practices of child oral hygiene among mothers of age one to five children in Sabo community, Ibadan.

1.7 Hypotheses

H_O1: There is no significant relationship between level of education and knowledge on child oral hygiene among Mothers of age one to five children in Sabo community, Mokola, Ibadan, Oyo state.

H_O2: There is no significant relationship between the knowledge and practices of child oral hygiene among mothers of age one to five children in Sabo community, Mokola, Ibadan, Oyo state.

CHAPTER TWO

LITERATURE REVIEW

2.1 Concepts Clarification

Hygiene refers to conditions and practices that help to maintain health and prevent the spread of diseases. It includes all circumstances, practices, lifestyle issues, premises and commodities that create a safe and healthy environment. It is the science of preserving and promoting health of both the individual and the community. In medicine hygiene practices are employed to reduce the incidence and spreading of diseases. Hygiene in home and everyday life settings plays an important part in preventing spread of infectious diseases (Bloomfield, 2009). It includes procedures used in a variety of domestic situations such as hand hygiene, respiratory hygiene, food and water hygiene, general home hygiene, care of domestic animals, and home healthcare (the care of those who are at greater risk of infection).

Hygiene is also the name of a branch of science that deals with the promotion and preservation of health, also called hygienics. Hygiene practices vary widely, and what is considered acceptable in one culture might not be acceptable in another (International Scientific Forum, 2011). Body hygiene is achieved by using personal body hygiene products including: soap, hair shampoo, toothbrshes, tooth paste, cotton swabs, anti-perspirant, facial tissue, mouthwash, nail files, skin cleansers, toilet paper, and other such products.(Agboatwalla, Feikin, Painter, Billhimer, Altaf and Hoekstra, 2005).

Oral hygiene is the practice of keeping oral cavity free from pathological conditions that affect mouth like gum diseases, cavities, mouth sores and ulcers (World Health Organization (WHO), 2015). Oral health of children is associated with oral health knowledge of their parents/guardians as oral health-related habits are established during infancy and maintained throughout early childhood (Nagarajappa, Kakatkar, Sharda, Asawa, Ramesh and Sandesh, 2013).

The oral cavity is known to be a reservoir for pathogens to grow and thrive. Poor oral hygiene can lead to complications such as gingivitis, halitosis, xerostomia, plaque formation and dental caries. Studies have also associated chest infection and pneumonia with poor oral hygiene (Schleder et al, 2002; Yoneyama et.al, 2002). A clean mouth and properly functioning teeth are essential for physical and mental well-being. Research

indicates that a clean mouth prevents pneumonia, gum disease, and helps prevent heart disease (United State office for Disease Prevention and Health Promotion, 2018). Oral care helps prevent infections in the mouth by removing food particles and plaque and it stimulates the circulation to the gums. Oral care also eliminates bad tastes in the mouth so food is more appetizing and it prevents halitosis (Mosby Nursing Skills, 2013).

Oral care can include brushing, flossing, and rinsing, and is essential for the prevention of plaque build-up, inflammation, and infection. Oral care is usually done at least twice a day, but most dentists recommend brushing after each meal. If the patient is unconscious, oral care will be needed more frequently. Unconscious patients usually breathe through the mouth, causing secretions to dry (Mosby Nursing Skills, 2013).

Types of oral care include:

Brushing – which cleanses the teeth of food particles, plaque, and bacteria?

Flossing – removes tartar that collects at the gum line.

Rinsing – removes dislodged food particles and excessive toothpaste. Rinsing can also freshen breath, prevent or control tooth decay, and prevent or reduce gingivitis (Mosby Nursing Skills, 2013).

2.2 Prevalence of Dental Caries and risk factors

ECC is a serious public health concern influencing children's well-being and their quality of life (Qiu and Ni, 2003). Children of low-income minority groups including ethnic minorities are at highest risk to ECC (Maserejian, Trachtenberg, Hayes and Tavares, 2008). Numbers of studies have indicated that enhancing access to oral health services, while important, is not adequate to improve oral health of minority populations (Brown, Canham and Cureton, 2005). Therefore, efforts are required to promote and implement community- based educational programs that are culturally sensitive and deliverable by the local community workers.

Recent studies indicate that there is a two way relationship between general health and oral health. Systematic diseases affect oral health, similarly chronic oral inflammatory diseases; dental cavities and periodontal (gum) disease have bad effects on general health. Inappropriate oral health also contributes in cardiovascular disease, respiratory infections, stroke and nutritional problems (Bjertness, 2017). Dental caries is the most

prevalent dental problem in most of the population in the world. World wide data on caries prevalence among children ages one to five is scarce, although moderately available in non-African countries. In high and middle income countries, the nature of caries has changed from a rapid progressing disease of childhood to a slowly progressing disease throughout adulthood and even old age (Lagerweig and Loveren, 2015). However, throughout the world, the circumstances for caries differ e.g. Low income countries experience more caries with higher sugar consumption while reversed is the case for High income Countries where fluoride is widely used and preventive programmes in dental offices are in place. ln African countries dental caries has least prevalence but in Asian and Latin American countries almost 90% adults and school going children suffering from dental caries (Petersen, 2003).

The published literature showed that Pakistan is among countries where oral health is considered bad and majority of school going children has dental caries and periodontal diseases (Haleem and Khan, 2001). In Pakistan, it has been estimated that dental caries (tooth decay) is the single most common chronic childhood disease; 5 times more widespread than asthma and 7 times more common than hay fever (Vakani, Basaria and Katpar, 2011).

In a study conducted by Fleming and Afful on the prevalence of total and untreated dental caries among youth ages 2-19 in United States, the prevalence of dental caries among children ages 2-5 years was 21.4%. In another study conducted by Iyun, Denloye, Bankole and Popoola (2014) on prevalence and pattern of early childhood caries among nursery school children aged 3 to 5 years in Ibadan, Nigeria, revealed that 23.5% of the study participants had dental caries. The prevalence of ECC in another study by Olatosi, Inem, Sofola, Prakash and Sote (2015) among pre-school children aged 6-71 months referred to a tertiary care institution in Lagos was 21.2%.

A study conducted by Adeniyi, Sonny, Ogunbodede and Sofola (2009) on dental caries occurrence & associated oral hygiene practices among rural and urban Nigerian pre-school children revealed that 10.9% had dental caries among the study population. In another study conducted by Sowole and Sote (2006) on breastfeeding bottle feeding and caries experience in children aged 6 Months to 5 Years in Lagos State Nigeria revealed that 10.5% had dental caries among the study population.

Dental caries is an infectious disease that affects 60-90% of children worldwide between the ages of 2 to 11 years. The children under 5 years of age usually spend most of their time with their parents and caregivers, especially mothers, even when they join playgroups (Petersen, 2003).

The prevalence of dental diseases and factors related to it were found different between countries and within country. Socio-behavioural and environmental factors mainly play a significant role in the occurrence of dental diseases. Dental caries is more prevalent in Asia and Latin America while less severe in Africa. It is relatively high in America as compared to other countries. The main reason of dental caries in developing countries and rural areas is consumption of processed sugar and inadequate oral hygiene (Arora, Schwarz and Blinkhorn, 2011).

Factors promoting dental problems include:

i. Lack of fluoride exposure.
ii. Oral health behaviours.
iii. Unhealthy dietary lifestyle such as use of sugar and sweetened beverages.
iv. Low socio-economic status.
v. Maternal oral health

2.3 Knowledge of Mothers on Oral hygiene

Mothers' knowledge has been said to have an important impact on their children's oral health and oral health-related behaviours. In a study conducted by Jain, Oswal & Chitguppi (2014), on Knowledge, attitude and practices of mothers toward their children's oral health among subpopulation in Mumbai in India revealed that >60% mothers exhibited poor knowledge, 30% exhibited fair knowledge and very few mothers (9.5%) had good knowledge of child oral health. In this study, knowledge regarding role of fluoride was poor. Respondents had partial knowledge on the importance of deciduous teeth. Many of them said that baby's teeth do not require good care as they will fall off. This was in accordance with the study done by Suresh et al., (2010).

It was also revealed that mothers with higher education have a better knowledge regarding the oral hygiene practice and importance of deciduous teeth. Keeping in mind the changing attitude in society, it is important to plan appropriate oral health programs targeting different groups through the strategies designed for specific requirements. More

emphasis should be placed on improving the level of knowledge, which would be reflected in their oral health behaviour.

The findings from this study was also corroborated by Moulana, Yashoda, Puranik, Hiremath and Gaikwad, (2012) who conducted a similar study on Knowledge, attitude and practices towards primary dentition among the mothers of 3-5 year old pre-school children in Bangalore city, Indian and Nagarajappa, et al. (2013) who conducted a study on Infant oral health: Knowledge, attitude and practices of parents in Udaipur, India. Although studies done by Gussy, Waters, Riggs, Lo and Kilpatrick (2008); Franzman, Levy, Warren and Broffitt (2004); Kamolmatyakul and Saiong (2007) in Australia, America and Thailand respectively, reported good knowledge about fluoride.

According to a study conducted by Serhrawat et al, (2016) on Oral health knowledge, awareness and associated practices of preschool children's mothers in Greater Noida, India showed that 45.1% mothers exhibited poor knowledge, around 30% exhibited fair knowledge and 24.9%, mothers were in the good category for knowledge. It was further revealed that mothers aged 25 years and above showed significantly higher mean knowledge scores when compared with the mothers who aged 24 years or below (P = 0.040). Hence, the knowledge about the oral health among the mothers seemed to be poor, and it indicated a need for effective oral health education programme to be implemented.

Suresh, Ravishankar, Mohapatra and Gupta (2010), revealed in a study on Mother's knowledge on Oral health of pre-school childrens in Moradabad, India that respondents have partial knowledge on the importance of deciduous teeth. Many of the mothers said that cavities in baby's teeth do not matter, and are not able to identify common dental problems like dental caries and gingivitis. It was also found that 300 (73.9%) mothers had good knowledge about diet and dietary practices which include questions regarding sugar and caries, feeding practices, snacking practices. Majority of the mothers had good knowledge regarding the role of diet in oral health; they believed that sweet snacks and sweet drinks contribute to caries.

Contrary to most findings was the results of Virtanen, Ghofranipour, & Murtomaa, (2008) in a study conducted on Influence of mothers' oral health knowledge and attitudes on their children's dental health in Tehran, Iran which showed that the oral health knowledge scores among the mothers were generally high; it shows almost all of the

mothers (92-97%) recognized that regular check-ups, restricting the consumption of sugary snacks, and regular tooth-brushing can prevent dental decay. A majority of mothers (79-84%) were aware of the preventive role of fluoride toothpaste and the harmful effect on teeth of sweet foods. More than 60% of the mothers acknowledged that microbial plaque can cause dental and gingival diseases.

Mubeen and Nighat, (2015) in a study conducted on Mother's Knowledge, Attitude and Practices Regarding Dental Caries And Oral Hygiene Among Children (Age 1 to 5 Years) in Civil Hospital, Karachi showed that Majority (85%) of mothers heard about dental caries while only 4.6% had knowledge about cause of dental caries. Only 5% mothers knew that regular brushing with routine dental checkup can prevent child from caries. About 28.5% knew about dental plaque and only 1.8% reported that plaque can cause tooth decay and bleeding gums. Only 39.5% of mothers knew that brushing is necessary twice a day. About 39.1% heard about fluoride and 13.9% reported that fluoride can strengthen teeth and prevent caries, 96.7% of respondent did not know that they should supervise their child during brushing until the age of 10 years (Mubeen et al, 2015).

Abduljalil and Abuaffan (2016) revealed in a study on Knowledge and practices of Mothers in relation to dental health of pre-school children ages 3-5 years in Sudan that majority 76.8% Mothers know that tooth brushing prevents dental caries while 64.7% is aware of the role of fluoride in preventing tooth decay. Also in a study by Oredugba, Agbaje, Ayedun, & Onajole (2014) in Assessment of Mothers' Oral Health Knowledge: Towards Oral Health Promotion for Infants and Children in Lagos, Nigeria, revealed only 58.7% respondents, though with nearly 70% who had post secondary education, had been adequately exposed to oral health education.

2.4 Attitude of Mothers towards oral hygiene

Attitude toward a behaviour is a person's overall evaluation of the behaviour and an individual's feelings towards an intended behaviour is likely to be positive if it's perceived that the result from the behaviour will be positive (Fen and Sabaruddin, 2008). A study conducted by Sehrawat et al. (2016) examined the attitude of preschool children's mothers towards oral hygiene of their chidren in Greater Noida, India showed that 29.1% had poor attitude, 22.8% fair attitude and very few participants (37.4%) had good attitudinal disposition towards oral hygiene.

In a study conducted by Jain, Oswal and Chitguppi (2014), on attitude of Mothers towards their children's oral health among subpopulation in Mumbai in India revealed that 53.8% mothers had poor attitude, 32.7% had fair attitude and very few mothers (13.5%) had good attitude towards their children's oral health. The study further revealed that around 75% mothers agreed that child's teeth should be cleaned by them which shows positive attitude. A randomized controlled trial in the United Kingdom showed that visits to a dental health educator by the mothers of preschool children increased the parental knowledge and improved attitudes toward their children's oral health (Blinkhorn, Gratrix, Holloway et al., 2003).

According to a study by Virtanen, Ghofranipour, & Murtomaa, (2008) in a study conducted on influence of mothers' oral health knowledge and attitudes on their children's dental health in Tehran, Iran showed that the mothers showed mainly positive attitudes towards oral health. Almost all (97%) considered dental decay and its potential consequences as serious, and 75% of them regarded dental disease as important to be as other diseases. Almost all mothers (90%) thought that they would be able to prevent dental decay. About 75% of the mothers assessed the primary teeth as important and agreed to the possibility of maintaining one's dentition for entire life. In a study conducted by khanduri, Singhai, Mitra and Rohatgi (2018) on knowledge, attitude and practices of parents towards their children's oral health: A questionnaire survey in bhairahawa (Nepal) showed that 83% of Parents agreed that diet has a role to play in the occurrence of caries and about 75% agreed that it is necessary to take the child for regular dental visits.

Mubeen and Nighat, (2015) in a study conducted on Mother's Knowledge, Attitude and Practices Regarding Dental Caries And Oral Hygiene Among Children (Age 1 to 5 Years) in Civil Hospital, Karachi showed that regarding self-assessment of oral health, 29.4% mothers believed that they have enough knowledge regarding dental caries and oral hygiene. Only 22.4% mothers stated that their children rinse oral cavity after every meal, 63.3% mothers expressed that primary teeth (milk teeth) needs care and rest of them responded that they did not need any care for teeth which sheds off. Only 22.1% respondent knew about the proper technique of brushing, 59.4% mothers thought that brushing is necessary after breakfast and before going to sleep and about 58% felt that oral health requires high priority. It was concluded that the need for better education on oral health with emphasis on proper behavior and positive attitude as daily routine should

be prioritized; recognizing that educational status and income of Mothers are significant factors in improving child oral health status.

2.5 Mothers Oral hygiene practices

An individual's practice is a customary, habitual or expected procedure or way of doing something. Positive or negative practice of oral hygiene is expected to lead to positive or negative outcomes in respect to oral hygiene status of children. A study conducted by Jain, Oswal & Chitguppi (2014), on Knowledge , attitude and practices of mothers toward their children's oral health among subpopulation in Mumbai in India revealed that 36.7% of mothers showed poor practices, around 58% showed fair practices and very few participants (4.5%) had good practices. It was also shown that even though majority of mothers agreed that regular dental visit is required, very few reported to follow this. It is suggested that the earlier a child visits the dentist, the greater would be his likelihood of being caries-free. The factors responsible for irregular visits and follow-up could vary depending on financial status, fear and lack of awareness and motivation. Despite the fact that majority of the mothers were aware of the fact that regular dental check-ups are necessary, only 4.3% of the mothers took their child for dental visit in every 6 months.

According to a study conducted by Sehrawat et al., (2016) on Oral health knowledge, awareness and associated practices of preschool children's mothers in Greater Noida, India showed that 12.5% showed poor practices, around only 29.6% showed fair practices and 57.9% mothers were in the good category for practices. It was shown that 64.7% of the mothers had an opinion that it is necessary to take the child for regular dental visits, which was similar to the studies done by Moulana et al., (2012).

A randomized controlled trial done in the UK showed that mothers visit to trained dental educator (dentist) of those pre-school children at risk of caries increased the parental knowledge and improved the attitude toward the dental health of their offspring (Blinkhorn et al., 2003). Thus, frequent dental visits (at least once every 6 months) are very crucial to reinforce good oral health habits and knowledge among parents which are passed on to the children (Sehrawat et al, 2016).

According to Suresh, Ravishankar, Mohapatra and Gupta (2010) revealed in a study on Mother's knowledge about pre-school child's oral health in Moradabad, India showed that the knowledge regarding the oral hygiene practice which includes brushing, sharing of utensils, especially feeding spoon, and knowledge about fluoride was not satisfactory, as

nearly 294 (72.8%) of the mothers had only inadequate or partial knowledge. Majority of the mothers had inadequate knowledge about the fact that sharing of utensils can transmit *S. mutans* which can cause caries in children, which is similar to that reported in a study by Sakai et al. (2008).

The American Dental Association (ADA) recommends that parents wipe their child's gums with clean cotton after each feeding, and tooth brushing should be started when the first tooth erupts with a baby toothbrush, along with low sugar consumption and not sleeping with bottles. The child must have dental visit at the age of 1 year followed by regular checkups for every 6 months (Meurman, Pienihakkinen, Eriksson and Alanen, 2009). Although, the ADA recommends that, but there is no literature that I can lay my hands on that revealed information about the extent which mothers complied with the ADA recommendation.

Research study showed that motivating mothers for good practices of oral health and adopting a better lifestyle in general may produce positive changes and increase long term benefits for both mother and child's health (Finlayson, Siefert, Ismail and Sohn, 2007). Without having basic knowledge of caries risk factors, mothers of the children with primary teeth face difficulty in maintaining their oral hygiene status and it will become difficult to implement effective strategies for caries prevention (Nainar and Straffon, 2008).

Mubeen and Nighat, (2015) in a study conducted on Mother's Knowledge, Attitude and Practices Regarding Dental Caries And Oral Hygiene Among Children (Age 1 to 5 Years) in Civil Hospital, Karachi revealed that about 69.8% mothers cleaned their children's teeth with toothbrush, 27% reported that they used other materials such as Maswak, Manjan, toothpaste with finger and 3.2% had never cleaned their teeth, 28.1% were cleaning the tongue regularly. Only 14% respondents replaced their child's tooth brush after 3 months. Regarding use of fluoridated toothpaste, 37.7% of mothers affirmed that they are using it. About 25.3% mothers knew that feeding milk to a child during sleep can cause dental caries, 52% mothers went to dentist when their child experienced toothache while 18.1% were on self-medication/home remedies, 14.6% went to general physicians and 15.3% never experienced toothache and 47.3% mothers reported that they had never visited to dentist.

The study further revealed that about 45.2% were using government dental health care services, 30% reported that they were satisfied with the services. About 40.6% expressed that the services are cost effective and 19.6% responded that the services were easily accessible and available. When they asked about "why they avoid visit to dental clinic" 25.3% reported that dental treatment is too costly and 14.9% responded that dental services are not reachable. About 7.1% mothers had fear for receiving dental treatment (Mubeen and Nighat, 2015).

Farid, Khan, & Aman, (2013) in a study on knowledge, attitude and practice of mothers regarding their own and children's dental health in a tertiary care hospital based study showed that only 15.9% of mothers think that first dental visit of child should be within first year of life with majority of them (53.6%) thinking that first dental visit should be at the time of a dental problem. These results are in agreement with those of Nainar and Straffon, (2008) who stated that in the United States only 32% of children aged 2-4 years had a dental visit in the past 12 months. Similarly, 97% of respondents didn't know that their children needed to visit a paediatric dentist in the first year of life, leaving a large number of infants potentially vulnerable to tooth decay and disease. Additional survey findings included 26% of parents who felt that children only needed to see a dentist in the case of a serious health problem.

Similarly, Al-Shalan, Al-Mousa and Al-Khamis (2002) in their study on Parents' attitude toward children's first dental visit in College of Dentistry, Riyadh, Saudi Arabia showed that only 23.8% of Saudi parents were of the opinion of having first dental visit in first year of life. In another study, it was reported that majority of parents independently thought ages 3 or 6 years were the best ages for first dental visit (Al-Shalan, 2003). Slayton, Warren, Levy, Kanellis and Islam (2002) in their cohort study on frequency of reported dental visits and professional fluoride application in a cohort of children followed from birth to 3 years in Iowa, USA reported that only 2% of parents had taken their children for dental visit by one year of age, 11% by two years of age and 31% by three years of age.

Blinkhorn, Wainright, Hollowwy, (2001) in a study on Dental health knowledge and attitudes of regularly attending mothers of high risk, pre-school children stated that 71% mothers used to brush their children teeth twice daily (n=268). Koerber, Graumlich, Punwani, Berbaum, Burns, Levy, et al., (2006) in a study of Covariates of tooth-brushing

frequency in low income African American children in their study concluded that oral health knowledge and parental influence were not significant factors associated with tooth brushing frequency in metropolitan African American pre-adolescent children.

Abduljalil and Abuaffan (2016) revealed in a study on Knowledge and practices of Mothers in relation to dental health of pre-school children ages 3-5 years in Sudan that 67.1% of the children never visited a dentist and 52% of the children were exposed to sugary snacks once or twice a day while 50.6% mothers stated that tooth brushing is done for their child only once a day. A study conducted by Adeniyi, Sonny, Ogunbodede and Sofola (2009) on dental caries occurrence & associated oral hygiene practices among rural and urban Nigerian pre-school children revealed that 63% children had their teeth cleaned once daily while 50% of mothers reported replacing their child's tooth brush every 6 months.

2.6 Health implications of poor oral hygiene

According to Sofola (2010), chronic periodontal disease was found highly prevalent among Nigerians, right from the 1960 to date; over 75% of Nigerian suffers from periodontal diseases, due to poor oral hygiene. Akpata (2004) reported that deep periodontal pockets occur in a relatively high proportion among young adolescents in Nigeria; the prevalence increases with age, being 51-58% in children aged above 15years. Singh (2012) also reported that dental caries constitute one of the major oral health problems among young children and adolescents in Nigeria, aged 12 and 15 years old, while its prevalence ranges between 30 and 45%, respectively.

Bad breath proves another easily recognizable consequence of poor hygiene. It commonly develops from not regularly brushing and flossing your teeth. Bad breath results because of two main reasons. First, bacteria thrive on particles of food that can stick to your teeth. As the bacteria digest this food; their byproduct results in odour. Food can also get stuck in your teeth and rot over time, producing a foul odor, according to the American Dental Association. Research suggests that oral diseases could result in pain, suffering, psychological disorders, and social problems which could lead to individual and societal loss (Gomes and Abegg, 2007). In children, oral diseases could cause impaired chewing, reduced appetite, sleep problems, weight loss, behavioral changes, and poor school performance (Anderson, Drummond and Thomson, 2004; Feitosa, Colares and Pinkham, 2004).

In addition, poor oral health in children may affect family welfare because parents and caregivers feel guilty for their children's problems, lose valuable working hours, and face the high cost of dental treatment (Anderson, Drummond and Thomson, 2004). Dental caries among preschool children is still of concern in Nigeria. Reports from previous studies show that the prevalence of ECC varies from 1% in Australia to 70% in developing countries and deprived groups in developed countries (Gussy, Waters, Walsh, Kilpatrick, 2006). The wide variation may be due to so many factors some of which are beliefs, cultural and ethnic differences in feeding practices (Olatosi, Inem, Sofola, Prakash and Sote, 2015).

About 90% of oral diseases are left untreated in Pakistan because it is not taken as a serious health problem. The ignorance of seeking treatment of dental caries due to lack of awareness may lead to 90% of extraction of teeth (Pakistan Oral disease database, 2011). Childhood dental caries is completely dependent on their parent because they are the gatekeepers who decide whether to take them to the dentist for treatment or not. Inquiry showed that Children's from younger parents with low socioeconomic status and lower level of education had less potential to visit dental clinics, and more prone to oral disease (Arora, Schwarz, Blinkhorn, 2011).

2.7 Interventions for improving Mothers Knowledge, Attitude and Practices in respect to oral hygiene of their biological children

An intervention is an involvement in a difficult situation in order to improve it or prevent it from getting worse. It is a combination of program, elements or strategies designed to produce behaviour changes or improve health status among individuals or an entire population. Interventions to improve Mothers knowledge, attitude and practices in respect to oral hygiene of their biological children may be implemented in different settings including ccommunities, worksites, health care organizations, faith based organizations and even home.

In an interventional study conducted by plutzer and Spencer (2008) on "Efficacy of an oral health promotion intervention in the prevention of early childhood caries", where a programme was developed around the provision of anticipatory guidance to nulliparous women in Adelaide, mothers were grouped into control group and experimental group with 322 and 327 mothers respectively. Mothers in the experimental group were provided

with oral health promotion information during pregnancy and later when the child reached 6 and 12 months, while there was no contact with the control group. At the age of 20 ± 2.5 months, all experimental and control group children were examined by a dentist. The result showed the incidence of early childhood caries to be 1.7% in the experimental group who received the oral health promotion information as against 9.6% in the control group. Therefore, an oral health promotion programme based on repeated rounds of anticipatory guidance initiated during the mother's pregnancy was successful in reducing the incidence of early childhood caries in these young children.

In another study conducted by Weinstein and Benton (2004) on "Motivating parents to prevent caries in their young children", the authors compared the effect of a motivational interviewing counselling treatment with that of traditional health education on parents of young children at high risk of developing dental caries. Two hundred and forty parents of infants aged 6 to 18 months were enrolled and randomly assigned to either a motivational interviewing group (experimental group) or a traditional health education group (control group). Parents in both group received a pamphlet and watched a video, parents in the motivating group received additional personalized motivational counselling session and six follow up telephone calls. The result after one year indicated that children in the experimental group had 0.71 new carious lesions while those in the control group had 1.91 new carious lesions.

2.8 Theoretical Framework

There are so many commonly used theoretical models in health promotion. These include but not limited to; the health belief model, trans-theoretical model, social cognitive theory, theory of reasoned actions, theory of planned behaviour and the PRECEDE-PROCEED model (Glanz, Rimer and Lewis, 2002). Each of these models identifies behavioural influences and factors relevant to issue targeted by health promotion programme. The PRECEDE model was developed by Lawrence Green and colleagues in the 1970's to address the lack of direction and adequacy of public health promotion to sufficiently plan before implementing an intervention (Glanz *et al*, 2002).

The PRECEDE is an acronym that stands for Predisposing, Reinforcing and Enabling Constructs in Educational/Environmental Diagnosis and Evaluation. This theory helps to understand the causal factors of any given public health behaviour. The three key constructs of this model are explained below:

Predisposing factors: They are factors which motivate or provide a reason for behaviour; they include knowledge, attitudes, cultural beliefs, perceived needs and abilities and readiness to change.

Enabling factors: These are factors that enable persons to act on their predispositions; these factors include available resources, accessibility, money, time, supportive policies, assistance, and services.

Reinforcing factors: These are factors which come into play after behaviour has been initiated. They encourage repetition or persistence of behaviours by providing continuing rewards or incentives e.g. Social support, praise, reassurance (from family, peers, colleagues, health care workers, law enforcement, and the media) and symptom relief might all be considered reinforcing factors.

APPLICATION OF PRECEDE MODEL TO KNOWLEDGE, ATTITUDE AND PRACTICES OF ORAL HYGIENE AMONG MOTHERS OF AGE ONE TO FIVE CHILDREN

Numerous studies have supported the positive impact the PRECEDE model has had on the effectiveness of health promotion programmes. Some of these studies include preventive behaviours for type 2 diabetes mellitus in high-risk individuals (Moshki, Dehnoalian, and Alami, 2016), health promotion options for breast cancer survivors (Tramm, McCarthy, and Yates, 2012), fitness-emphasized physical activity and heart-healthy nutrition education program for elementary school children (Slawta and DeNeui, 2009), internet based weight management program for young adults (Kattelmann, White, Green *et al*, 2014), among others.

Using the various constructs of the model, it will be applied to the current research as follows:

i. Predisposing factor: These are antecedents to behaviour that provides the rationale for the behaviour. They are intrinsic factors that are unique to the research respondents and make them to practice oral hygiene. This includes but not limited to oral health knowledge of the respondents, beliefs about oral hygiene practices, attitudes of the mothers towards oral hygiene, perception, family history of the respondents in respect to how oral health diseases is

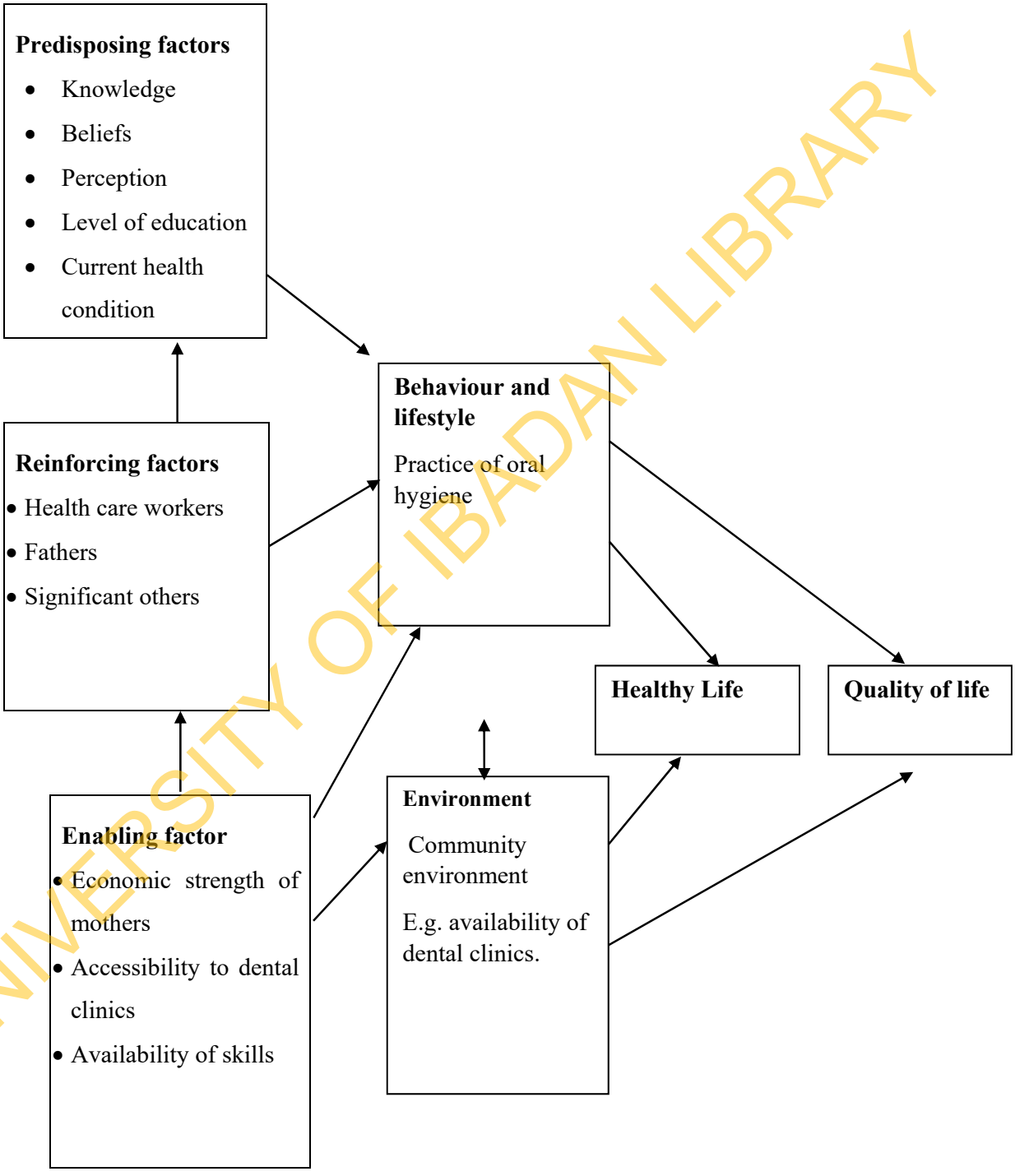
managed and their present health conditions which will motivate mothers to take action to treat or further prevent deterioration.

ii. Enabling factors: These are what enable the respondents to act on their predispositions. They are environment bound factors which enable action for or against the practice of oral hygiene. These will include; level of education of the respondents, accessible and affordable dental clinics (i.e. how easy it is for the respondents to get dental care), level of income of the respondents (e.g. what type of toothpaste can be purchased with the amount available) etc.

iii. Reinforcing factor: These comprises of the feedback or influence of the significant other or people that influence the continuance or discontinuance of practices of oral hygiene among the respondents. They include the husbands (e.g, if the husband reminds the wife about brushing their child's teeth), healthcare workers (e.g the kind of oral hygiene messages gotten from the healthcare workers), parents, siblings, peers, neighbours and the mass media.

Fig 2.1: Conceptual frameweork for Knowledge, Attitude and Practices of Child Oral hygiene among Mothers of age one to five children

The model discussed above is conceptualised below:



CHAPTER THREE

METHODOLOGY

3.1 Study Design

A descriptive cross-sectional study design involving the use of semi-structured interviewer- administered questionnaire was used for this study.

3.2 Study Area

Sabo is a community in Ibadan North Local Government Area of Ibadan, Oyo state with predominantly Hausa dwellers. It is situated in ward 6 of Ibadan North Local Government, Oyo state. It is bounded on the North by Mokola road, West by Veterinary, South by Adamasingba stadium complex and East by Alaafia Hospital Dugbe road.

The population predominantly consists of people from the Northern region of the country. There are also other ethnic groups from different parts of the country and outside the country who came to reside in Sabo for commercial activities. The major commercial activities in the community are "Bureau de change" who engages in currency exchange, Suya spot, Tailoring and Embroidering, Okada riding and Cafeterias. It has one Primary Health Centre which provides basic health care services and some other private hospitals as well as patent medicine stores. There are also filling stations and government schools such as Saint Gabriel Secondary School as well as private schools like Mercy day group of school. Sabo is a community dominated mostly by Muslim with few Christian members. It has one central Mosque and two other mosques and different Islamic schools for both the men and women including children. There are churches such as Baptist church and Zion day church. Water source is through borehole, while some houses have wells as there is no government pipe borne water within the community. Utensil used by community members for cleaning the mouth is basically toothbrush, while some use chewing stick and cotton wool.

The community is divided into different clusters which are according to their respective population. This includes;

3.3 Study population

The target study population consisted of mothers of ages one-five children who reside in the community and consented to participate in the study.

3.4 Inclusion criteria

The study included mothers of age one to five children who consented to participate in the study

3.5 Exclusion criteria

1. Mothers who did not have age one to five children
2. Mothers who had age one to five children but did not consent to the study.

3.6 Sample size

Sample size for this study was estimated using the formula for calculating single proportions by Abraham and Gahlinger. The sample size formula was calculated as follows:

$$n = \frac{Z^2pq}{d^2}$$

n= minimum sample size required

Z= standard normal deviation set at 1.96 normal interval corresponding to 95% confidence level

p= prevalence of the population who had knowledge about oral hygiene 24.9% (Sehrawat et al., 2016).

d= degree of accuracy desired or maximum allowable difference from true proportion which is set at 5% (0.05)

$$n = \frac{(1.96^2 \times 0.249 \times 0.751)}{(0.05)^2} = 287.35$$

n is approximately 287

A non-response rate of 10% of 287 using $q = \frac{1}{1-f}$

Where f = estimated non response rate

1.11

Therefore, 1.11 was multiplied by the sample size calculated to make the sample size 318 in order to address issues of incomplete response.

The sample size for this study is 318 mothers of age one to five children.

3.7 Sampling technique

A-three stage sampling technique was employed for this study.

Stage 1: Sabo community is stratified into five strata, which are; Sabo Gangari, Sabo Oke hausa, Sabo Oke Esu, Sabo Gana and Sabo central.

Stage 2: Systematic sampling technique was used to select houses using the sampling interval (k) gotten by dividing the entire population size by the desired sample size.

Stage 3: An eligible respondent was selected from each household in every house that has been systematically selected. In situations where there were more than one eligible respondent in a household, balloting was done to pick one of them.

3.8 Instrument for data collection

A questionnaire comprising of both open-ended and close-ended questions was designed. The development of this instrument was guided by extensive literature review, discussion with my supervisor and the variables in the theoretical framework.

The semi structured questionnaire was interviewer administered. The questionnaire had four sections: Section A of the questionnaire covered socio demographic status of respon dents (age, educational level, occupation, religion, ethnicity etc.), Section B covered respondents' knowledge on oral hygiene, Section C elicited information on attitude of respondents towards oral hygiene in relation to their children, Section D elicited information on practices of respondents on oral hygiene of their age one to five children.

3.9 Validation of instrument

An extensive review of literature to ensure appropriate content and face validity was done. Construct validity was also done to ensure that variables in the theoretical framework are well represented in the instrument. My supervisor was also consulted and the instrument was subjected to scrutiny by experts in dentistry to validate the instrument. These individuals edited and made useful corrections and suggestions before the actual administration of the questionnaire to the study participants.

3.10 Reliability of instrument

10% of the total study population was pretested at another Hausa community in Oojo called Shasha. This is because it has similar socio-demographic and socio-economic characteristics as the study area. The researcher ensured that only mothers who had ages one to five children participated in the pretest. A seven paged questionnaire consisting of four sections; socio-demographic characteristics, knowledge, attitude and practices was pre-tested. The researcher and two other trained research assistants conducted the data collection. The pre-test was conducted in two days. Participant's complaints about the instrument and the procedure were noted. The pre-test was done as a means for ascertaining the appropriateness of the questions for obtaining valid and reliable responses. The data collected was then analyzed using Cronbach Alpha measurement and reliability co-efficient measure was carried out on the pre-tested questionnaire to know how reliable the instrument is**.** The Cronbach alpha score was 0.637 and this was determined to be reliable.

3.11 Data collection procedure

Recruitment and training of research assistants;

Six (6) research assistants were recruited and trained for the study. Familiarity with the study area, understanding of the instrument and previous experience in collecting data and conducting research, informed the basis of their recruitment. The training was done in a day; the total time spent for the training was 6 hours, with an hour break within the training time. The training covered the objectives and concept of the study, the research instrument, sampling procedure, likely problems on the field as well as ethical issues. Lecture, role play, demonstration and return demonstration were methods used in training

them. At the end of the training, three (3) out of the six (6) were eventually selected to embark on field work.

Data collection method

For the study, serially numbered interviewer administered questionnaire was used. The data was collected by the researcher and the three (3) trained research assitants. The informed consent forms (attached to the questionnaire) were distributed to the potential participants after they had been given adequate information about the study. After the questionnaire had been filled, the researcher checked for completeness and errors before leaving the field. The questionnaire were administered between the hours of 8:00am and 4:00pm and the data collection was done in 6 days, covering every area in sabo community at an average of eighteen per day to make 318 respondents based on the sample size calculation. After each questionnaire was administered, the research assistant checked for omission to ensure that all questions were answered appropriately.

3.12 Data Management and Analysis

Serial numbers were written on the copies of the questionnaire for easy entry and recall. A coding guide was developed along with the data collection tool in order to facilitate its analysis. Questionnaires were reviewed to ensure consistency and completeness. Cleaning, recording and coding of data for analysis were done. Using the coding guide, the data collected was carefully entered into the statistical software and analysed using descriptive statistics such as mean, median and mode and inferential statistics such as linear regression analysis. The results obtained from the Statistical Package for Social Science (SPSS version 21) analysis was summarized and presented in tables and charts.

Respondents' knowledge on oral hygiene was measured on a 14-point knowledge scale. Knowledge Score (KS) of < 4.2 was rated as very poor knowledge, ≥ 4.2 - < 5.6 was rated as poor, ≥ 5.6 - < 8.4 was rated as good, ≥ 8.4 - < 11.2 was rated as very good and ≥ 11.2 was rated excellent.

Respondents' attitude towards oral hygiene of their children (Ages 1-5) was measured on a 52 points scale, < 26 was considered negative attitude and > 26 was considered positive attitude.

Respondents' practices on oral hygiene of their age one to five children was measured on a 20-point practice scale. 10th, 20th and 30th percentile was rated very poor, 40th percentile was rated poor, 50th and 60th percentile was rated good, 70th and 80th percentile was rated very good and 90th percentile was rated as excellent

Linear regression analysis was used to test for the relationship between oral hygiene and level of education and also the relationship between knowledge and practice of personal hygiene among the respondents.

3.13 Ethical considerations

Ethical approval was sought and obtained from the Oyo state Ministry of Health Research Ethics Committee before going to the field for data collection. Also, written informed consent was attached to the questionnaire. To ensure confidentiality of research participants, identifiers such as names and other information that can reveal the identity of research participants was not included in the research instruments. The nature of the study, benefits and objectives was explained to the respondents and they were assured that the information given would be treated with utmost confidentiality. Respondents were also intimated about the opportunity to withdraw their consent freely at any point during the study. Confidentiality of each participant was maximally maintained during and after the collection of their information. Information gathered from the respondents was stored in the computer for analysis by the researcher while copies of the filled instruments were kept for maximum safety.

3.14 Study Limitation

This study reported practices of mothers on oral hygiene of their biological children, despite the fact that the author informed the respondents to provide honest answers, the author is unsure the degree of truthfulness of the reported practices.

CHAPTER FOUR

RESULTS

4.1 Respondents' Socio-demographic Characteristics

A total of 318 mothers of children under the age of five years were interviewed for this study and the socio demographic profile of the respondents are described and presented herein. The mean age of respondents was 28.6 ± 5.5 with majority of the mothers (69%) of ages between 21 years and 30 years old and the oldest mother in this study was 50 years old (Fig. 4.1). The respondents were predominantly of the Islamic religion (84%) while the Christians constituted 15.7% of the respondents, there was also a respondent who was a traditional religion follower. The marital status of respondents showed that most mothers interviewed (91.5%) were married, while the widowed mothers accounted for 3.1% of respondents, closely followed by single and divorced mothers at 2.2% each, separated mothers, however, recorded the least number of respondents at 0.9% with only 3 mothers (Table 4.1a).

One hundred and twelve mothers (35.2%) had completed secondary school education and closely followed by ninety two (28.9%) mothers who had Quranic educational background. A cumulative number of 59 mothers attended primary education, however, forty three (13.5%) mothers completed primary education, a smaller proportion of the mother attended tertiary education with seven (2.2%) completing tertiary education. Ethnicity of the respondents was predominantly of Hausa background (82%) followed by the Yoruba mothers (15.1%), Igbo and Igbira mothers at 1.3% each, there was also a mother interviewed who identified as a Togolese (0.3%) (Table 4.1b).

Table 4.1a: Socio-demographic characteristics of the respondents N=318

Variables		Frequency	Percentage (%)
Age	18 to 20 years	16	5.0
	21 to 30 years	219	69.0
	31 to 40 years	76	24.0
	41 to 50years	7	2.0
Religion	Islam	267	84.0
	Christianity	38	11.9
	Traditional	1	0.3
Marital Status	Single	7	2.2
	Married	291	91.5
	Divorced	7	2.2
	Widowed	10	3.1
	Separated	3	0.9

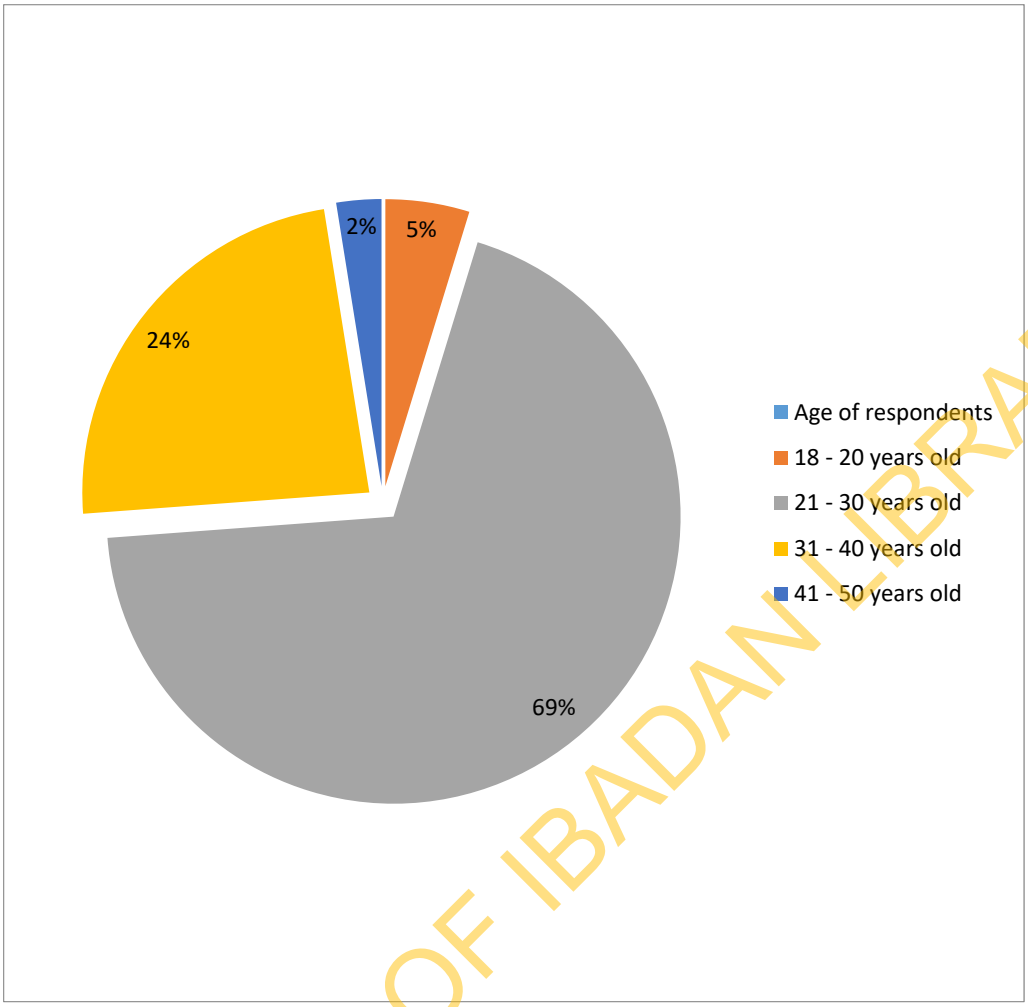


Figure 4.1: Age distribution of respondents

Table 4.1b: Socio-demographic characteristics of the respondents N=318

Variables		Frequency	Percentage (%)
Educational Level	No formal education	5	1.6
	Quranic education	92	28.9
	Primary school completed	43	13.5
	Primary school not completed	16	5.0
	Secondary school completed	112	35.2
	Secondary school not completed	25	7.9
	Tertiary completed	7	2.2
	Tertiary not completed	18	5.7
Ethnicity	Hausa	261	82.0
	Yoruba	48	15.1
	Igbo	4	1.3
	Igbira	4	1.3
	Togolese	1	0.3

The monthly income of interviewed mothers ranged from one thousand naira (₦1,000.00) to one hundred thousand naira (₦100,000.00). However, majority of the mothers (89.3%) earned lower than the Nigerian minimum wage of twenty thousand naira (₦20,000.00) while thirty-one mothers (10.7%) earned higher than the minimum wage. There were male children numbered up to three (3) among the respondents, though, most respondents (46.5%) had one male child, followed by 26.7% of the respondents with two male children. Female children distribution were however not as much as male children as the highest number of female children recorded by respondents was three (3) children, additionally, more than half of the respondents (55%) have a female child each and 20.8% have 2 female children each. The total number of male children was recorded at two hundred and forty nine (249) and the total number of female children was recorded at two hundred and fifty three (253) (See Table 4.1c).

About one-third of the selected children (34%) were of the age of four (4) years, followed by children aged five (5) years (26.1%), children aged one (1) year were the least number recorded at 5.3% of the children population. Furthermore, of all the selected children, they were composed of 51.3% female and 48.7% male children. More than half of the respondents were unemployed (54.7%) while one hundred and forty mothers identified as employed (Table 4.1d). Majority of the mothers (58.8%) however were housewives, followed by Traders (22.6%) and Tailors/Fashion Designers at 7.9%, other occupations include: teaching, decoration, food selling and hairdressing (Fig 4.2).

Table 4.1c: Socio-demographic characteristics of the respondents N=318

Variables		Frequency	Percentage (%)
Monthly Income	₦20,000 and below	284	89.3
	Above ₦20,000	34	10.7
Number of male children	One child	148	46.5
	Two children	85	26.7
	Three children	16	5.0
	None	69	21.7
Number of female children	One child	175	55.0
	Two children	66	20.8
	Three children	12	3.8
	None	65	20.4

Table 4.1d: Socio-demographic characteristics of the respondents (N=318)

Variables		Frequency	Percentage (%)
Age of selected child	One	17	5.6
	Two	46	14.5
	Three	63	19.8
	Four	108	34.0
	Five	83	26.1
Sex of selected child	Male	155	48.7
	Female	163	51.3
Employment status	Yes	140	44.0
	No	178	56.0

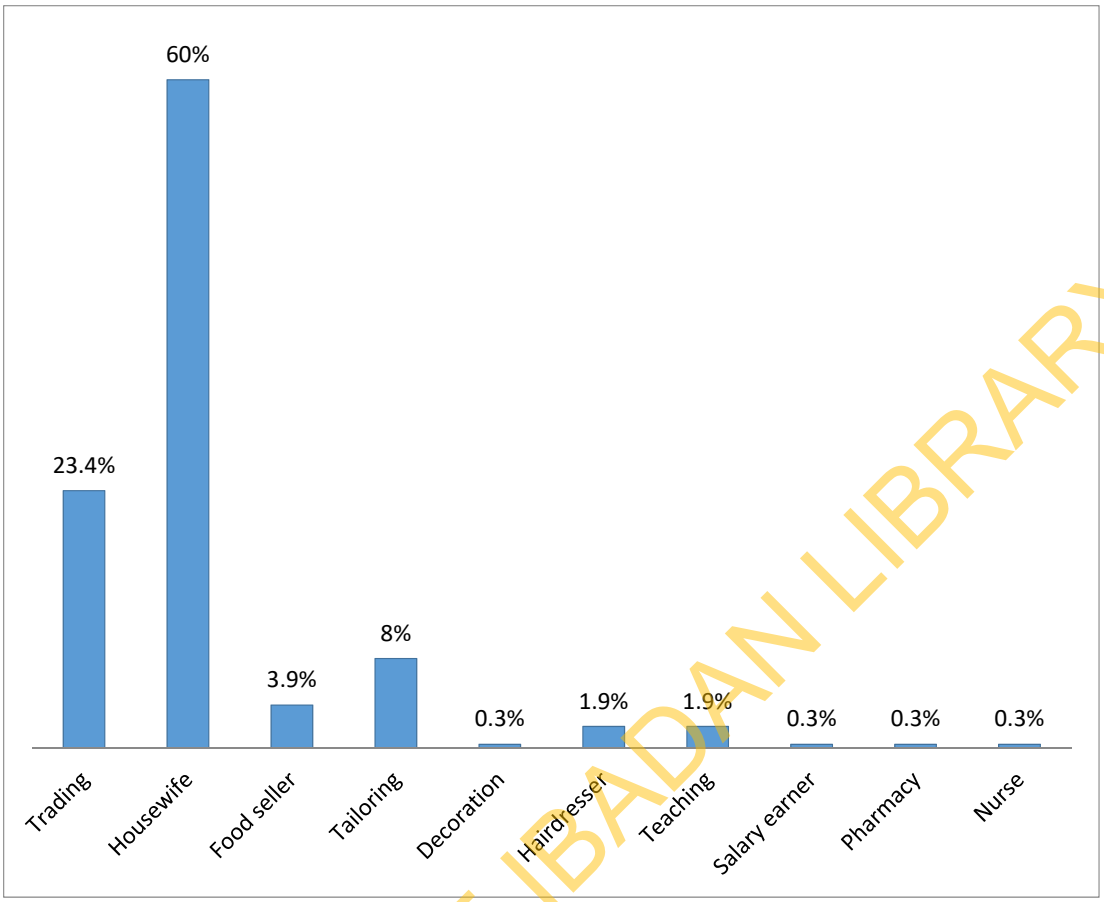


Figure 4.2: Type of work of respondents

4.2 Knowledge on Child Oral Hygiene among Respondents

Respondents were asked how many milk teeth are there in a child's mouth, majority of the respondents (98.7%) did not give the correct answer while only four (4) mothers were able to give the correct number of 20 teeth, these women contributed to 1.3% of the respondents. The respondents were further asked if healthy milk teeth are essential for children to chew the food properly, 7.2% of the respondents answered "no" while majority of the respondents (92.8%) replied "yes".

The respondents were asked which of "restricting sweets intake", "tooth brushing", "regular dental visit" and "fluoridated toothpaste" they think prevents tooth decay. Majority of the respondents (46.5%) selected two of the four options, followed by one hundred and fifteen (36.2%) respondents who selected "fluoridated tooth paste", however a small proportion of the respondents (3.5%) selected all four options made available.

When asked which of "chocolate", "bakery product" and "soft drinks" can lead to tooth decay, more than half of respondents (56.3%) selected "soft drinks" while 40.9% of the respondents selected two of the given options, however likewise, a small proportion of the respondents selected all three options given.

Also, when asked if sweet and fast foods can cause caries, majority of the respondents (88.4%) replied "yes" while 11.6% replied "no". Furthermore, majority of the respondents (95%) replied "yes" to "unclean mouth causing caries" while 5% of the respondents replied "no". Question on whether "daily cleaning of the teeth can prevent dental caries" was replied "yes" by 94.7% of the respondents. In addition, when the respondents were asked on "what material should you use to clean your child's mouth", majority (94.3%) selected the "toothpaste". Finally, more than half (55%) of the respondents were able to select "prevent tooth decay" as the answer to the question "what is the role of fluoride in toothpaste?"

The overall mean knowledge score of the respondents was calculated at 8.5 ± 1.9 from a possible score of 14. Respondents' overall knowledge on oral hygiene of their children was determined to be good at a percentage of 60.86%. However, at a percentage of 1%, mothers' knowledge of the number of milk teeth was determined to be very poor (Table 4.2). More than half had good knowledge (54.4%), one third (35.2%) had fair knowledge and 10.4% had poor knowledge. (Fig 4.3)

Table 4.2: Knowledge of respondents on oral hygiene of children

Question	Expected score	Mean Score	Std. Deviation	Percentage	Indicator
How many milk teeth are there in a child's mouth?	**1**	0.01	0.11	1.0	Very Poor
Healthy milk teeth are essential for children to chew the food properly	**1**	0.93	0.26	93.0	Excellent
Which of the following do you think prevents tooth decay?	**4**	1.85	0.79	46.3	Poor
Which of the following food items can lead to tooth decay?	**3**	1.46	0.55	48.7	Poor
Sweet and sweet fast foods can cause caries	**1**	0.88	0.32	88.0	Very Good
Unclean mouth can cause caries	**1**	0.95	0.22	95.0	Excellent
Daily cleaning of the teeth can prevent dental caries	**1**	0.95	0.23	95.0	Excellent
What material should you use to clean your child's teeth?	**1**	0.94	0.23	94%	Excellent
What is the role of fluoride in toothpaste?	**1**	0.55	0.50	55.0	Good
TOTAL	**14**	**8.52**	**1.86**	**60.9**	**Good**

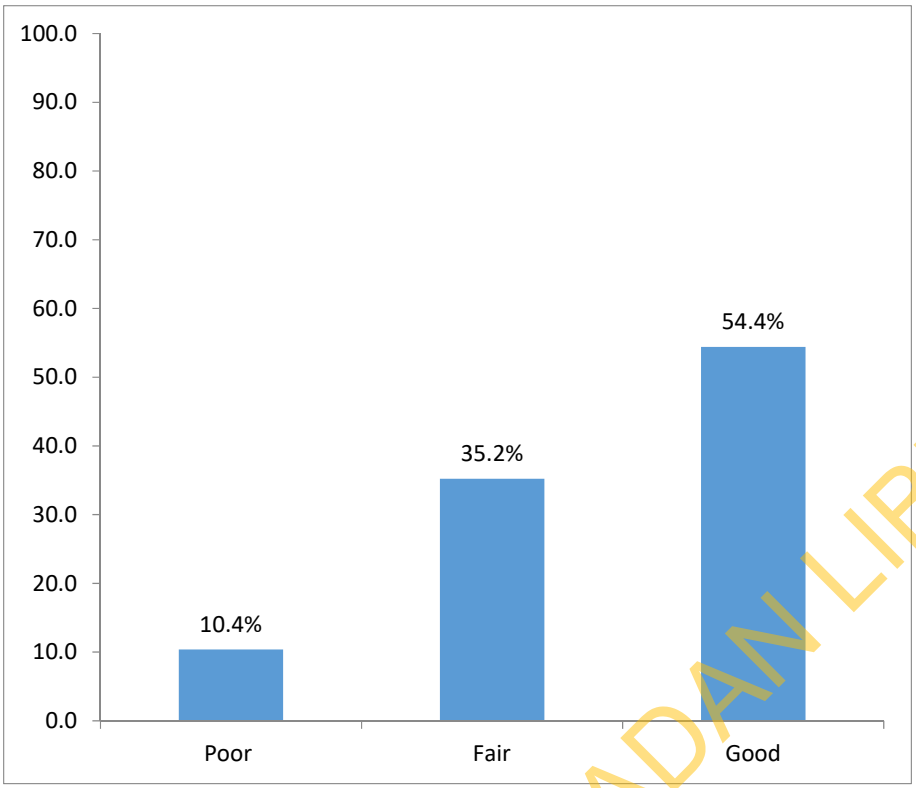


Figure 4.3: Knowledge distribution of respondents on oral hygiene

4.3 Respondents' attitude towards oral hygiene of their children

Majority 268 (84.3%) of the respondents strongly agreed to the statement that "adequate diet is essential for the healthy growth of your child's teeth". Also, there were 108 (34%) and 105 (33%) respondents who strongly agreed and agree to the statement that "it is necessary to take child for regular dental visits" respectively. The statement that "swallowing of toothpaste can be harmful to a child's health" was strongly agreed and agreed to by 124 (39%) and 121 (38.1%) respondents respectively. A cumulative proportion of more than half of the respondents (57.8%) strongly agreed and agreed to the statement that "effective cleaning of the teeth can be achieved by my child without help". Majority of the respondents (66%) strongly agreed that "cleaning of the child's teeth should be done by mothers", an equal proportion (65.1%) also strongly disagreed that "cleaning of the child's teeth should be done by the fathers". The statement that "it is necessary to clean the child's teeth after every meal" was strongly agreed to by a higher proportion of respondents (34.3%) followed by 97 (30.5%) respondents who also agreed to the statement.

There were 93 (29.2%) respondents who agreed that "milk teeth do not require adequate care as it will fall away" while 79 (24.8%) disagreed. The statement that "it is not necessary to brush my child's teeth with toothpaste" was strongly agreed to by 85 (26.7%) respondents and agreed to by 62 (19.5%) respondents. Additionally, ninety seven (30.5%) respondents strongly disagreed that "a child should be taken to the dental clinic only when there is a problem with his/her teeth" while eighty nine (28%) agreed. While most respondents (32.4%) agreed that "tooth decay is hereditary", there were 122 (38.4%) who strongly disagreed that "my child should visit the dentist before 2 years old". There were 90 (38.3%) respondents who disagreed that "use of fluoridated toothpaste is harmful to the child" (Table 4.3). Overall attitude of respondents was positive with score of 39.1 ± 6.6 (75.0%).

Table 4.3: respondents' attitude towards oral hygiene

Statements	Strongly Agree (%)	Agree (%)	Undecided (%)	Disagree (%)	Strongly Disagree (%)
Adequate diet is essential for the healthy growth of your child's teeth	268 (84.3)	43 (13.5)	0 (0.0)	4 (1.3)	3 (0.9)
It is necessary to take child for regular dental visits	108 (34.0)	105 (33.0)	11 (3.5)	63 (19.8)	22 (6.9)
Swallowing of tooth paste can be harmful to a child's health	124 (39.0)	121 (38.1)	16 (5.0)	33 (10.4)	18 (5.7)
Effective cleaning of the teeth can be achieved by my child without help	91 (28.6)	93 (29.2)	14 (4.4)	58 (18.2)	60 (18.9)
Cleaning of the child's teeth should be done by mothers	210 (66.0)	81 (25.5)	18 (5.7)	6 (1.9)	3 (0.9)
Cleaning of the child's teeth should be done by fathers	5 (1.6)	15 (4.7)	36 (11.3)	55 (17.3)	207 (65.1)
It is necessary to clean the child's teeth after every meal	109 (34.3)	97 (30.5)	14 (4.4)	57 (17.9)	37 (11.6)
Milk teeth do not require adequate care as it will fall away	66 (20.8)	93 (29.2)	22 (6.9)	79 (24.8)	52 (16.7)
It is not necessary to brush my child's teeth with toothpaste	85 (26.7)	62 (19.5)	8 (2.5)	87 (27.4)	75 (23.6)
A child should be taken to the dental clinic only when there is a problem with his/ her teeth.	86 (27.0)	89 (28.0)	16 (5.0)	30 (9.4)	97 (30.5)
Tooth decay is hereditary	70 (22.0)	103 (32.4)	39 (12.3)	70 (22.0)	31 (9.7)
My child should visit the dentist before 2 years old	40 (12.6)	45 (14.2)	37 (11.6)	74 (23.3)	122 (38.4)
Use of fluoridated toothpaste is harmful to the child	87 (27.4)	79 (24.8)	19 (6.0)	90 (28.3)	43 (13.5)

4.4 Practice of Mothers on oral hygiene of children

Respondents were asked if they "change their child's toothbrush every three months", majority 208 (65.4%) of the respondents stated that they always do so while 24 (7.5%) respondents never did. Also, more respondents (55%) always "offer sweets in the form of sweet itself, fast food and sugary beverages to their child" while one hundred and thirty one respondents (41.2%) sometimes engage in this practice. Furthermore, more respondents (46.5%) reported to sometimes "brush their child's teeth twice a day" than the respondents (40.3%) who reported to always engage in this practice. The "use of toothpaste to brush my child's teeth" was reported to be always by most of the respondents (73.9%) (Fig 4.4)

Majority 255 (80.2%) of the respondents responded "no" to the statement that "my child brushes by himself/herself without my help". Almost two-third of respondents (62.3%) stated that their children always "use toothpaste with assisted brushing". In response to "I ensure my child gaggles the mouth with salt and warm water every night", more respondents (43.1%) reported they sometimes engage in this practice (Table 4.4a).

Assessing the material used in cleaning respondents' children's mouth, it was found that most respondents (89.6%) used toothpaste, however, materials like tooth powder (5.3%), ash (4.1%) and snail back (0.6%) were also used (Fig 4.5).

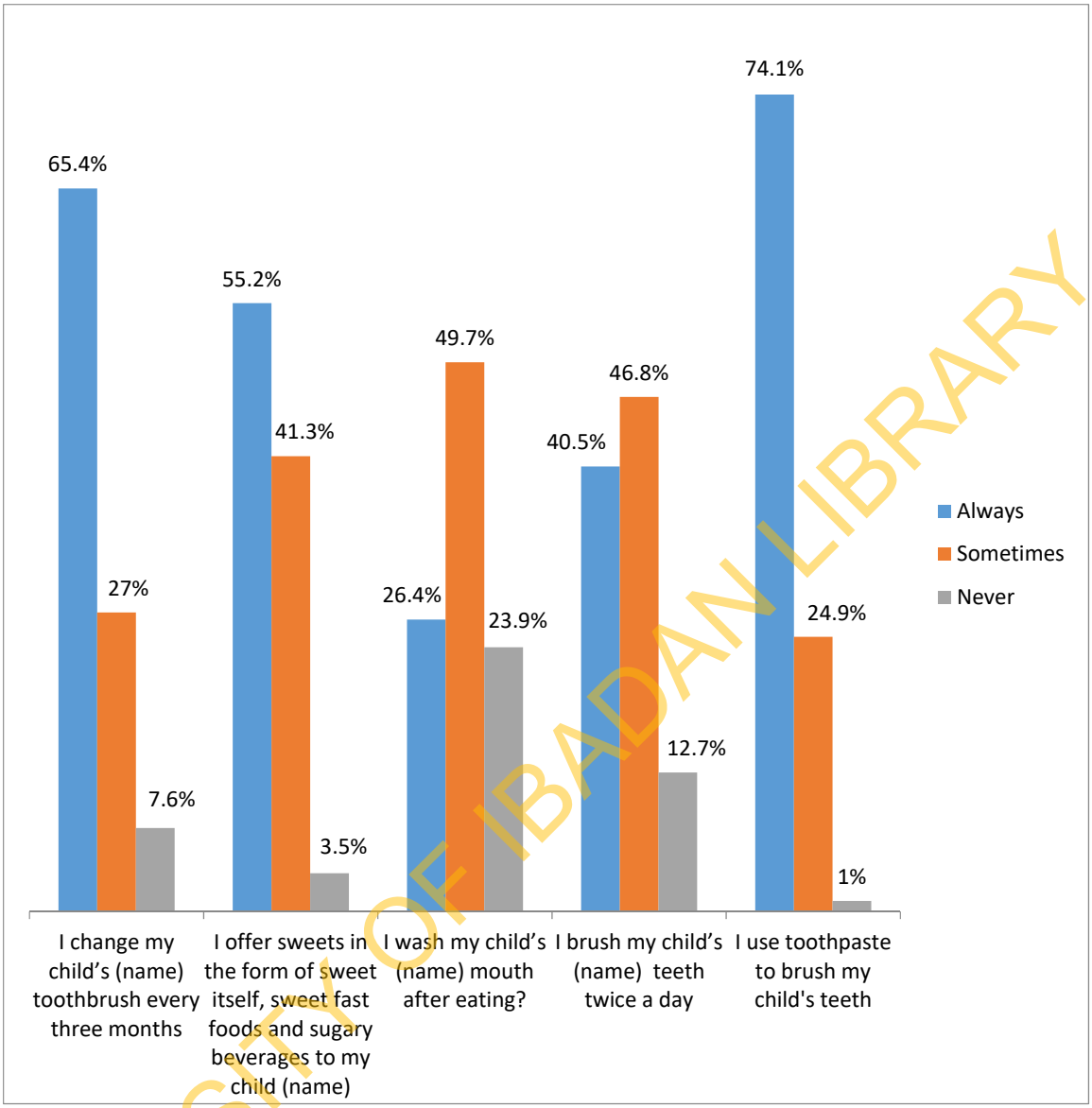


Figure 4.4: Respondents practice of oral hygiene of children

Table 4.4a: Practice of mothers on oral hygiene of children

Statement	Response	Frequency (%)
My child (name) uses toothpaste with assisted brushing	Always	198 (62.3)
	Sometimes	108 (34.0)
	Never	11 (3.5)
I ensure my child (name) gaggles the mouth with salt and warm water every night	Always	52 (16.4)
	Sometimes	137 (43.1)
	Never	129 (40.6)

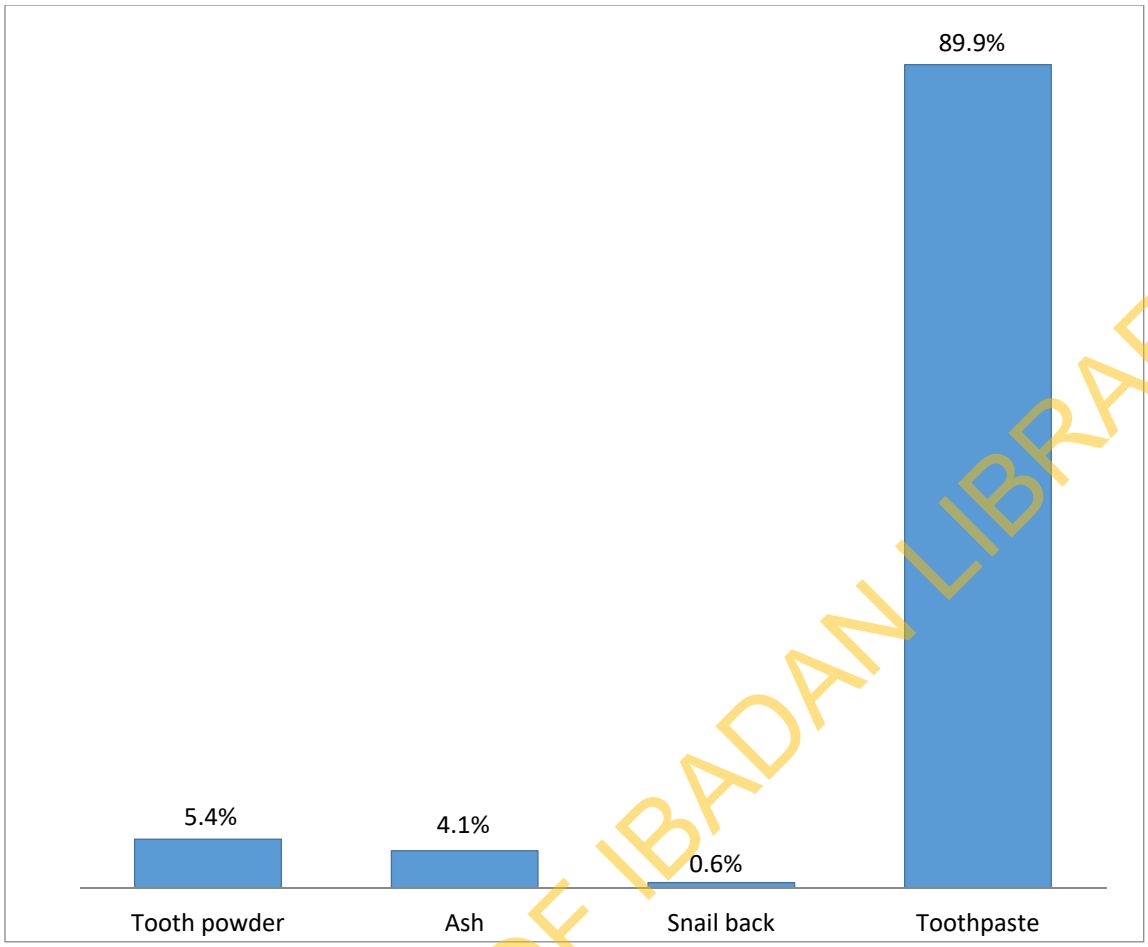


Figure 4.5: Materials used in oral hygiene care of children

Respondents were asked if they "take my child to the dental clinic whenever there is problem with the teeth", majority 254 (79.9%) of the respondents stated they never did. Also, in response to the statement that "in the last three months, dental flossing is done for my child", majority of the respondents (82.7%) claimed never to engage in this practice. In addition, more than half of the respondents (55.7%) never "use mouth wash for my child regularly", however, most respondents (46.2%) always "supervise my child's tooth brushing (Table 4.4b).

Majority of the respondents (62.9%) selected pea size when asked the statement "how much toothpaste do you use to brush your child's teeth" while 35.5% of the respondents selected "smear". Also, most of the respondents (84%) used toothbrush in "aids frequently used to clean your child's teeth". In "relieving pain or teething problem of your child", two hundred and seventy six (86.8%) respondents did nothing because there was no pain, while 6.9% of the respondents used Paracetamol. Also, most respondents (89.9%) did not "take their children to the dentist in the last 12 months". For the respondents who took their children to the dentist, majority (50.0%) did for pain while 15.4% did for tooth decay. For those who did not take their children to the dentist, most (96.6%) did not because there was no pain or discomfort (Table 4.4c). Overall, oral hygiene practice of respondents to their children was good with 56.1% having a mean score of 11.2± 3.1.

Table 4.4b: Practice of mothers on oral hygiene of children

Statement	Always (%)	Sometimes(%)	Never (%)
I take my child to the dental clinic whenever there is problem with the teeth	21 (6.6)	43 (13.5)	254 (79.9)
In the last three months, dental flossing is done for my child	15 (4.7)	38 (11.9)	263 (82.7)
I use mouth wash for my child regularly	30 (9.4)	108 (34.0)	177 (55.7)
How often do you supervise your child's tooth brushing	147 (46.2)	135 (42.5)	34 (10.7)

Table 4.4c: Practice of mothers on oral hygiene of children

Statement	Options	Frequency	Percentage
How much toothpaste do you use to brush your child's teeth	Smear	113	35.5
	Pea size	200	62.9
	Full brush length	1	0.3
	Not at all	4	1.3
Which of the following aids do you frequently use to clean your child's teeth?	Finger	5	1.6
	Cotton wool	19	6.0
	Toothbrush	267	84.0
	Chewing stick	1	0.3
	Foam	26	8.2
What do you use to relieve pain or teething problem of your child	Nothing	276	86.8
	Paracetamol	22	6.9
	Touch and Go	2	0.6
	Salt and Water	4	1.3
	Vitamin C	3	0.9
Did you take your child to the dentist in the last 12 months	Yes	28	8.8
	No	286	89.9
If Yes, what for?	Pain	13	50.0
	Tooth decay	4	15.4
	Tooth ache	5	19.2
	Bleeding gum	3	11.5
	Medical check	1	3.8
If No, why?	Fear	7	2.2
	No dentist available	2	0.6
	High cost of treatment	1	0.3
	No pain or discomfort	283	89.0

4.5 Dental History

Majority 282 (88.7%) of the respondents selected “no” when asked “has your child ever experienced dental decay”, also 86.8% of the respondents also selected “no” when asked “has your child ever had tooth extraction before” (Fig 4.6). More than two-third (71.7%) of respondents’ children had no history of dental problem; however, tooth decay contributed most (16.7%) to the dental problems recorded by the respondents, followed by bleeding gum (8.5%) and discoloration of tooth (2.5%) (Fig 4.7).

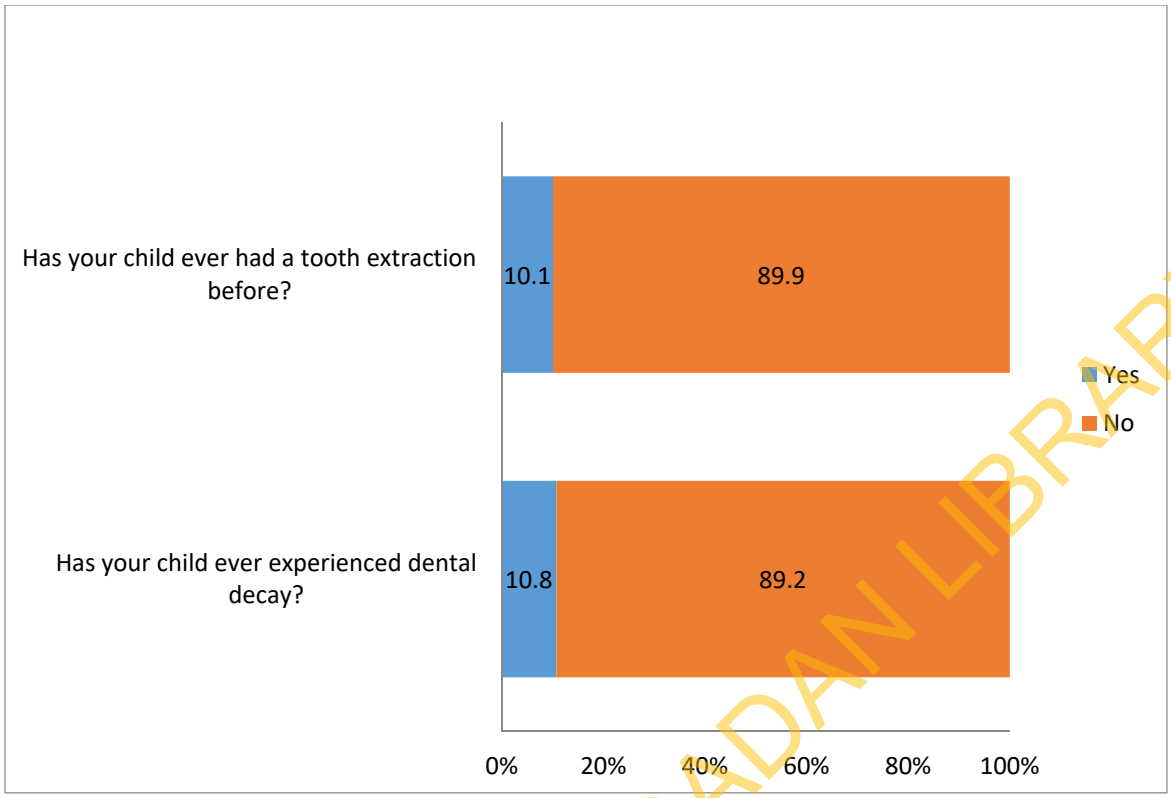


Figure 4.6: Dental history of children

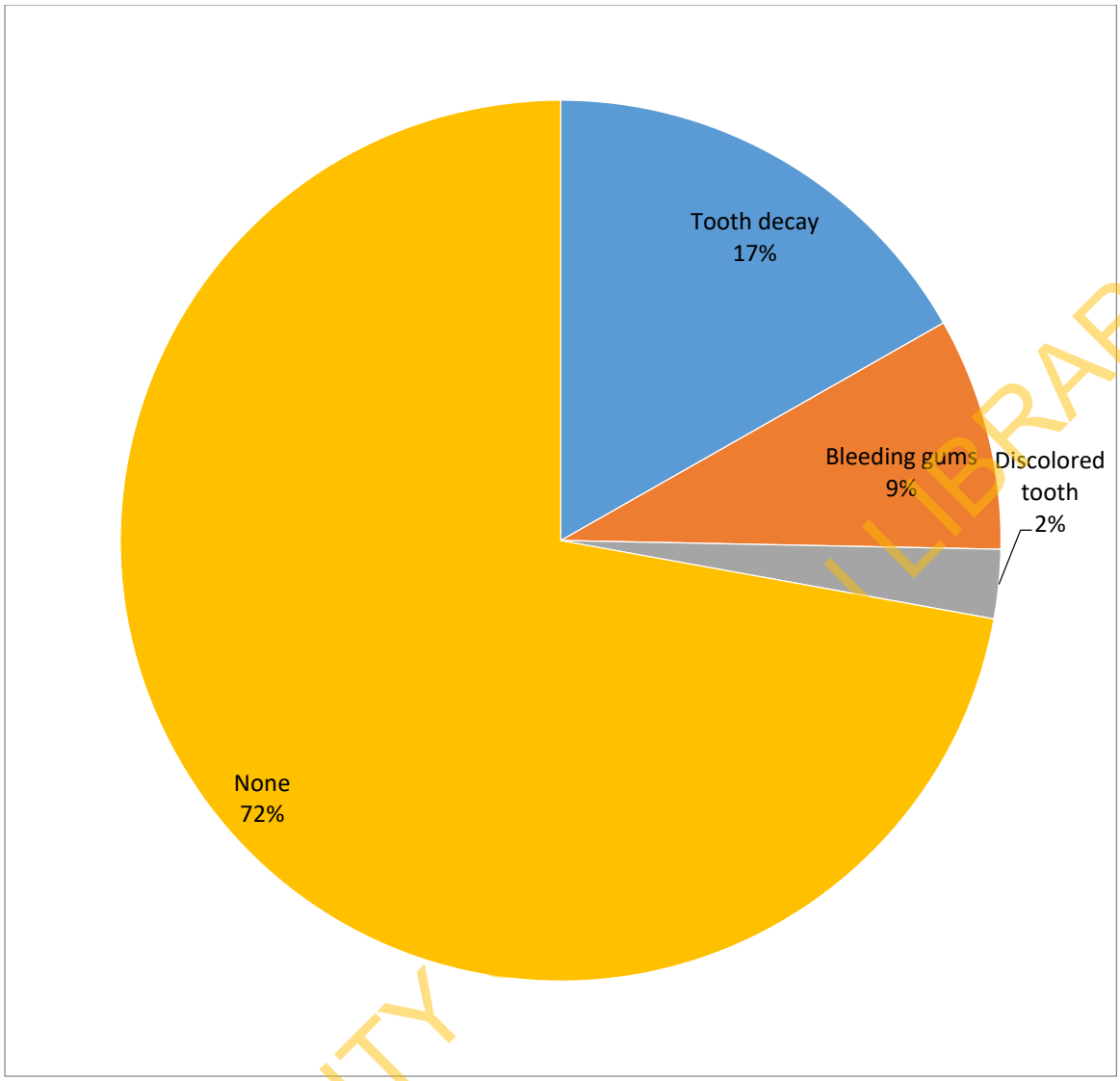


Figure 4.7: Common dental problems among children

4.6 Respondents' Perceived oral health hygiene status of their children

More than half (58.8%) of the respondents perceived the health of the teeth and gums of their children as good, while 102 (32.1%) respondent perceived their children's teeth and gum to be very good (Table 4.5).

Table 4.5: Respondents'over all perception of their child's teeth and gum health

	Frequency	Percentage
Very good	102	32.1
Good	187	58.8
Average	27	8.5
Don't know	2	0.6

4.7 Test of Hypotheses

The results of the hypotheses tested are shown below:

Hypothesis 1: There is no significant relationship between level of education and knowledge on child oral hygiene among Mothers of age one to five children in Sabo community, Mokola, Ibadan, Oyo state. The result of the finding is shown in Table 4.6. Linear regression analysis was used to test if there is a relationship between level of education and knowledge and it was found that there is no significant relationship statistically with P = 0.996. This means that the level of education of mothers has no significant influence on their knowledge of oral hygiene of their children. Therefore, the null hypothesis was accepted.

Hypothesis 2: There is no significant relationship between the knowledge and practices of child oral hygiene among mothers of age one to five children in Sabo community, Mokola, Ibadan, Oyo state. The result of the finding is shown in Table 4.7. Linear regression analysis was used to test if there is a relationship between and practice of child oral hygiene and it was found that there is a relationship statistically at 0.399 with P = 0.00. This means that Mothers' who have good knowledge on child oral hygiene are 0.399 times more likely to have good practice of Oral hygiene. Therefore, the null hypothesis was rejected.

Table 4.6: Relationship between level of education and knowledge on child oral hygiene

Model		Sum of Squares	Df	Mean Square	Sig.	R Square	Null hypothesis
1	Regression	0.000	1	0.000	0.996	0.00	Accepted
	Residual	1093.421	316	3.460			
	Total	1093.421	317				

Table 4.7: Relationship between knowledge on child oral hygiene and practice of oral hygiene

Model		Sum of Squares	Df	Mean Square	Sig.	R Square	Null hypothesis
1	Regression	434.793	19	12.884	0.000	0.399	Rejected
	Residual	656.052	296	2.216			
	Total	1090.845	315				

CHAPTER FIVE

5.0 DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1 Discussion

This study explores the knowledge, attitude and practice of Mothers on oral hygiene of their biological children (1-5 years) in Sabo community, Ibadan.

This chapter explains the result presented in the previous chapter. The demographic characteristics of the respondents, their knowledge of child oral hygiene, and attitude towards child oral hygiene were investigated. The practice of oral hygiene on children was also determined. The implication of the findings of this study to health promotion and education was discussed and recommendations were made at the end of this report.

5.1.1 Respondents' Socio-demographic characteristics

The age of the respondents ranged from 18 years to 50 years old with a mean age of 28.6 ± 5.5. Majority of the respondents (69.0%) falls between the range of 21-30 years of age which is an indication that most of the respondents are young mothers with most of them (91.4%) being married.

Respondents were predominantly (81.8%) of Hausa ethnic background, coupled with most of the mothers (84%) being Muslim, this is expected as the study location (Sabo) is a Hausa dominated geographical location in Ibadan, Oyo State. Furthermore, 69.5% of the respondents had attended a formal institution of learning, either the primary school, secondary school or tertiary institution; this shows a good level of literacy, however this result is higher than the Nigerian literacy percentage of 59.3% for young women recorded by the National Bureau of Statistics (2017).

Majority of the respondents (89.3%) earned below the Nigerian minimum wage monthly, this might be attributed to the employment status of the mothers as more than half (54.7%) of the respondents are unemployed, unemployment is major challenge in the Nigerian economic setting, from data published by the National Bureau of Statistics (2017), the unemployment rate as at the third quarter of 2017 was 18.8%.

5.1.2 Respondents' knowledge on child oral hygiene

Findings from this study show that majority of the mothers (91.19%) had good knowledge of child oral hygiene; this however cannot be attributed to their level of education. Since linear regression statistical analysis show that respondents' level of education had no significant statistical influence on their knowledge of child oral hygiene (P = 0.996). This current finding is contrary to those findings of Jain *et al.* (2014) where mothers with higher education presented better knowledge of child oral hygiene. The absence of relationship between educational status and mothers' knowledge of dental health shows the need for oral health education, Oredugba *et al.* (2014) reported that only 58.7% of Nigerian mothers have been adequately exposed to oral health education.

The respondents possessed a good level of knowledge on the role of fluoride in dental care. This can be deduced from their responses. Most of the respondents agreed that fluoride prevents tooth decay. This is supported by studies by Franzman *et al.* (2004), Kamolmatyakul *et al.* (2007) and Gussy *et al.* (2008) which reported good knowledge of mothers about fluoride. A very good level of knowledge was recorded by the respondents on the relationship of diet and dental caries especially sweet and sweet fast food, this was also similar among mothers in India, who were able to link dental caries in their children to the diet intake, they believed that sweet snacks and sweet drinks contribute to caries (Suresh *et al.,* 2010).

However, respondents displayed a poor level of knowledge on the number of milk teeth in child, their knowledge on the prevention of tooth decay and items that can lead to tooth decay, this is similar to that of Mubeen *et al.* (2015) where a low level of knowledge was recorded on causes of caries as well as the relationship of regular brushing and prevention of caries and tooth decay.

5.1.3 Respondents attitude towards child oral hygiene

Attitude toward a behaviour is a person's overall evaluation of the behaviour and an individual's attitude towards an intended behaviour is likely to be positive if it's perceived that the result from the behaviour will be positive (Fen and Sabaruddin, 2008).

The mean attitudinal score was 39.1 ± 6.58 and it was shown that 75% of the respondents have a positive attitudinal disposition towards oral hygiene. This can be attributed to the good level of knowledge the respondents possessed on oral hygiene. This finding is similar to Virtanen *et al.* (2008) where mothers showed mainly positive attitudes towards oral health, considering dental decay and its potential consequences as serious, and regarding dental disease as important to be as other diseases. Contrary to this however, is the study by Sehrawat *et al.* (2016) which indicated that few mothers had positive attitude on oral hygiene, also from study conducted by Suresh *et al.* (2010), many of the mothers in the study believed that cavities in baby's teeth do not matter.

5.1.4 Respondents practice of child oral hygiene

The American Dental Association (ADA) recommends that parents wipe their child's gums with clean cotton after each feeding, and tooth brushing should be started when the first tooth erupts with a baby toothbrush, along with low sugar consumption and not sleeping with bottles. The child must have dental visit at the age of 1 year followed by regular checkups for every 6 months (Meurman, Pienihakkinen, Eriksson and Alanen, 2009). The practice of the use of toothbrush and toothpaste was high among the respondents, 65% of the respondents changed their child's tooth brush every three months, this was however different from finding by Mubeen *et al.* (2015) who indicated that only 14% mothers replaced their child's tooth brush after 3 months while fluoridated toothpaste was used by 37.7% of mothers.

While respondents showed good knowledge of the effect of sweet and sweet fast food on the dental health of children, most respondents still always offer sweets and sugary beverages to their children. This is contrary to their display of knowledge and plays a significant role in contributing to incidence of bad oral hygiene. Albeit this, the prevalence of dental decay was very low (11.3%).

It is suggested that the earlier a child visits the dentist, the greater would be his likelihood of being caries-free. However, majority of respondents (89.9%) have never taken their child to the dentist in the last 12 months. According to Farid *et al.* (2013), most mothers didn't know that their children needed to visit a paediatric dentist in the first year of life, leaving a large number of infants potentially vulnerable to tooth decay and disease, this lack of awareness was reflected

in another study by Mubeeen *et al.* (2015) where almost half of mothers had never visited the dentist.

Among the reasons given by the respondents for not visiting the dentist are: "no pain or discomfort"(89%); "high cost of treatment" (0.3%) and "no dentist available" (0.6%), it is evident here that mothers did not feel the need to go to the dentist as their children did not display any form of pain or discomfort, an opinion also shared by Jain *et al,* (2014) that the factors responsible for irregular visits and follow-up could vary depending on financial status, fear and lack of awareness and motivation. Mothers who visited the dentist did so because pain (50%); tooth decay (15.4%); tooth ache (19.2%); bleeding gum (11.5%) and medical check (3.8%).

There was a significant association between the knowledge of mothers and their practice of oral hygiene for their children (P = 0.00), Mothers' who have good knowledge on child oral hygiene are 0.399 times more likely to have good practice of Oral hygiene

5.2 Implication of the study findings for health promotion and education

Health promotion is a combination of educational and environmental supports for actions and conditions of living conducive to health, it involves the process of enabling people to increase control over, and to improve, their health and its determinant. In order to promote health, health promotion is guided by some major components one of which is health education to improve health knowledge, health attitudes, health skills, health behaviours, health indicators and health status.

This study has identified fundamental information surrounding child oral hygiene among mothers in Sabo area of Ibadan, while the mothers have good knowledge of oral hygiene, it was however insufficient to suggest that they are highly knowledgeable owning to the very poor knowledge of milk teeth and causes of dental caries in children. One of the significant findings of this study however is that mothers' level of education have no influence on their knowledge of child oral hygiene. Therefore in an attempt to increase the knowledge of mothers on child oral hygiene, there is no need to segregate mothers by their level of education. For this study, a higher proportion of the mothers were young (21 to 30 years old), to improve their knowledge also, the use of an older role model will play significant role.

Furthermore, this study established that knowledge of Mothers drive their practices of oral hygiene especially care seeking behaviour with the dentist. Most of the mothers exhibited low level of knowledge on the importance of dentist visitation and it influenced their willingness to practice this. Findings showing that more mothers are housewives will allow for house-to-house health education while adopting the Community Directed Intervention approach with the use of appropriate and suitable Information, Education and Communication (IEC) materials laying emphasis on the benefits of good dental hygiene for children.

5.3 Conclusion

According to Nakre *et al.* (2013), young children's oral health maintenance and outcomes are influenced by their parent's knowledge and beliefs, which affect oral hygiene and healthy eating habits. In the preventive cycle, parent's knowledge and positive attitude toward good dental care are very pertinent. It has been found that the more positive is the parents' attitudes toward dentistry; the better will be the dental health of their children.

This study has revealed a low level of good oral hygiene practice across different areas, especially in diet choice and care seeking behaviour of mothers in Sabo area of Ibadan and also revealed that these mothers have good knowledge and positive attitudinal disposition notwithstanding. The study also highlighted that mothers educational level does not affect her knowledge of oral hygiene be it Quranic education or tertiary education, all the mothers across all levels had peculiar lack of knowledge of the number of milk teeth and the causes of dental carries, which was translated into their choice of diet including sweets and sugary beverages for their children.

5.4 Recommendations

In view of the findings, the following recommendations were made:

1. Community level programmes e.g community based campaigns, seminars, etc. that can increase mother's knowledge on child oral hygiene, and further strengthen good oral health practices should be done by the community leaders and the stakeholders.
2. Enlightenment campaigns among women groups in the community, emphasizing the dangers of children consuming sweetened foods and the importance of discouraging giving of sweetened products which can lead to the development of dental caries should be intensified by the local governments and other NGOs working on improvement of child health.

5.5 Suggestions for further research

1. Further studies should explore the influence of external factors on the practice of good oral hygiene
2. Further studies should examine why mothers never take their child to dental clinic
3. Observational studies should be conducted to provide strong evidence on the teeth brushing practices of Mothers and children.

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APPENDIX I

Knowledge, Attitude and Practices of mothers on oral hygiene of their biological children (1-5) in Sabo community, Ibadan North Local Government Area, Oyo State

INFORMED CONSENT FORM

IRB Research Approval Number:

This Approval will elapse on:

Title of Research: *Knowledge, Attitude and Practices of mothers on oral hygiene of their biological children (1-5) in Sabo community, Ibadan North Local Government Area, Oyo State.*

Name and Affiliation of Researcher: OYEDIJI Tolulope O, a Postgraduate student in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan is carrying out this study.

Purpose of research: The purpose of this study is to investigate the Knowledge, Attitude and Practices of mothers on oral hygiene of their biological children (1-5) in Sabo community, Ibadan North Local Government Area, Oyo State

Research Procedure: The study will involve the use of a questionnaire to elicit information from study participants. A total of 318 Mothers of children aged 1-5 in Sabo community selected through a total sampling technique will be requested to fill the questionnaire.

Expected duration of research and Participants' involvement: Each research participant is expected to fill the questionnaire which will not take more than 30-45 minutes. You will be asked a number of questions and your answers will be recorded in the questionnaire the questionnaire will be collected back from you immediately after the interview. The research is expected to last for two months in Sabo community.

Risk: There are no major risks involved in participation in the study. This research will not cause any physical harm; it will not involve the utilization of any invasive procedures or collection of

biological samples. However, it will take part of your time and you may however find some of the questions uncomfortable.

Cost to participants: Participation in this research will not have any financial cost to you but will require only about 30-45 minutes of your time.

Benefit: The results of the research may not be beneficial to you as an individual. It will however, be useful for the formulation of policies and the design of educational interventions for preventing oral problems of children between the ages of 1-5 in Sabo community.

Confidentiality: All identifiers will be removed from the questionnaire and confidentiality will be ensured through protection of data collected from you.

Voluntariness: Your participation in this study is voluntary. You have the right to choose to participate in the study or not without any penalty.

Alternatives to Participation: You are at liberty to participate in the study. Your decision not to participate will not be used against you in anyway.

Undue Inducement/Influence: Please be informed that no payment will be made to any participant for participating in this research. Individuals who consent to participate in the study will be appreciated verbally.

Consequences of participants' decision to withdraw from research and procedure for orderly termination of participation: Participants can choose to withdraw from the study any time they wish without reprove. However, any information gathered prior to withdrawal may be used in reports or publication.

What happens to participant and community after the study: To ensure study participants are not left in the dark, the results of the study will be sent to the Oyo State Ministries of Education and Health. The results of the study will also be made available to the opinion leaders of your community (Sabo).

Any apparent potential conflict of interest: There is no conflict of interest pertaining to this study.

Statement of person obtaining informed consent:

I have fully explained the nature and scope of the research to……..…….. In addition I have given sufficient information including risks and benefits to enable him/her make an informed decision to participate or not participate.

Date: _____ **Signature:** _____

Name: _____

Statement of person (i.e. Interviewee) giving informed consent: The research has been fully explained to me and I understand the study process and the nature of the research. I understand that my participation is voluntary. I know enough about the purpose, methods, risks and benefits of the research to judge that I want to take part in it. I am aware that I have the right to freely stop being part of this study at any time. I have received a copy of this consent form to keep for myself. I hereby agree to participate in the study by answering the questions contained in the questionnaire

Date: _____ **Signature:** _____

PLEASE KEEP A COPY OF THIS SIGNED INFORMED CONSENT FORM

APPENDIX II

QUESTIONNAIRE **Serial no:**

Dear Respondent,

Good day Sir/Ma, my name is **OYEDIJI, Tolulope O.** I am a postgraduate student of the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan. I am conducting this study to investigate on the **"Knowledge, Attitude and Practices of Mothers on oral hygiene of their biological children (1-5 years) in Sabo community".** This study will yield information that can be used in developing health intervention programs to improve oral hygiene management and decrease opportunity for tooth diseases. There are no right or wrong answers to the questions asked or the statements made, what is desired of you is your truthful and honest responses. Please note that the completion of this questionnaire is entirely voluntary. All information gathered as a result of your participation in this study will be treated with utmost confidentiality and will be used strictly for research purposes only.

Thank you.

Do you voluntarily agree to participate in the study?

If yes, tick the appropriate box below and thank the participant.

If no, tick the appropriate box below and thank the participant.

1. Agree [ ] 2. Disagree [ ]

SECTION A: SOCIO-DEMOGRAPHIC INFORMATION

Please tick (√) any of the responses that apply to you in the options provided or complete the blank spaces provided as applicable.

1. Age (in years) at last birthday: _____
2. Religion: 1. Islam [ ] 2. Christianity [ ] 3. Traditional [ ] 4. Others (specify)_____
3. Marital Status: 1. Single [ ] 2. Married [ ] 3. Divorced [ ] 4. Widowed [ ] 5. Separated [ ]
4. Level of Education: 1. No formal education [ ]

2. Quranic education [ ]
3. Primary school, Completed [ ] Not completed [ ]
4. Secondary school, Completed [ ] Not completed [ ]
5. Tertiary school, Completed [ ] Not completed [ ]

5. Ethnic Group: 1. Hausa [ ] 2. Yoruba [ ] 3. Igbo [ ] 4. Others (specify)_____
6. Average monthly income from all sources: _____
7. Number of children between ages 1 and 5: 1. Total male _____
   2. Total female _____

(If more than one child fall between ages 1 and 5, the interviewer should ballot to select the index child for reference to the interview)

8. Age of the selected child _____
9. Sex of the selected child _____
10. Are you currently employed: 1. Yes [ ] 2. No [ ]
11. What type of work do you do? _____

SECTION B: KNOWLEDGE OF MOTHERS ON ORAL HYGIENE OF THEIR BIOLOGICAL CHILDREN (1-5 YEARS)

S/N	QUESTION	RESPONSE	SCORE
12	How many milk teeth are there in a child's mouth?		
13	Healthy milk teeth are essential for children to chew the food properly	1. Yes [ ] 2. No [ ] 3. I don't know [ ]	
14	Which of the following do you think prevents tooth decay? (Multiple choice possible)	1. Restricting sweets intake [ ] 2. Tooth brushing [ ] 3. Regular dental visits [ ] 4. Fluoridated toothpaste [ ]	
15	Which of the following food items can lead to tooth decay?	1. Chocolates [ ] 2. Bakery products [ ]	

	(Multiple choice possible)	3. Soft drinks [ ]	
16	Sweet and fast foods can cause caries	1. Yes [ ] 2. No [ ] 3. I don't know [ ]	
17	Unclean mouth can cause caries	1. Yes [ ] 2. No [ ] 3. I don't know [ ]	
18	Daily cleaning of the teeth can prevent dental caries	1. Yes [ ] 2. No [ ] 3. I don't know [ ]	
19	What material should you use to clean your child's (name) mouth? (Ask the interviewee to choose one)	1. Tooth powder [ ] 2. Ash [ ] 3. Snail back [ ] 4. Grinded broken plates [ ] 5. Potash [ ] 6. Toothpaste [ ] 7. Others [ ]	
20	What is the role of fluoride in toothpaste?	1. Prevents tooth decay [ ] 2. Prevents gum problems [ ] 3. Gives freshness [ ] 4. I don't know [ ]	

SECTION C: ATTITUDE OF MOTHERS ON ORAL HYGIENE OF THEIR BIOLOGICAL CHILDREN (1-5 YEARS)

I am going to read some statements, please tell me whether you

SA: STRONGLY AGREE; A: AGREE; U: UNDECIDED; D: DISAGREE; SD: STRONGLY DISAGREE

S/N	STATEMENT	STRONGLY AGREE	AGREE	UNDECIDE	DISAGRE	STRONGLY

				D	E	DISAGREE
21	Adequate diet is essential for the healthy growth of my child's teeth					
22	It is necessary to take my child for regular dental visits					
23	Swallowing of tooth paste can be harmful to my child's health					
24	Effective cleaning of the teeth can be achieved by my child without help					
25a	Cleaning of my child's teeth should be done by me					
25b	Cleaning of the child's teeth should be done by fathers					
26	It is necessary to clean my child's teeth after every meal					
27	Milk teeth do not require adequate care as it will fall away					
28	It is not necessary to brush my child's teeth with toothpaste					
29	A child should be taken to the dental clinic only when there is a problem with his/ her teeth.					
30	Tooth decay is hereditary					
31	My child should visit the dentist before 2 years old					
32	Use of fluoridated toothpaste is harmful to my child					

SECTION D: PRACTICES OF MOTHERS ON ORAL HYGIENE OF THEIR BIOLOGICAL CHILDREN (1-5 YEARS)

S/N	STATEMENT	RESPONSE
33	I change my child's (name) toothbrush every three months	1. Always [ ] 2. Sometimes [ ] 3. Never [ ]
34	I offer sweets, fast foods and sugary beverages to my child (name)	1. Always [ ] 2. Sometimes [ ] 3. Never [ ]
35	I wash my child's (name) mouth after eating	1. Always [ ] 2. Sometimes [ ] 3. Never [ ]
36	I brush my child's (name) teeth twice a day	1. Always [ ] 2. Sometimes [ ] 3. Never [ ]
37	I use toothpaste to brush my child's teeth	1. Always [ ] 2. Sometimes [ ] 3. Never [ ]
38	My child (name) brushes by himself/herself without my help	1. Yes [ ] 2. No [ ]
39	My child (name) uses toothpaste with assisted brushing	1. Always [ ] 2. Sometimes [ ] 3. Never [ ]
40	I ensure my child (name) gaggles the mouth with salt and warm water every night	1. Always [ ] 2. Sometimes [ ] 3. Never [ ]

41	I use any of the following to clean my child's mouth (pick one)	1. Tooth powder [ ] 2. Ash [ ] 3. Snail back [ ] 4. Grinded broken plates[ ] 5. Potash [ ] 6. Toothpaste [ ] 7. Others
42	I take my child (name) to the dental clinic whenever there is problem with the teeth	1. Always [ ] 2. Sometimes [ ] 3. Never [ ]
43	In the last three months, dental flossing is done for my child (name)	1. Always [ ] 2. Sometimes [ ] 3. Never [ ]
44	I use mouth wash for my child (name) regularly	1. Always [ ] 2. Sometimes [ ] 3. Never [ ]
45	How often do you supervise your child's (name) tooth brushing	1. Always [ ] 2. Sometimes [ ] 3. Never [ ]
46	How much toothpaste do you use to brush your child's (name) teeth	1. Smear [ ] 2. Pea size [ ] 3. Full brush length [ ] 4. Not at all [ ]
47	Which of the following aids do you frequently use to clean your child's (name) teeth?	1. Finger [ ] 2. Cotton wool [ ] 3. Toothbrush [ ] 4. Chewing stick [ ] 5. Foam [ ] 6. Others [ ]
48	What do you use to relieve pain or teething problem of your child (name)	

49	Did you take your child (name) to the dentist in the last 12 months	1. Yes [ ] 2. No [ ]
50	If Yes, what for?	
51	If No, why? (Ask the interviewee to choose one)	1. Fear [ ] 2. No dentist available [ ] 3. High cost of treatment [ ] 4. No pain or discomfort [ ]

OTHER GENERAL QUESTIONS

DENTAL HISTORY

52	Has your child (name) ever experienced tooth decay?	1. Yes [ ] 2. No [ ]	
53	Has your child (name) ever had a tooth extraction before?	1. Yes [ ] 2. No [ ]	
54	What is the most common dental Problem your child (name) has experienced? (Ask the interviewee to choose one)	1. Tooth decay [ ] 2. Bleeding gums [ ] 3. Discoloured tooth [ ] 4. None [ ]	
55	How often did your child (name) experience pain or discomfort in his/her teeth and gums in the last 12 months	1. Many times [ ] 2. Occasionally [ ] 3. Never [ ] 4. Don't know [ ]	
56	PERCEPTION How will you describe the health of the teeth and gums of your child (name)	1. Very good [ ] 2. Good [ ] 3. Average [ ] 4. Poor [ ] 5. Very poor [ ] 6. Don't know [ ]	

APPENDIX III

TAMBAYOYI

Masoyi Mai su Amsawa,

Barka da rana Sir / Ma, sunana **OYEDIJI, Tolulope O**. Ni dan dalibi digiri na Sashen Harkokin Kiwon Lafiya gabatarwa da Ilimi, Makarantar Kiwon Lafiyar Jama'a, Kolejin magani, Jami'ar Ibadan. Ina gudanar da wannan binciken domin bincike game da **"llimi, Halin da Ayyuka na Iyaye akan tsabta baki na 'ya'yansu (shekaru 1-5) a cikin al'ummar Sabo".** Wannan binciken zai samar da bayanan da za a iya amfani dashi wajen inganta shirye-shiryen maganin kiwon lafiya don inganta kulawa da tsabtace baki da kuma ar'rage damar samun ciwon hakori. Babu amsoshin da ba daidai ba gamar da tambayoyin da aka tambaye ko bayani da aka yi, abin da ake so daga gare ku shine amsoshinku na gaskiya da gaskiya. Don allah a lura cewa kammalawa/cikawa wannan tambayoyin gaba daya da son rai na. Dukka bayanai da aka tattara saboda sa hannu da kuka yi a cikin wannan binciken za a bi da ku tare da cikakkiyar/matuqar tsarem sirri kuma za a yi amfani dasu don dalilai na bincike kawai.

Na gode.

Ke yarda da son rai ke za ke sa hannu a cikin binciken?

Idan haka ne, ke zaba akwatin da ya dace/dai dai a ƙasa kuma ku gode wa mai halarta/shiga.

Idan ba haka ba, ke zaba akwatin da ya dace/dai dai a ƙasa da kuma gode wa mai halarta/shiga.

1. Na yarda [ ] 2. Ba yarda ba [ ]

SASHE NA A: BAYANI NA ZAMAN JAMA''A CIKIN ALUMA
Don Allah a zaba (√) duk wani martani da ya shafi ka a cikin zabi da aka samar ko ka cika wuraren da aka ba su kamar yadda ya shafi ke

1. Shekaru (a cikin shekaru) a ranar haihuwar ƙarshe: _____
2. Addini: 1. Musulunci [ ] 2. Kiristanci [ ] 3. Addini al'adun [ ] 4. Wasu (saka) _____
3. Matsayi na aure: 1. Babu aura [ ] 2. Ma'aurata/ akwai aura [ ] 3. Saki [ ]

4. gwauruwa [ ]. 5. Rabu [ ]

4. matakin Ilimi: 1. Babu hukuma ilimi [ ]

2. Ilimin Alqurani [ ]

3. An gama Makarantar firamare, [ ] Ba a gama ba [ ]

4. An gama Makarantar sakandare, [ ] Ba a gama ba [ ]

5. An gama Makarantar jami"a, [ ] Ba a gama ba [ ]

5. kabilanci rukuni: 1.hausa [ ] 2. balarebe [ ] 3. iyameri [ ] 4. Wasu (saka) _____

6. matsakiata kudaden kuɗi na kowane wata daga duka asali: _____

7 .ke na da yara guda nawa a tsakanin shekaru 1 da 5: 1. Duka yaran maza_____

2. Duka yaran Mace _____

(Idan yaro fiye da ɗaya ya faɗi tsakanin shekaru 1 da 5, mai yin tambayoyin ya kamata ya jefa kuri'a don a zaɓar wanda za la'akari da hira)

8. Shekarun yaro da aka zaɓa _____

9. Jima'i na yaro da aka zaɓa _____

10. Kana da aiki a yanzu: 1. Eh [ ] 2. A'a a [ ]

11. Wane irin aiki kake yi? _____

SASHE NA B: ILIMI UWAYER GAME DA TSABTACE BAKI YARAN HAIFE SU TSAKANIN SHEKARU (1 ZUWA 5)

S/N	TAMBAYOYI	AMSAWAR	CI
12	Hakora na saitin farko guda nawa ne a cikin bakin yaro?		
13	lafiyan hakora na saitin farko na yaro yana da mahimmanci don yara su chi abinci daidai	1. Eh [ ] 2. A'a a [ ] 3. Ban sani ba [ ]	
14	Wanne daga cikin waɗannan abubuwa kake tsammani yana hana lalatawa haƙori?	5. Ƙuntata ci abubuwa mai siga [ ] 6. Goga hakori [ ] 3. Zuwa gani likita hakori kullum[ ]	

	(Multiple choice possible)	4. yn amfani da Fluoridated man goge hakori [ ]	
15	Wanne daga cikin abubuwa kayakin abinci yana sa lalata haƙori? **(Multiple choice possible)**	4. Cakulan/ choculati [ ] 5. Kayayyakin burodi [ ] 6. Abin sha mai lushi [ ]	
16	kayyakin siga da Abinci mai dadi yana haifar da lalata hakori	1. Eh [ ] 2. A'a a [ ] 3. Ban sani ba [ ]	
17	mara tsabtace baki yana sa lalatawan hakori	1. Eh [ ] 2. A'a a [ ] 3. Ban sani ba [ ]	
18	Tsaftacewa/wankewar ta yau da kullum na hakora zai iya hana lalatawan hakora	1. Eh [ ] 2. A'a a [ ] 3. Ban sani ba [ ]	
19	Yin amfani da fluoridated (Magani goge) hakori yana hana lalatawan haƙori	8. Foda hakori [ ] 9. toka [ ] 10. Bayan katantanwa [ ] 11. faranti da an nika [ ] 12. kanwa [ ] 13. Magani goge hakri [ ] 14. Wasu [ ]	
20	Mene ne aikin fluoride a cikin magani goge hakori?	5. Yana hana lalatawan hakori [ ] 2.Yana hana lalatawan baki[ ] 3. Yana ba da numfashi mia kyau [ ] 4 .Ban sani ba [ ]	

SASHE NA C: RA''AYI UWAYER GAME DA TSABTACE BAKI NA YARAN HAIFE SU TSAKANIN SHEKARU (1 ZUWA 5)

Zan karanta wasu maganganu, don Allah gaya mani ko kai

YS: YARDA SUSAI; Y: YARDA; AR: AKWAI RIKICE; BYB: BA YARDA BA; BYBS: BA YARDA BA SUSAI

S/N	STATEMENT	**YARDA SUSAI**	**YARDA**	**AKWAI RIKICE**	**BA YARDA BA**	**BA YARDA BA SUSAI**
21	isasshen abinci yana da muhimmanci game da lafiyan girma hakora yaro					
22	dole na a dauki yaro zuwa zayara a gurin likitan hakora ta yau da kullum					
23	hadiye magani goge hakori za iya zama abin cutarwa ga lafiya yaro					
24	yara zai su iya samun tasiri tsaftacewa hakora ko ba da taimaku uwar ba					
25a	ya kamata uwar na ta wanke hakora yaro					
25b	ya kamata uba na ya wanke hakora yaro					
26	Dole a wanke hakorar yaron bayan duk abincin					
27	Hakora na saitin farko na yaro ba buƙatar a kula da shi sosai domi zai fada					
28	Ba lallai ba ne a wanke hakora yaro da magani hakori					
29	Ya kamata a dauki yaro zuwa asibitin hakori kawai idan akwai matsala tare da hakora.dental					
30	samu lalatatan hakora daga gurin iyaya ne					

31	ya kamata a kai yaro zuwa gani likitan hakora kafin shekaru biyu 2					
32	Yin amfani da magani goge hakori mai fluoride a cikin yana sa cutarwa na lafiya yaro					

SASHE NA D: ABUBUWAN YI NA UWAYER GAME DA TSABTACE BAKI YARAN HAIFE SU TSAKANIN SHEKARU (1 ZUWA 5)

S/N	TAMBAYOYI	AMSAWAR
33	ke na canja buroshi goge hakri na hakori yaro a kowane wata uku (3)	1. Eh [ ] 2. A'a a [ ] 3. Ban sani ba [ ]
34	ke na bar ma yaro abinci mai dadi, da kuma kayyaki abinci mai sigar	1. koyaushe [ ] 2. Wani lokacin [ ] 3. A'a a [ ]
35	ke na wanke bakin yaro bayan cin abinci?	1. koyaushe [ ] 2. Wani lokacin [ ] 3. A'a a [ ]
36	ke na goge hakora yaro sau biyu a rana	1. koyaushe [ ] 2. Wani lokacin [ ] 3. A'a a [ ]
37	yaro ya na yi amfani da magani goge hakori a gogin hakora?	1. koyaushe [ ] 2. Wani lokacin [ ] 3. A'a a [ ]
38	yaro iya wanke hakora da kansa	1. Eh [ ] 2. A'a a [ ]
39	yaroke yana amfani da magani goge baki tare da taimakon	1. koyaushe [ ] 2. Wani lokacin [ ] 3. A'a a [ ]
40	Ina tabbatar yaro na ya wanke baki da gishiri da ruwan mai dumi a kowace dare	1. koyaushe [ ] 2. Wani lokacin [ ] 3. A'a a [ ]
41	Ina yi amfani da dayan a cikin wadannan a wanke bakin yaro?? (zadi daya)	8. Foda hakori [ ] 9. toka [ ] 10. Bayan katantanwa [ ] 11. faranti da an nika [ ] 12. kanwa [ ]

		13. Magani goge hakori [ ] 14. Wasu
42	Ina dauki yaro zuwa asibitin hakori kawai idan akwai matsala tare da	1. koyaushe [ ] 2. Wani lokacin [ ] 3. A'a a [ ]
43	A cikin watanni uku da suka wace, an wanke hakora yaro a asibitin hakora	1.koyaushe [ ] 2. Wani lokacin [ ] 3. A'a a [ ]
44	Ina amfani da magani wanke hakori ma yaro na a kai a	1. koyaushe [ ] 2. Wani lokacin [ ] 3. A'a a [ ]
45	Sau nawa kake kula da gogin hakori yaro	1. koyaushe [ ] 2. Wani lokacin [ ] 3. A'a a [ ]
46	Yaya yawan magani goge hakori da ana amfani da shi a goge hakoran yaro	5. Ana shafa [ ] 6. kadan [ ] 7. Da yawa [ ] 8. Ba komai [ ]
47	Wanne daga cikin abubuwan taimakawa kuke yin amfani akai akai a wanke hakora yaro?	1. yatsa [ ] 2. auduga [ ] 3. Buroshin hakori [ ] 4. Sanda goge baki [ ] 5. Kumfa [ ] 6. Wasu [ ]
48	mai kake amfani da shi don taimakawa ciwo ko damuwa hakori na yaronka	
49	ke dauki yaro zuwa asibitin hakora a cikin watanni goma sha biyu (12) da suka wuce	1. Eh [ ] 2. A'a a [ ]
50	Idan eh, mece?	

51	Idan A'a a ne, me ya sa? (Ka zaɓa daya daga chiki)	2. Tsoro [ ] 3. Babu likitan hakora [ ] 3. Babban farashin magani [ ] 4. Babu zafi ko rashin jin dadi [ ]	

WASU TAMBAYOYI……..

TARIHIN HAKORI

52	yaronke ya taɓa samu lalata hakori?	1. Eh [ ] 2. A'a a [ ]	
53	An taba cire hakori yaroke kafin yanzu?	1. Eh [ ] 2. A'a a [ ]	
54	wanda iri ciwo hakori na yafi samu yaroke ? (Ka zaɓa daya daga chiki)	5. lalata hakori [ ] 6. zub da jinni daga baki[ ] 3.Hakora mai datti [ ] 4.Ban sani ba [ ]	
55	Sau nawa ne yaroke ya gin wahala ko rashin jin dadi a cikin hakora da baki a cikin watanni goma sha biyu (12) da suka wuce	5. Sau sai da yawa [ ] 6. Wani lokaci [ ] 7. babu [ ] 8. ban sani ba [ ]	
56	FAHIMTA Ta yaya zaki bade bayyani lafiyar hakora da baki yaro?	7. Akwai Lafiya sosai [ ] 8. akwai lafiya [ ] 9. matsakaita/ dai dai [ ] 10. Ba lafiya [ ] 11. Ba lafiya sosai [ ] 12. Ban sani ba [ ]	