

This work is dedicated to the Almighty God.

**PERCEPTIONS, ATTITUDE AND PRACTICE OF GROWTH
MONITORING BY CAREGIVERS OF UNDER-FIVE CHILDREN IN
IBADAN SOUTH-WEST LOCAL GOVERNMENT AREA, OYO STATE**

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**A DISSERTATION SUBMITTED TO THE DEPARTMENT OF HEALTH
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In different cultures, there are different methods of monitoring growth by Caregivers of Under-five Children (CGOU-5). The scientific approach to monitor observable indicators of malnutrition and take timely corrective measures has been poorly understood by many of these caregivers, thus limiting opportunities for planning appropriate interventions. This study was designed to explore perceptions, attitudes and practices of CGOU-5 Growth Monitoring (GM) in Ibadan South-West Local Government Area, Oyo State.

A descriptive cross-sectional design was used. This involved four-staged sampling technique which included: ward stratification into high and low density area, proportionate sampling to determine the number of the target population to be assessed, systematic sampling to select houses and random selection of 410 caregivers for the study. A pre-tested questionnaire was administered in 12 randomised selected communities under the Wards. The questionnaire elicited information on socio-demographic characteristics, GM perceptions, knowledge, practices and future intentions. Knowledge of scientific modern GM methods was measured on 21-point scale. Perceptions were measured on 16-point scale; categorised into "negative" (≤ 8) and "positive" (> 8). Knowledge scores were classified as "high" (> 15), "average" (8-15) and "poor" (≤ 8). Attitude was measured on 11-point scale, (≤ 6) and (> 6) categorised as negative and positive attitude respectively. This was complimented with six Focus Group Discussion (FGD) sessions. Descriptive statistics and Chi-square tests were used to analyse the quantitative data while the FGD data were analysed using thematic approach.

Mean age of the CGOU-5 was 31.6 ± 6.5 years, 46.8% had secondary education and 56.8% were traders. Majority (88.3%) had received information on GM and 66.6% heard from the health workers. Almost all the respondents (90.0%) had positive perception towards GM (10.8 ± 2.9). Most (76.1%) respondents' knowledge on GM was average and mean knowledge score was 9.3 ± 2.7 . Respondents with secondary education and above (78.8%) had average knowledge of GM, compared with those who had primary (16.7%) and non-formal education (4.5%) ($p < 0.05$). Most (98.3%) had positive attitude to GM agreeing that it should be

compulsory for CGOU-5. About two thirds (65.2%) weighed their U_5 occasionally. Although, 59.3% of the respondents.

stated that they were capable of correctly using the weighing scale to measure children's weight, only 43.7% correctly demonstrated its use. Only 39.0% and 14.4% could correctly read and interpret growth charts respectively. Respondents' educational level was significantly associated with the ability to validate weighing scale ($p < 0.05$). Majority of FGD participants felt GM could be done by caregivers both at home and at health facilities. The CGOU-5 expressed their concern towards non-involvement in growth monitoring. Traditional GM methods comprising daily observation of children's physical size, malnutrition indicators such as weight loss, deep eye sockets and the periodic comparison of clothing sizes, bead use and wall marking for detecting slow and upward growth trajectory were mentioned for integration with the conventional methods.

Most caregivers were willing to practice growth monitoring for their under-five children. However, knowledge and skills to do so were low. This emphasizes the need to develop community-based training programmes for caregivers of under-five children to interpret both traditional and newer modern methods.

Keywords: Children growth monitoring, Malnutrition, Caregivers of under-five

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CERTIFICATION

I certify that this project was carried out by Opeyemi ABIONA in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, under my supervision.



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ABBREVIATIONS

PHC	-	Primary Health Care
WHO	-	World Health Organisation
GOBIFFF	-	Growth Monitoring, Oral Rehydration, Breast Feeding, Immunisation, Food Supplement, Family Planning and Female Education.
UNICEF	-	United Nation Children
NDHS	-	Nigeria Demography Health Survey
GOBI	-	Growth Monitoring, Oral Rehydration, Breast feeding, Immunisation
BMI	-	Body Mass Index
SD	-	Standard Deviation
MUAC	-	Middle Upper Arm Circumference
CDC	-	Centre for Disease Control
GC	-	Growth Chart
GMTA	-	Growth Monitoring Teaching Aids
SCN	-	Sub-Committee on Nutrition
AGN	-	Advisory Group on Nutrition
TNINP	-	Tamil Nadu Integrated Nutrition project
PEM	-	Protein Energy Malnutrition
CHW	-	Community Health Workers
VCT	-	Voluntary Counselling and Testing
ART	-	Anti Retroviral Therapy

CHAPTER ONE

INTRODUCTION

1.1 Background

Malnutrition is a major health problem especially in developing countries. It is caused by taking too little food lacking the essential nutrients that causes growth. It also causes increased susceptibility to common diseases. The World Health Organization (WHO) defines Growth Monitoring as a nutritional intervention that measures and charts the weight of children aged 0-5 years and uses the information derived to counsel caregivers so they can take action to improve a child's growth (WHO, 1986). It is a diagnostic tool for identifying a child with nutritional or health problems, thus enabling action to be taken before the child's nutritional status is seriously jeopardized. A community-based study in Ilesha by Morley in 1959 led to the design and development of a growth chart called "Road to Health Chart" which emphasised the usefulness of regular weighing of young children. The use of this chart has spread beyond Nigeria to other parts of Africa and Asia.

In the early 1980s, growth monitoring was promoted as one of the major components of critical preventive care for young children (Growth Monitoring, Oral Rehydration, Breastfeeding, Immunization, Food Supplement, Family Planning and Female Education (GOBIFFE)). For two decades, the program was implemented in a variety of contexts as an element of the nutrition and health programs. However, this approach to implementation was criticized due to low service coverage and poor-service linkage with other health related activities (UNICEF, 2007). This criticism notwithstanding, growth assessment was affirmed as the single most useful tool for defining health and nutritional status in children at both individual and population levels (Heston, Kelly, Ezzam, Matorcell and Mason, 1990; de Onis and Habicht, 1996; Mei, Yip and Trowbridge, 1998; Pinxeyrd, 1992). Other authors (Pelletier 1994), and (Schroeder and Brown 1994) re-emphasized that monitoring child growth interventions helps to reduce infant and child mortality, because malnutrition is in part

responsible for high rates of mortality of children aged less than five years, especially in developing countries. In light of these favorable dispositions, Growth monitoring was advocated globally as one of the key elements of child survival and primary health care strategy (Rohde 2005) which would add to boosting the achievement of the millennium development goals (Wright, Booth, Buckler, Cameron, Cole, Healy, 2002). The implementation of growth monitoring has for several years been the prerogative of formal health workers especially the nurses and doctors. While this approach has worked effectively in the past, the inadequate number of the formal health care workforce coupled with low resource support has degraded the capacity of the formal health system to conduct comprehensive and efficient growth monitoring services.

In light of this challenge, there is an urgent need to develop strategies that can significantly improve under-fives' growth monitoring beyond the conventional approach by formal health workers. One strategy with the possibility of a demonstrated effect is the use of mothers and caregivers to monitor the growth of children as well as record and report such activities to the health system. This would help in detecting abnormalities that require urgent attention. It is very important in Nigeria where the current health system is facing a lot of problems especially at the Primary Health Care (PHC) level. The government, development agencies and research institutions have been recommending the use of innovative ways of enhancing health system performance including the involvement of people in service delivery. This current work is in this direction and is aimed at exploring the growth monitoring perceptions, attitude and extent to which mothers' and child caretakers are willing to monitor the growth of their children.

1.2 Problem Statement

The World Health Organization estimates that there are 178 million children that are malnourished contributing to between 3.5 and 5 million deaths of children annually and at any given moment, 20 million children are suffering from the most severe form of malnutrition (WHO, 1984). Malnutrition plays a huge role in child mortality because the immune systems of the affected children are less resistant to common childhood diseases. It causes significant

slowing down of a child's physical and mental growth as well as his/her development especially when the malnutrition occurs during the first two years of life. It is reported that this damage cannot be corrected as the child's age advances thus causing lifelong disability (Fact of Life, 2009).

Childhood mortality rate is very high in Nigeria. The National Demographic Health Survey (NDHS, 2008) reported an under five and neonatal mortality rates of 40 and 35 per 1,000 live births respectively during a 5-year period preceding the survey. In the same survey, Infant and Childhood mortality rates stood at 75 percent and 88 percent respectively. Furthermore, childhood mortality levels by urban and rural residence showed the following deaths per 1,000 live births for the 10-year period preceding the survey: neonatal mortality 46 (Urban 38; Rural 49), Post neonatal 41 (Urban 29; Rural 46); Infant mortality 87 (Urban 67; Rural 95), Childhood 92 (Urban 58; Rural 106) and under five 171 (Urban 121; Rural 191). Many of these deaths are either directly or indirectly related to malnutrition such as the ones that compromise immunity to childhood diseases.

However, despite all the efforts to improve childhood nutrition to ameliorate less than five illnesses and deaths, poor nutritional indices characterize the health of children in Nigeria. In 2008, the NDHS reported that 41 percent of children less than five are stunted and 23 percent severely stunted. Stunting is usually apparent among children less than 6 months of age (21 percent) which increased with the age of the child through the first two years of life before declining in the third and fourth year. As shown in the NDHS of 2008 stunting rose from 27 percent among children aged 6-8 months to 50 percent among children aged 18-23 months. Rural children were more stunted (45 percent) than urban children (31 percent). Results of zonal variation also showed that stunting was highest in the North West (53 percent) and lowest in the South East (22 percent). In respect to wasting, 14% of children under five were wasted with noticeable variations in wasting by age and peaking among children aged 6-8 months (20 percent). Boys were slightly more wasted than girls (14 percent compared with 13 percent) (NDHS, 2008). Being underweight is another major problem. Nationally, nearly one in four children is underweight (23 percent), and 9 percent were severely underweight

(NDHS, 2008). Results further revealed that the percentage of children who were underweight almost doubled from 14 percent among children less than 6 months of age to 26 percent among children between the ages of 12 and 17 months. These findings are not surprising given that most children are breastfed for approximately 18 months, exclusively breastfed for less than 1 month and predominantly breastfed for 3 months.

It has been argued that community involvement and participation must form the anchor around which a new paradigm for disease control efforts in Africa must evolve. In terms of community participation in Primary Health Care and Disease Control, Nakajima (1993) noted that for health care systems to be successful, majority of those affected must be in charge, rather than being passive recipients of other people's decisions. Unfortunately, despite the efforts of the formal health care system to conduct growth monitoring on a comprehensive and timely basis, effective performance of this activity has been hampered by poor involvement of the local communities. This challenge appears to reflect a lack of understanding among health workers on how to make communities more involved in growth monitoring for better coverage and effectiveness.

1.3 Justification

There are added values to existing research knowledge that this study would offer. First, community participation is a key principle in Primary Health Care, a concept that emerged from the International Conference on Primary Health Care (PHC) organized by WHO and UNICEF at Alma Ata, USSR (now Almaty, Kazakhstan) in 1978 which stressed the importance of using PHC to achieve the overall goal of "Health for All". After the conference, many WHO member states adopted health policies to promote PHC strategies of which nutrition is a component. In this regard, there was a provided information on traditional ways through which caretakers monitors the growth of their children thus generating new knowledge that can be used in PHC to enhance programme growth monitoring coverage and effectiveness at the community level. An offshoot of this is the potential to use the traditional skills and knowledge gained for Growth monitoring in other areas of child care.

Secondly, it provided evidence about the extent to which child caretakers observed growth monitoring of their under five children and referring those below normal threshold to appropriate Health facilities for further management. Thirdly, this study is especially important since many National policymakers are becoming more interested in how growth monitoring can be improved. This interest provided a unique opportunity to conduct this study and it in turn provided policy makers with recent evidence to aid policy decisions on potential innovative strategy of delivering growth monitoring.

Finally, the potentials of knowledge gained from this study were documented and used in making appropriate programme decisions, answers to the following questions were provided.

1. What do caregivers know about growth monitoring (its purpose, what is monitored and how is it measured, how the growth chart is interpreted in relation to a child's nutrition and survival)?
2. What traditional ways have caregivers' been using to monitor their children's growth and which of these has the potential of being integrated /adopted for use in PHIC?
3. What are the perceptions of the caregivers towards growth monitoring?
4. Would caregivers in respect to education, religion, ethnicity and parity in respect of willingness to monitor a child's growth in the future using traditional and modern methods?

1.4.1 Broad Objectives

To determine the caregivers' perception and practice on Growth Monitoring of their children and refer those below the threshold to appropriate Health facilities so as to contribute to the reduction of under-five malnutrition, illness and death.

1.4.2 Specific Objectives

1. To determine caregivers' current knowledge on growth monitoring.
2. To assess the caregivers' perceptions on growth monitoring.
3. To identify the characteristics of caregivers' not currently monitoring the growth of their children through conventional approaches (Public and Private Health facilities).
4. To document caregivers' traditional ways of monitoring the growth of children and how growth faltering is corrected.

5. To assess caregivers' attitude to monitoring the growth of children using the modern measurement approaches.

1.4.3 Research Hypothesis

The following hypotheses were formulated in respect to participating caregivers in Ibadan South West area of Oyo State.

1. There is no association between caregivers' educational level and setting of the calibration to zero.
2. There is no association between caregivers' educational level and correctly reading the weight of the child.
3. There is no association between caregivers' educational level and knowledge of growth monitoring.
4. There is no association between caregivers' age and knowledge level of growth monitoring.

1.5 Definition of Terms

Children growth monitoring: it is a diagnostic tool for identifying a child with nutritional health problems.

Malnutrition: This is the condition that results from eating a diet in which certain nutrient are lacking, in excess (too high intake), or in wrong proportions.

Caregivers of under-five: this is an individual or person that provides care for children under the age of five.

Oral Rehydration: The use of modest amounts of sugar and salt added to water in order to prevent and/or treat dehydration.

Breast feeding: Giving baby milk from the breast.

Food Supplement: Something added to complete a diet or to make up for a dietary deficiency

Family Planning: This is the practice of controlling number of children one has and the intervals between their birth, either by contraception or voluntary sterilization.

Female Education: this is area of gender equality and access to education.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The rationale for growth monitoring and promotion is persuasive but even in the 1980s the appropriateness of growth monitoring programmes was being questioned. The concerns centered largely on low participation rates, poor health worker performance and inadequacies in health system infrastructure that constrained effective growth-promoting action. More recently there has been a call for a general review of the impact of large-scale growth monitoring and promotion programmes to determine if the investments are justified. The launch of the new World Health Organization growth standard and charts has been a timely reminder of this debate. It is within this context that this review has been undertaken: the main purpose is to analyse the evidence that growth monitoring programmes are effective in conferring measurable benefits to the children for whom growth charts are kept. The benefits considered here are improved nutritional status, increased utilization of health services and reductions in mortality (Robertroid, Kolsteren Hoerree and Maire 2005).

In developed countries, growth faltering is seen as an indicator of other social or health problems requiring appropriate intervention. This leads to social interventions, or further medical investigation for conditions such as failure to thrive (Gamer, Panpanich and Logan, 2000).

2.2 The Concept of Growth monitoring

Growth has been seen as a positive change in the size of a growing individual and it is a dynamic measure of health, the best available indicator of nutritional status to avoid stunted growth among children especially under-five children, and the only real measure of nutrition adequacy (Rohde, 1985). Deviations from the expected or predictable course of growth are not visible at the earliest stage, and such invisibility is a major barrier to preventing and curing health problems.

2.2.1 Definitions, Objectives and link activities of Growth Monitoring

There is no universal definition of the term "growth monitoring" (Yee and Zarfes, 1986). While some regard it as an intervention others see it as evaluating growth patterns. The first position is seen in the World Health Organization's (WHO) (1986) definition which states that it is a nutrition intervention that measures and charts the weight of children and uses this information to counsel parents so that they can take actions to improve the child's growth (Gamer, Panpanich and Logan, 2000). Similarly, Garner, Panpanich and Logan (2000) see it as the regular measuring, plotting, and interpretation of a child's growth in order to counsel or take action when abnormal growth is detected, with the aim of improving the child's health.

Taylor (1986) and UNICEF (1984) emphasized actions to be taken after such monitoring has been completed. This position is predicated on the argument that weighing is not growth monitoring and has little value (Rhode, 1985) and that measurement without action is pointless and a waste of time and effort, and growth monitoring is not an intervention per se (Yee and Zarfes, 1986). This is in agreement with Gopalan, (1990) and Morley, (1973) that since normal growth slows down long before evident malnutrition is apparent, growth monitoring is meant to prevent growth retardation through timely and early detection of faltering growth. Also, Gopalan, (1990) asserted that promoting growth monitoring as an integral part of preventive and promoting health care can only be justified if the objective is to prevent growth retardation. The underlying logic of the intervention position taken by agencies and some authors is that if growth faltering is detected early and is made visible to health workers and families, then families can respond by changing their child-care practices, provided they are offered proper motivation, given clear feasible alternatives, and given a role in deciding what practices they will try to change (Griffiths, 1981). In growth monitoring, action is based on the weight changes of individual children, and in nutrition observation, it is concentrated on the nutritional status of groups of children. The major approach in growth monitoring is educational and motivational, while in observation it is diagnostic and interventional.

On the contrary Rhode (1985), Griffiths (1987) and Ghassemi (1985) supported the second opinion and view of growth monitoring as watching over and evaluating a child's growth pattern. A few other authors have even advocated the use of 'growth promotion' to replace the term "growth monitoring" (Teller, 1986) or combine the two terms as 'growth monitoring and promotion' so as to make growth promotion an explicit component (Pearson, 1995).

The main objectives of growth monitoring are to provide a diagnostic tool for health and nutrition surveillance of individual children and to instigate effective action in response to growth faltering; to teach mothers, families and health workers how diet and illness can affect child growth and thereby stimulate individual initiative and improved practices; and provide regular contact with primary health-care services, and so facilitate their utilization.

There are five main activities linked to growth monitoring and growth promotion: (1) weighing accurately; (2) plotting on a growth chart; (3) interpreting the growth curve; (4) discussing options with the caregiver and agreeing on future action; and (5) evaluating the child's response. It has been reported that the most widely promoted method of growth monitoring is weighing and charting growth, since weight gain is believed to be the most important indicator of growth and is universally applicable. Among other techniques, measuring arm circumference is claimed to be the easiest and cheapest alternative to weighing (Fisher, 1985) and has been recommended for use at the home and village levels whenever regular and frequent weighing is not possible (Gopalan, 1985). Growth monitoring programmes have the potential to achieve improved breastfeeding and complementary feeding, which are two of the main child survival interventions, but this potential remains unfulfilled in many growth monitoring and promotion programmes (Roberfoid, Lefevre, Hoerce, and Kolsteren, 2005).

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2.2.2 Principles and Practice of Growth Monitoring

There are principles that have been identified as guiding the practice of Growth Monitoring. These are:

A diagnostic tool: Growth monitoring, mostly of infants and young children, is widely regarded as an essential element of Primary Health Care. (De Onis, Wijnhoven, Onyango, 2004). The potential of growth monitoring lies in its use as a diagnostic tool for identifying a child with a nutritional or health problems, thus enabling action to be taken before the child's nutritional status is seriously jeopardized. Most growth monitoring programmes use weight charts to provide a graphic representation of a child's weight-for-age. An undernourished or sick child will have a slower rate of weight gain than a well-nourished, healthy child. Monitoring growth by plotting a child's weight at regular intervals and comparing the pattern of growth to reference curves of healthy children permits early detection of growth faltering. It provides an early warning signal and a trigger for early action. It has been observed that the most widely promoted method of growth monitoring is weighing and charting growth, since weight gain is believed to be the most important indicator of growth and is universally applicable. Among other techniques, measuring arm circumference is claimed to be the easiest and cheapest alternative to weighing (Fisher, 1985) and has been recommended for use at the home and village levels whenever regular and frequent weighing is not possible (Gopalan, 1985).

Gateway for Community mobilization: Growth monitoring can serve as an entry point for community mobilization and social action, especially when growth monitoring data are aggregated and used for community-level assessment and analysis of child malnutrition. The premise is that caregivers' participation in growth monitoring will lead to increased awareness of factors that detrimentally affect children's health and that they will influence community leaders and citizens to take collective and effective action to address underlying socio-economic causes of poor health and promote social and economic equity. This is in keeping with the Alma Ata Declaration of 1978 which emphasizes the need for community and individual participation in Primary Health Care. Mothers are the most likely community members to be directly involved in the process of weighing, plotting, and interpreting weight

gain. Their active participation is essential. Examples of such participation has been cited. After providing training and equipment to existing women's groups, a community-based pilot project in Senegal found that mothers were able and enthusiastic implementers of growth promotion activities. In fact, these women's abilities to improve the health and well-being of young children greatly enhanced their standing in the community and their own confidence and willingness to take action (Diene, 1995).

However, community participation in growth monitoring may be hampered in certain situations. In Pelotas, Brazil, where there was considerable involvement of mothers in growth monitoring, the visual representation of their child's growth led some mothers to become rather obsessed by their child's position on the chart and they strove to move it higher, even though it was in the normal range (Behague, 1993). As a consequence, some mothers were reported to move away from exclusive breastfeeding to less desirable practices. In certain parts of India and Bangladesh, for example, the concept of the evil eye causes some mothers to be extremely reluctant to have their healthy children weighed. Weighing is at times seen as degrading, if the child were a piece of meat. Other examples that have been cited relate to mothers feeling that weighing of children with a market type scale is a dehumanizing process. In other cases, mothers may be reluctant to undress their children completely before weighing either because of cold weather or because they are concerned that using communal weighing pans may be unsanitary (Nutrition Communication Project, 1989:29). If concerns such as these are not addressed, attendance at weighing sessions may be poor, and project impact substantially weakened (Brown and Ann, 2000).

Targets supplementary feeding: The weight chart is widely used to determine eligibility for entry to supplementary feeding programmes. The criterion is usually a weight-for-age below one of the reference curves on the weight chart, equivalent to 'moderate' underweight. This invariably shifts the focus of growth monitoring towards identifying children who meet this criterion, rather than intervening at the first sign of growth faltering. Consequently, no action is taken until the child is significantly underweight. As health workers choose who should receive assistance, the collaborative involvement of families in decision-making is lost, as

well as any educational benefit of regular growth monitoring. Using weight charts in this way is thus contrary to the precept of growth monitoring. Anecdotal reports suggest that once enrolled in supplementary feeding programmes and approaching the exit criterion, some children may be purposely underfed so as to remain beneficiaries. Although supplementary feeding programmes may have their place in offsetting food shortage, growth faltering is often the result of poor feeding practices, which can still prevail even among beneficiaries of food distribution programmes.

A guide to reporting the prevalence of underweight and child's nutritional status:

Governments and agencies may require health workers to provide information on the prevalence of underweight in their locality, or the number of children failing to grow properly in a given month. Currently over 50% of countries transfer information obtained from growth monitoring to higher levels (De Onis et al, 2004). In some countries, time-consuming procedures are devised, with information systems spanning village, district, provincial and national levels. In Vietnam, for example, it takes several days each month at district level to collect and aggregate village data in order to report to higher authorities the prevalence of underweight and coverage of child weighing (Shrimpton, 2003). Weights may be recorded in logbooks and never plotted, and the growth chart may be used simply to determine if a child is underweight, sometimes at a later date instead of in the mother's presence. Thus, the primitive aims of growth monitoring are surrendered. Furthermore, the information submitted may not permit meaningful analysis and interpretation so that even the nutrition status surveillance objective may not be achieved.

According to (Puffer and Serrano, 1975), the most effective way of determining the adequacy of a child's nutrition is to monitor growth. However, as already emphasized, growth monitoring is useful only if it enables the mother to know when her child is failing to gain weight and what is the proper action to take. She must then be motivated to improve the child's food intake and, if the trend is not reversed, to bring the child to the health centre. The understanding is necessary to communicate this information and to motivate the mother. It is also important for the promotion of family planning and prenatal care.

The conditions that favour good growth monitoring and growth promotion include: well organized functioning health systems, clear objectives as to the purpose of growth monitoring, integration of growth monitoring with preventive/curative health services and intersectoral linkages, integration of nutrition education into all paediatric services, high coverage of children at risk; high degree of implementation, trained health workers with good communication skills and knowledge, adequate time allowed for nutrition counseling, experiential and observational learning techniques to promote behavioural change, regular support and supervision of health workers to maintain good performance over time, induction and training of new staff, service delivered locally, at convenient times; caregivers having good access to attend clinic for growth monitoring, or being visited at home and formative research used to develop key messages that are actionable, feasible, memorable and used at all points of contact (Roberfoid et al 2005).

2.3 Historical Development of Growth Monitoring

Historically, regular weighing of infants was reportedly advocated by Guillot in the 1850s for assessing the adequacy of lactation in neonates and the 1870s, Cnopf in Nuremberg was the first to weigh infants systematically beyond the prenatal period, while Russo in St Petersburg was the pioneer of growth standards and of the idea that growth reflects an infant's well-being (Tanner, 1991). In 1899, it was reported that regular child weighing and practical advice were provided in St Helens Hospital, England by volunteers of the Infant Welfare Movement (Williams, 1986) and by the mid-1920s, there was a nationwide network of welfare centers organized around child weighing. The first growth reference was introduced in England in 1906 (Tanner, 1991) while as early as 1910, mothers in Jamaica were reportedly weighing their babies (Robde, 1988).

Weighing and the charting of a weight-for-age graph started in West Africa in the late 1950s (Meegan and Morley, 1960). Much of the pioneering work and advocacy for monitoring growth in developing countries was by done by Dr David Morley and his colleagues at Ilesha, Nigeria (Cuthbertson and Morley 1962, Morley, 1962). Two innovations were introduced to make the plot graphing of weights more practical. The first was the introduction of a calendar,

which started with the birth month of the child, against which the weights were plotted. The second innovation, which was perhaps even more important, was that these charts were home-based and held by the mother of the child. This initiated a new worldwide trend for patient-held health records. After this initiative, different types of growth chart have been designed with many additionally serving as child health records which show illness episodes, immunization status among others and the results of which can be used to provide advice, for example, on child feeding, oral rehydration, and care-seeking. The direction of the child's line is emphasized, that is, whether rising in parallel to the reference curve (good), or flat (early warning) or falling (danger sign).

In 1961, the use of growth charts was recommended by a joint committee of the Food and Agriculture Organization and World Health Organization (WHO) (WHO, 1962) while in the 1970s growth monitoring was implemented in several developing countries in Africa, Asia, Latin America and the Near East both by governments and agencies, notably the Catholic Relief Services and the United States Agency for International Development (Griffiths, 1981). The WHO coordinated efforts to develop a standard weight chart and published guidelines for its use in health services (WHO, 1978). Support for growth monitoring and promotion further grew considerably in the 1980s and the United Nations Children's Fund (UNICEF) was an enthusiastic advocate making it a key component of selective primary health-care strategy that would promote a cluster of growth monitoring, oral rehydration, breastfeeding and immunization (GOBI). UNICEF also championed community involvement in health care with a thrust on making low-cost, simple technologies available to improve the health of all children at risk (Grant, 1984). Through this focus, UNICEF provided countries with weighing scales and supported the local production of growth charts.

Growth monitoring has gained popularity in the last two to three decades and has been practiced in over 80 countries including developing countries (Tremlett, 1983). It has been adopted by all developing country governments and growth charts became widely available. A recent study indicated that 154 of 178 Ministries of Health (88%) surveyed monitored child growth (de Onis et al, 2004).

Where the concepts underlying growth monitoring are not understood and there is no feasible operational strategy, it is not surprising that in many projects all that are left in practice is a superficial ritual of weighing and charting, or growth monitoring is used only as a strategy to help implement other interventions, such as supplementary feedings, more efficiently. This approach has been strongly criticized on practical, economic, and even psychological grounds (Gopalan 2005, Rohde, 1985).

However, Haaga (1987) raised an important question, on whether growth monitoring is unrelated to feeding programmes that can be sustained and reach poor families on a continuous basis in countries that do not have strong traditions of social discipline and community work. A different view, however, was taken by Mukarji (1985) "If the focus is on a nutritional strategy that emphasizes curative or rehabilitative aspects, then there is a place for growth monitoring.

The emphasis on growth rather than nutritional status, however, is a key operational communication strategy (Hendrata and Rohde, 1997; UNICEF, 1984), and it has been recommended: "To provide health care for children, move away from the immediate objective of prevention of malnutrition and monitor adequate growth (Morley and Woodland, 1979). The monitoring of weight gain oriented toward health promotion is not only more cost-effective than the screening of nutritional status oriented toward treatment and rehabilitation but also more acceptable to both mothers and health workers as it provides more opportunities to observe changes or improvements in nutritional status (Teller, 1986).

Growth Monitoring on its own is not a programme or comprehensive intervention to address established under nutrition, but is an important activity that can be built on to become a basis for comprehensive community nutrition interventions and programmes based on thorough causal analysis of under nutrition.

2.4 Monitoring Indicators for the nutritional child status and Interpretation

Quantitative methods of nutritional status such as body measurements, clinical signs and biochemical analysis of vitamins and minerals in the body fluids, are used in assessing nutritional related situations and status of children (De Onis, 2004). Indicators for Protein Energy Malnutrition (PEM) include children body weight and height, infectious disease rates, food intake relative to need and Body Mass Index (BMI) (WHO Working Group, 1986).

2.4.1 Anthropometric Measurement

The most accurate and rapid ways of assessing the growth and health status of a population, a community or an individual is by means of Anthropometry. Anthropometric measurements are measurements of the body (weight for height), often in association with age, which permit the development of certain indexes reflecting individual or population characteristics. 'Wasted' (thin), 'stunted' (short) and 'obese' are terms that describe the growth of an individual, and they are quantitatively expressed in various anthropometric indexes.

In children, the body weight and height are among the most important indicators for growth. The indicators used most often are the body's weight and height, in relation to a subject's age and sex. Others include arm, head and thigh circumferences and skin fold thickness. WHO multi centre growth reference study used standardized procedures for measuring the weight and heights of the children studied (WHO Working Group, 1986). In measuring the weight of the child, it is recommended that the scale has the following features for ensuring accuracy of the measurement, solidly built and durable, electronic (digital reading), measures up to 150kg, measures to a precision of 0.1kg (100g) and allows "tarred" weighing. Tarred weighing is when the scale can be re-set to zero with the person just weighed still on it.

Thus, mother can stand on the scale, be weighed and the scale tarred. While remaining on the scale, if she is given her child to hold, the child's weight alone appears on the scale. It helps in reducing the risk of error, because there would not be need to subtract mother's weight to determine the weight of the child alone. Also, the child is likely to remain calm when held in the mother's arm for weighing (WHO Working Group, 1986).

The WHO Working Group, (1986) recommend that the weights of the children are measured with portable electronic scales with a taring capability, calibrated to 0.1kg (UNICEF Electronic Scale 890 or UNISCALE) and the height of both recumbent and standing will be measured with the use of Harpenden Infantometer (range 30-110cm for portable use, with digit counter readings precise to 1mm) (de Onis, 2004).

The main anthropometric indexes to be used should be weight for height, height for age, and body mass index (BMI). The formula $BMI = W/H^2$ means, weight in kilograms divided by the square of height in meters (WHO Working Group, 1986). The group also recommended that preferably, these Anthropometric data for children are quoted in terms of "Z-scores" based on the standard deviations (SDs) above or below the median reference value for a person of a given age. The most recent reference value for the anthropometric data used for comparison is the WHO child growth standards based on length/height, weight and age (WHO Working Group, 1984). These reference standards were constructed avoiding the influences of unhealthy weights for length/height.

Stable body mass is a simple indicator of the adequacy of energy intake that matches the energy expenditure in the long term. The main disadvantages of relying on body mass and BMI are that they do not reliably reflect the body fat, which is independent predictor of diseases risk (IoM, 2005).

There are specific target BMI values for children because desirable BMI changes with age. On average, a rapid increase of the BMI occurs during the first year of life. The BMI subsequently declines, reaches a minimum around four to six years, and then gradually increases up to the end of growth ("adiposity rebound") (IoM, 2005; Kuczmarski et al., 2000; Rolland-Cachera et al., 2006).

2.4.2 Weight for Height

Weight for height is a measure of "acute under nutrition" or "wasting" and is the index most used in nutritional emergencies as well as in long-term situations of under nutrition, such as famine. Weight for height is useful in assessing the growth of children. In children, weight for height ratios can be used without knowing the individual's age. In most circumstances, less

than 2 percent of children fewer than five years of age are below the median minus 2SD. If 5 to 10 percent of the population group is below this level, the degree of acute under nutrition may be described as moderate; if the proportion is beyond 10 percent, this is generally considered to be a severe situation (WHO Working Group, 1986).

2.4.3 Height for Age

This parameter is used for assessing "chronic under nutrition" in children. Prolonged under nutrition causes retardation of growth in both height and weight to a roughly comparable degree. Impaired gain in height is called "stunting". Gain in height is most affected by long standing environmental and socio-economic factors; hence it reflects general socio-economic conditions. In developing countries, widespread chronic under nutrition is common and the proportion of individuals below the median minus 2SD is often in the range of 20 to 60 percent, with an average near 40 percent. Populations in which 25 to 50 percent of the children under five years of age have height for ages below the median minus 2SD are commonly considered to be moderately affected, while those with more than 50 percent below the cut-off are considered to be severely affected (WHO Working Group, 1986).

2.4.4 Weight for Age

The proportion of children under five years of age who are below the median minus 2SD (weight for height) ranges from 10 to 50 percent with an average of 20 to 30 in many developing countries. Twenty to forty percent of children who are underweight for age can be considered moderately affected, and those with more than 40 percent are severely affected. The weight for age indicator is available more often than weight for height or height for age but is more difficult to interpret because it can be affected by either acute or chronic under nutrition. Serial weighing indicates incremental changes in weight and giving a more dynamic picture of growth velocity. This is, in fact, a much better way of assessing nutrition although it is more difficult to carry out (WHO Expert Committee, 1995 and WHO Working Group, 1986).

2.4.5 Arm Circumference

Arm circumference measurements of the children are used as an indicator for the nutritional status of the children. The Arm Circumferences Standard reference values for comparison were derived from the WHO multicentre growth reference study. A self-retracted, 0.7cm wide, flat metal tape with blank lead-in strip (range 0-200cm, calibrated to 1mm) is used for the measurement of the Arm circumference of the measurement of the children (de Onis, 2004).

The middle-upper-arm-circumference (MUAC) is always used mostly for community-based screening programmes and for severe malnutrition and the MUAC is used to identify severe wasting. The MUAC is measured on the upper left arm. To locate the correct point for measurement, the child's elbow is flexed to 90°. A measuring tape is used to find a midpoint between the end of the shoulder (acromion) and the tip of the elbow (olecranon); the midpoint should be marked. The arm is hanged freely, palm towards the thigh and the measuring tape is placed neatly around the arm at the midpoint mark. The tape should not be pulled too tight (de Onis, 2004).

2.5 Growth Charts

There are various charts used for assessing the growth of a child. One of the charts is referred to as specialized charts. The specialized charts are used for low birth weight, very low birth weight infants and children with special health conditions (CDC, 2000).

In response to the need for improved growth-monitoring techniques, a "bubble" chart has recently been developed by Griffiths (1987) with World Bank collaboration, to replace standard charts, which were found to be hard both for health workers to plot and for mothers to understand. Griffiths and Berg (1988) also reported that the new chart has been tested successfully in several countries.

Sometimes the charts can be used for many diverse purposes - for example, to evaluate the effectiveness of other nutritional intervention programmes on children's health, to select the beneficiaries for dietary-supplementation programmes, to estimate prevalence rates of malnutrition and being underweight in nutrition-surveillance programmes, to follow up the

efficacy of treatment of sick or malnourished children, to trace children not attending or not returning to health centre's for immunization, and so on (Griffiths and Berg, 1988). Apart from being a longitudinal record of weight changes, the cards can be used to register a child's health or family history: birth weight, weaning time, diarrhoea episodes, dose and date of vitamin A capsules or iodized oil injection received, and the like (Griffiths and Berg, 1988). Further, it is likely that the confusion between the two would be increased, unless the purpose, structure, and function of each are clearly defined to ensure their precise applications (Yee and Zerfas, 1987). It should be noted that growth-monitoring data are not randomly based and may not be accurate enough for the purposes of nutrition surveillance. Srirotha (1986) considered that the use of growth-chart data for measuring the proportion of malnourished children in a community is not justified because of problems of representativeness, accuracy, and uniformity.

A basic premise of growth charts is that it makes growth faltering visible to caregivers and is an educational tool. Thus, caregivers must be able to interpret growth charts and understand their use. Although there are reports of good comprehension by mothers, including those who are illiterate (Wray 1978, Griffiths 1981; Arole 1988; George *et al.* 1993; Karim *et al.* 1994), some have questioned mothers' ability to comprehend their meaning or purpose (Forsyth 1983; Gopaldas *et al.* 1990; Ovwusu & Larley 1992). Sinha (1984) believed that growth charts can be practical and powerful in teaching mothers how to protect children from malnutrition and foster better nutrition through simple messages and discussions.

2.6 Potential Impact of Growth Monitoring Educational Interventions on Mother's Knowledge and Practices

Interventions carried out to improve mothers' Knowledge and Practices on Growth Monitoring is varied. The following health education interventions have shown varying potential benefits of some strategies on mothers' knowledge and practices:

1. Integrated routine education talk with child health services.

Mothers' knowledge of Growth monitoring is varied. A study carried out by Fagbule, Oloosebikan, and Parakeyi, (1990) in Ilorin assessed awareness, knowledge, utilization, of the

growth chart among mothers that attended five health facilities in the communities in the previous six months either for preventive or curative child health purposes, or for whom only routine growth monitoring service including health talks was provided.

Findings revealed that, over half of the mothers interviewed 155 (55.8%) had heard about growth charts and the level of awareness was significantly influenced by maternal age, educational status and parity. One hundred and fifty (96.8%) of those who have heard reported using the growth charts regularly and 62.6% of those who have heard about the chart demonstrated an understanding of the markings on it. One hundred and sixteen mothers found the growth chart useful for immunization record, nutrition advice, clinic appointment dates, and assessment of developmental milestones.

Another study by Ruel, Habicht, and Olson, (1992) shows that mothers who attended a clinic with routine check-ups had a significantly higher increased knowledge of the appropriate timing for introducing animal protein rich foods and about the use of oral rehydration salts than those who did not attend. This association was especially significant for mothers with only primary education and those with infants <6 months old. Eighty-five percent knew to introduce cereals and liquids between 4-6 months old. Yet few mothers knew how to appropriately stop breast feeding. For example, 50% believed it should stop in one day.

In another study conducted by Tara, Paul, Christian, Rita and Sundar (2000), there was a significant and positive relationship between maternal knowledge and functional knowledge of the growth chart (GC), and coverage of children for GM. However, very few mothers (1 per cent) could interpret growth charts (GC) correctly.

2. Routine Health Talk

A study was conducted by Zoskha, Adeleke, Gbefwi, Otokwula (2002) to determine the knowledge of 320 nursing mothers attending the Jos University Teaching Hospital (JUTH), Primary Health Clinic, Nassarawa and Tudun Wada, all in Jos North LGA of Plateau State on the interpretation of growth monitoring curves and assessing those factors that are responsible for the differences in their knowledge in the primary care facilities. The result showed that the interpretation of growth monitoring was correct in 40.6% of mothers for a rising curve, 37.2%

for a flat curve and 45.3% for falling curve. Statistically significant difference was found between the correct interpretations of growth curve by mothers from family health clinics compared with the other two PHC facilities. The study recommended that mothers should be involved in a formal method of training using group discussion, demonstration and nutritional promotion.

3. Nutritional intervention

A study conducted in Lesotho by Ruel, Habicht, and Olson, evaluated the impact of a clinic-based growth monitoring programme on maternal nutrition knowledge in Lesotho among 907 mothers of children less than two in 8 clinics attending health clinics. At the clinics, the mothers did not undergo individual counseling or receive training in growth charts but were given group nutrition education but separately from the growth monitoring programme. Results showed that mothers who attended a clinic had a significantly higher increased knowledge of the appropriate timing for introducing animal protein rich foods and about the use of oral rehydration salts than those who did not attend ($p < .05$). This association was especially significant for mothers with only primary education and those with infants <6 months old. The mothers reported breast feeding a mean of 2 years. 85% knew to introduce cereals and liquids between 4-6 months old though few mothers knew how to appropriately stop breast feeding. For example, 50% believed it should stop in one day.

Another study from India which randomly allocated six pairs of villages to receive or not to receive routine growth monitoring nested in a health intervention programme, with both groups receiving a nutritional and healthcare package at weekly rural clinics. In the growth monitoring villages, a community health worker weighed the children every month and followed a specific protocol of responses if growth faltered. No routine weighing was conducted in the control villages. Mean weight gain and mean height gain in the children were then compared over the 30 month period of intervention through five cross sectional surveys. Findings showed that the mean Z scores of weight for age and height for age were similar in the villages both with and without growth monitoring. However, scores improved in

both intervention and control arms but was better in the former but no difference in mean weight and height gain during the 30 months was detected.

4. Counselling

A study by Garner, Panpanich and Logan (2000) sought to evaluate research evidence of the impact of Growth monitoring by reviewing quasi-randomised trial studies which compared routine growth monitoring (regular monitoring of growth, plotting on a chart, combined with referral or intervention when growth is abnormal) with no growth monitoring showed that two studies (conducted in developing countries) showed that in one, the nutritional status at 30 months in 500 children showed no difference between those allocated to growth monitoring and those not. The other study examined whether counselling improved mothers' knowledge of the growth chart, and reported better test scores at four months.

5. Individualised training

A study was conducted by Forsyth (1984) in Papua New Guinea among 142 women attending maternal and child health clinics who were given individualised training intervention following baseline survey. A follow-up was conducted 4 months later to measure the effects of nutrition education in mothers' accuracy in identifying test charts and the children's nutritional development. Findings indicate that weight charts achieve little in the way of motivating urban Papua New Guinea mothers to provide nourishment for their children despite the wide popularity of weight charts in nutrition education and their role in motivating mothers to assist in child development.

6. Intervention Using Bubble Chart

Martinez, Chavez, Guzman, Rios and Chavez (1996) uses the bubble chart intervention in a rural area of central Mexico to improve mothers' knowledge, understanding, and use. The bubble chart uses a vertical layout rather than the more common horizontal one, and bubbles instead of cross-creasing lines. Mothers were visited by field auxiliaries at home once a month when the child was weighed, the weight plotted and the mother was instructed on how to interpret the chart. When growth faltered the mothers were instructed on appropriate actions.

The result of the evaluation using a 14 item questions based on Bloom's taxonomy of the learning process sequence that goes from knowledge to understanding (comprising translation, interpretation, extrapolation and application) showed an increase between pre-intervention and post-intervention, with a statistically significant ($p < 0.5$) increase in knowledge, interpretation, and application; the mothers ranked highest in knowledge. The children's nutritional status increased significantly ($p < .0001$) between pre-intervention and post-intervention. Except for one child, they had at least one period of weight loss during the study period. However, 81% of them gained weight most of the time (i.e. at least two-thirds of weight records showed neither gain nor loss), and 12% lost weight most of the time (at least two-thirds of records showed weight loss). Mothers of children who mostly gained weight had higher knowledge, understanding, and application scores ($p < .01$). Similarly, these mothers were most likely to perform all the activities promoted as part of the growth programme ($p < .001$). Whilst demonstrating an impact, this study is limited by lack of controls and the intensive nature of the intervention which raises issues of sustainability. Whilst not having a control, the demonstration of the effect of improved knowledge on nutritional status does at least provide some supporting evidence for the impact of the programme.

7. Educational game intervention

A study of mothers attending various clinics at a hospital in rural Ilobisa District, Kwa Zulu tested and evaluated the 'Growth Monitoring Teaching Aid' (GMTA), an educational game which attempts to expedite the process of understanding growth curves by simulating the growth curve of a child using water added to a bucket suspended below the direct reeving scales (Sohal, Wilkinson and Morley 1998). Result of the paired t tests revealed that the experimental group significantly increased their understanding of growth, whereas the control group did not. The mean score for the experimental group prior to playing the game was 1.43; this increased to 5.27 after playing the game ($P < 0.0001$). The study concluded that GMTA by rapidly improving the present poor level of understanding of growth curves may aid greater maternal participation in growth monitoring.

2.7 Challenges associated with growth monitoring

Researchers opinions differ on whether or not growth monitoring has been a successful programme or otherwise. This has been catalyzed by viewpoints from international meetings. For example, at an international workshop held in Indonesia in 1984 to promote the exchange of experiences at the twelfth session of the sub-committee on Nutrition (SCN), in April 1986 in Tokyo, the Advisory Group on Nutrition (AGN) of the SCN was requested to make a statement with regard to growth-monitoring techniques and uses. It reported that while most published papers have concentrated mainly on technical details, more important issues such as the objectives, feasibility, and usefulness of growth monitoring and its relevance and effectiveness in promoting child nutrition and health have not been dealt with adequately. Secondly there is concern about the lack of quality evidence that growth monitoring is effective. A systematic review of randomized or quasi-randomized comparison studies of growth monitoring intervention programmes in children from developing countries was conducted by Hall (1996) to find out if routine growth monitoring in children prevents death, illness or malnutrition. The study sought whether there were regular monitoring (at least three monthly) of growth through measurement of weight, height, or mid upper arm circumference; conversion of these measures to weight for age, height for age, and/or weight for height. The outcomes sought were: Responses to illnesses, including referrals to primary care and to specialist services and effect on child morbidity and mortality outcomes.

The results showed that no study evaluated the effects of growth monitoring on child morbidity or mortality; or measured maternal satisfaction or anxiety in relation to results of health worker feedback at the time of weighing. No studies evaluated referral as an outcome. Based on these findings, the implications for practice according to the authors is that firstly, there is insufficient reliable information currently that provide high level of confidence that routine growth monitoring is of benefit to child health and to conclude that health professionals should actively pursue children to obtain measures of growth at arbitrarily defined intervals including home visits for children who have not attended clinics at predefined ages. In this regard, it is important that future work seeks to clarify whether any

benefits accruing from routine checks are a result of the growth monitoring or other aspects of attending clinics for routine checks.

Part of the issues needing clarity is the purpose of weighing, clear criteria for action, and the appropriate course of action which would show whether risk of conducting growth monitoring can do more harm than good. They argued that though people intuitively think that it does not appear harmful, however, this assumption may be incorrect as growth monitoring can cause anxiety in the carer (usually the mother) and large amounts of valuable health worker and carer time are expended in carrying it out.

Other authors such as Davies and Williams (1983) echoed the concerns of Hall (1996) on the problems with growth monitoring stating that the practice of medicine contains numerous examples of diagnostic and therapeutic interventions that are widely assumed to confer benefit but are supported by little real evidence. The author cited a 1983 study which appraised the then widely implemented clinical practice of weighing babies—asking if this procedure was worthwhile. From the study findings, the authors drew attention to poor weighing methods, cold rooms, variable amounts of clothes covering babies when weighed, use of inaccurate weighing scales, insufficient use of centile charts, and a poor understanding by those responsible for weighing babies of normal variations in weight profiles, including not inconsiderable shifts across centile lines. It concluded that if providing the measurement of weight was accurate, individual values plotted on centile charts, and the resulting profile sensibly interpreted, this could be a valuable method of health monitoring but possibly the greatest benefit was for mothers to be given the opportunity to discuss any queries about child care when bringing their babies to be weighed.

In support of the growth monitoring ~~program~~, it was reported that in Casamance, rural Senegal, growth monitoring sessions have been shown to be an incentive for mothers to bring their young children to the ~~dispensaries~~ during which sessions were held to detect and treat illnesses, deliver nutrition and health education, and distribute chloroquine. In this programme, the average coverage of ~~growth monitoring~~ was approximately 90% for children aged 3–24 months, and average attendance at the monthly sessions was 71% (Pinchinat, 1991).

Pison, Duthe and Largarde, 2004). Over a 30-year period of growth monitoring, there was a substantial decline in under-5 mortality (from 312 to 127 per 1000) and a reported decrease in severe malnutrition, although there was no change in mean weight-for-age. These data are suggestive of a benefit of growth monitoring in terms of improved utilization of health services, though comparative data from dispensaries with no growth monitoring would have added a robust conclusion (Pinchinat et al. 2004). The workshop proceedings on Growth monitoring in Yogyakarta Indonesia, 20-24 August 1984 also indicated that in a nutrition programme in Thailand, growth monitoring was reported to have been used to "eradicate all cases of 3rd degree PEM in under-fives and to decrease the prevalence of 2nd degree PEM". These findings reconfirm UNICEF's (1986) opinion which stated that growth-monitoring programmes have been providing a new focus on the nutritional problems of children in developing countries and as having the potential, if conducted on the right lines and with appropriate simple technology, to provide the means to upgrade nutrition from its position of relative unimportance in the health system. In Hanover, Jamaica, project workers felt that growth monitoring itself was an intervention, as mothers learned so much about the relationship between diet and health by watching their children's growth patterns that this alone led to dietary improvements that substantially reduced malnutrition and mortality (Griffiths, 2005). In the TNINP, growth charts serve as an educational tool, as most mothers can interpret the trends of the growth lines and seem to be able to relate a downward trend with an illness, especially diarrhea (Ghoshs, 1986).

However, some authors are not sure of whether the programme is an outright success or failure. Griffiths (2005) stated that the success of growth monitoring using weighing and growth charting has been demonstrated in some small-scale projects with dedicated leadership and supervision is yet to be realized in most places. Yee and Zerfas (1986) reported that although the technique was useful, little information was often provided on how the benefits were measured, and actual data to back up the claims were frequently missing. The authors stated further that although the prevalence of malnutrition was reduced in programmes that incorporated growth monitoring; however, the relative contribution of growth monitoring to this reduction cannot be determined easily.

Child growth is the mostly widely used measured of children's nutritional status. Stunting (i.e. low height- for- age) reflects the cumulative effects of under-nutrition and infections since birth- and even before birth. Evidence of this condition indicates chronic malnutrition, which is likely to have serious and long lasting impacts on health. Being under weight may reflect wasting (i.e. low weight -for- height which indicates acute weight loss and /or stunting. Thus, it is composite indicator that is more difficult to interpret. Fewer data are available on the number of overweight children, although it is known that many countries face a double burden of malnutrition (with high numbers of underweight or stunted children) in some population groups coupled with high numbers of overweight children in other groups (WHO 2013).

Growth increases energy expenditure through synthesis of new tissues. However, except for the first month of life, the energy requirement for growth relative to the total energy requirement is small; it decreases from about 40% at age one month to about 3% at the age of 12 months (Butte, 2005).

The doubly labeled water (DLW) database used by FAO/WHO/UNU (2004) comprised 13 studies with DLW measurements performed on a total of 417 healthy, well nourished, non-stunted infant age 0-12 months and growing along trajectory of the WHO reference standard (1983).

Haaga, (1984) was of the opinion that growth monitoring has not been successful. He argued that few studies have been specifically designed to isolate the effect of growth monitoring on health outcomes by comparing programme villages or individuals with true controls and given the energy with which it is being promoted, there have still been far too few evaluations of the effects of programme on health outcome.

Furthermore, the author reported that the most useful estimates for programme planning are those from quasi-experimental evaluations of similar programmes operating in comparable circumstances and that until a body of such results has been built up, there is little basis for a universal statement one way or the other on the effectiveness of growth monitoring. O'Drien, (1978) stated that even though growth monitoring is simple in concept, difficulties abound as

only 35 of 178 countries (20%) contacted between 1998 and 2000 reported having no problems with the use of growth charts (de Onis *et al.* 2004), which is similar to the proportion (22%) in 1978 among health personnel contacted in 50 countries. To further buttress the problems of growth monitoring, health economists in the 1980s comparing the successes and failure of key Primary Health Care priorities using a cost-benefit analysis approach, indicated that the outputs from their analysis showed that immunization and oral rehydration could have marked benefits in terms of reducing mortality, but the same could not be shown for growth monitoring. They concluded that no difference in terms of reduced mortality or improved nutrition could be attributed to the use of weighing and charts.

Nabarro and Cluncock, (1988) also found that growth charts were rarely completed, and decisions were not taken when the growth curve faltered. As a result of these concerns, emphasis was removed from growth monitoring programmes which led to seldom mentioning in publications concerned with improving the nutrition of children (Meegan and Morley, 1999). Similarly in 1990, Samir Basta, then Director of the UNICEF Evaluation Office, initiated an evaluation of UNICEF-supported growth-monitoring activities in seven countries. This revealed low coverage, poor understanding of the causes of malnutrition, and few growth-promotion actions (Pearson, 1995).

Although the Report concluded that UNICEF had invested insufficient funds to make the programmes work, many took the Report to mean that growth-monitoring activities were ineffective (Shrimpton, 2003). The Report led to discussions that reshaped UNICEF's policies and strategies and in the 1990s there was disinvestment in community-based nutrition programmes and a notable shift in expenditure away from growth monitoring towards breastfeeding promotion, immunization and micronutrients, especially vitamin A and iodine. The overall position of those not favourably disposed to Growth monitoring is that it is an insignificant practice unless the mother is enabled to understand the significance of growth trends as they influence the feeding of her child during the critical weaning period. It is therefore essential that health personnel and mothers comprehend this and ensure that growth monitoring becomes a guide to appropriate corrective actions (UNICEF, 1983).

To overcome the problem of quality evidence data, Hall (1996) recommended trial testing of growth monitoring in different settings and the primary purpose of monitoring. In this context, the researchers are expected to do the following:

1. Define clearly the intervention, including the actions that arise out of detecting faltering growth
2. Randomise participants (by clinic or village), and ensure sufficient data are collected to correct for design effects
3. Identify and define outcomes carefully, dependent on the agreed purpose of the growth monitoring. These should include nutritional status. They may include measures of medical referral, treatments given or conditions detected; information about maternal knowledge, feeding practices, and satisfaction with the service
4. Include representatives of parents in the planning of the study, to particularly help with defining parental satisfaction outcomes.

2.8 Traditional Ways of Monitoring Children's Growth

The review of literature indicates little research on traditional growth monitoring practices.

A few traditional ways have been documented through which the growth of children is monitored. Traditional "anthropometric" measures have been reported. It is customary in central Ghana, as in many other cultures, to make strings or beads for a newborn and put them around the waist, wrists and legs. Though intended as decoration, they have been used by many parents to assess the growth of their children. "One mother explained that by the time the child had reached the age of 5 months, the bead-strings around the waist should have been changed or adjusted five times." Other items mentioned included metal bracelets, necklaces and finger rings (Lovel, De Graaf, Gordon, 1985). It was realized that the fit of bead strings, as it may alert the mother or health worker earlier to growth faltering and thus to the very initial stages of illness. A community survey in central Ghana examined closely the growth related beliefs and practices of local mothers and families with a key question concerned with how mothers know when their children are growing or not growing well. The findings revealed rich and comprehensive indicators such as appetite, stages of physical and mental development, general health and appearance and the feel and look of the skin. Height and

weight were also mentioned, as well as variations in mood and activity level (Lovel et al, 1985).

In several recent studies reviewed by Lovel et al (1985), it was indicated that mothers often have a wide range of criteria for deciding whether their children are growing well, including signs such as activity level, general appearance, progress toward developmental milestones, symptoms such as appetite and mood changes, and various traditional "anthropometric" measures such as the fit of bead strings and clothes. Growth monitoring project personnel may be able to show mothers how periodic weighing can add new information critical to detecting early growth faltering. Workers may also find that some traditional indicators are sufficiently sensitive to provide additional useful "early warning signs" that indicate poor growth even before weight changes are detected. Although it has been emphasized that health workers may find it valuable to integrate traditional approaches into their system, working jointly with mothers to make productive use of their observations in addition to the results of the weighing exercise (Lovel et al 1985) and further research is needed concerning the sensitivity of traditional indicators.

2.9 Task Shifting as part of Child Survival Strategy.

Task shifting as defined by Harriet, Delius and Rhona (2000) is seen as a process of delegation whereby tasks are moved, where appropriate to less specialized health workers or individual are to take up a responsibilities. Task shifting is not a new concept; however it has been given particular prominence and urgency in the face of the demands placed on health systems in a number of settings (Hermann et al., 2009; Schneider 2008; Zachariah et al., 2009). Even in high income country settings, a perceived need for mechanism to deliver health care to minority communities and to support people with wide range of health issues (Hesselink, 2009; Wilmer, 1995) led to further growth in a wide range of CHW interventions.

The world especially in the maternal health sector has been experiencing a chronic shortage of health workers in developing countries where infant and child mortality is on increase (WHO, 2008). Task shifting is being proposed as a solution to the problem (Harriet et al, 2000). In the study carried out in Uganda by Harriet et al (2000), this study revealed that maternal child

health is a broad area covering the large proportion of the population that is particularly vulnerable, task shifting in the sector could serve as a model to other health sectors too.

In a focus grouped discussion carried out in Kenya by Hasel, Beverly, Dan, Frederick, Odhiambo and Mary, (2013) the task that should be shifted to individual in the community without losing quality were listed this include: VCT counseling, community health education n hygiene, chronic illnesses, family planning, how to diagnose and treat malaria, pneumonia and diarrhea.

In tasking shifting implementation, Uganda has been recognised as one of the countries in implementing it due to the shortage at informal level. As a result, nurses are now undertaking tasks that were formerly the responsibility of doctors, including managing milder opportunistic infections. Correspondingly, some nursing work has been taken on by community health workers who have training but no professional qualifications. Newer types of health cadres are also trained to support clinical triage. This has also occurred with the integrated management of childhood illnesses and training of traditional birth attendant in maternal health care (Harriet, Delius and Rhona, 2000). In certain circumstances, task shifting can reduce cost but requires new and additional resources (WHO, 2007).

In addition, there is both support and resistance to task shifting. There are varied views on task shifting. Those in favour of task shifting see it as a potential solution to problems of lack of skilled personnel and high demand for maternal health services (WHO 2007). Those opposed to task shifting see it as quick fix and an approach that could dilute the quality of care and compromise the health system in the long term. Donor and International agencies widely support task shifting WHO (2007) although WHO is now opposed to training TBAs (WHO 2008).

2.9 Conceptual Framework

Health Belief Model (HBM)

The Health Belief Model (HBM) was one of the first theories of health behavior, and remains one of the most widely recognized in the field of health promotion and education. It was developed in the 1950s by a group of United States Public Health Service social psychologists

who wanted to explain why so few people were participating in programmes to prevent and detect disease.

The authors theorized that people's beliefs about whether they are or not susceptible to disease, and their perceptions of the benefits of trying to avoid it, would influence their readiness to act. A heavy component of the behaving individual's perceptual world and motivation was incorporated into the Health Belief Model by its developers. The model is interactive as each step influences the others, and is based on three primary dimensions. In recent years, researchers expanded upon this theory, eventually concluding that six main constructs influence people's decisions about whether to take action to prevent, screen for, and control illness.

They argued that people are ready to act if they:

1. believe they are susceptible to the condition (perceived susceptibility);
2. believe the condition has serious consequences (perceived severity);
3. believe taking action would reduce their susceptibility to the condition or its severity (perceived benefits);
4. believe costs of taking action (perceived barriers) are outweighed by the benefits;
5. are exposed to factors that prompt action (e.g., a television advertisement) (cues to action); and
6. are they confident in their ability to successfully perform an action (self-efficacy);

Since health motivation is its central focus, the HBM is a good fit for addressing problem behaviours that evoke health concerns (e.g., high-risk sexual behaviour and the possibility of contracting HIV).

Application of the Health Belief Model to the Caregivers Perceptions and Practice on Growth Monitoring

Perceived susceptibility: The belief that stunted growth linked with malnutrition could affect children if not monitored.

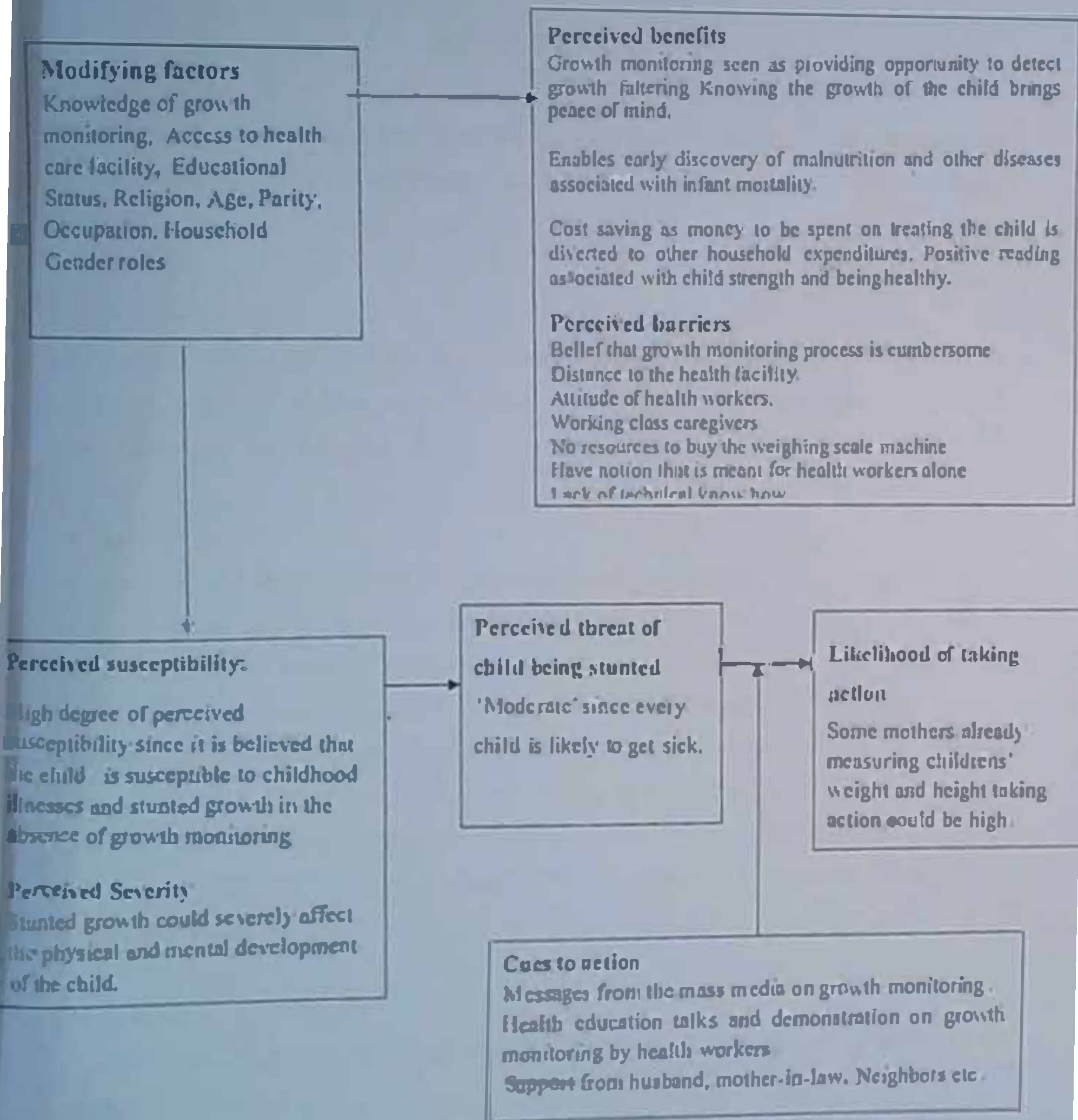
Perceived severity: The belief that consequences of not monitoring growth could lead to stunted growth which could severely affect the physical and mental development of the child which may affect the child forever.

Perceived benefits: The belief that taking action would reduce susceptibility to childhood illness or its severity. If caregivers believe that going to health facilities or monitoring the growth of their children will help them reduce severity of diseases. Caregivers are likely to have a positive attitude towards growth monitoring services. There is peace of mind on the part of the caregiver, early discovery of malnutrition and other diseases associated with infant mortality, money not spent on treatment and the child is strong and healthy.

Perceived barriers: The belief that growth monitoring is cumbersome, distance to the health facility, attitude of health workers and working class caregivers. If these perceived barriers outweigh the benefits, they could influence the improper use of the growth monitoring services by caregivers.

Cue to action: Factors that can encourage caregivers to monitor the growth of their children could be health education talks and demonstration of growth monitoring by health workers, messages in the mass media on growth monitoring and support from husband, mother-in-law and neighbors.

Figure 2.1: The Health Belief Model as applied to the caregiver's perceptions and practice on growth monitoring.



CHAPTER THREE

METHODOLOGY

3.1 Study Design

A descriptive cross-sectional survey study was used for the study of caregivers' perception on growth monitoring of under-five children in Ibadan South West Local government, Oyo State, Nigeria.

3.2 Scope of the Study

The scope of the study was limited to assessing perception, attitude and practices of caregivers on growth monitoring of children aged 0-5 years in Ibadan South West Local government, Oyo State, Nigeria.

3.3 Study Area

The study was carried out in Ibadan South West local government (LGA), Oyo State. The LGA was carved out of the defunct Ibadan Municipal Government (IMG) on 27th August, 1991. It is located near the Government Reservation Area (GRA), Iyaganku with its administrative headquarters at Oluyole Estate within the office complex of the former Ibadan Metropolitan Planning Authority along Basborun M.K.O. Abiola Way, Ibadan. It has a land mass of about 244.55km square and one of the largest LGAs in Oyo State. The LGA as of 2011 has a population figure of 283,098 with a projected population of 345,360 in 2012. There are 85 primary and 28 secondary schools in the local government. Many women in the area are not educated.

3.4 Population for the Study

The population in this study consisted of mothers with one or more children within the age of 0-5 years in the community.

3.4.1 Inclusion criteria

Caregivers with one or more children aged 0 to 5 years

3.4.2 Exclusion criteria

Women with children older than the age of 5 years

3.5 Sample Size

The sample size was calculated using the EPI INFO Statistical Package

Size of the Population 17,720 (Caregivers of under-five's in Ibadan South West Ward)

Desired Precision 0.5

Expected Prevalence of Growth Monitoring 0.45 (NDHS, 2008)

Confidence level 95%

Sample size 372

To take care of the attrition, 10 percent of the calculated sample size will be added to give a new sample of 409 and it was rounded up to 410.

3.6 Sampling technique: A four-stage sampling technique was used to recruit study subjects as follows: In the first stage, the list of all the wards was compiled and the 12 wards in LGA were stratified into two main high and low populated categories (see Table 3.1 below). In the second stage, (random sampling) balloting was used to select one ward in each category. In the third stage, all communities in each ward were listed and proportionate sampling was used to determine the sample size in each community. The fourth stage involved random selection of the households by balloting followed by selection of a caregiver with an under-five child. Where the under-five children are more than one from a caregiver that was to be interviewed, balloting was used to select the one on which the interview is to be conducted.

Table 3.1: List of High and Low populated wards in Ibadan South West Local Government

Wards	Community	Population of U-5 caregivers
Ward one*	Beere Oja-oba Orita-merin Alekuso Ori olowo Orisin niyan	3700
Ward two*	Oja iba Idi arere Isale Osi(Apanpa Compound) Bom photo	3520
Ward three*	Gege Ita aregbe omo compound Akuro Isale ijebu	2740
Ward four*	Idi- arere Ibuko Gbodu Popoyemoja Akuro Bode	3844
Ward five*	Gege Apana Foko- Asaka Maya Akuro	3162
Ward six*	Foko Maya Amule Akuro Ita maya Oke- foko	3250
Ward seven*	Foko Amule Ile saki Agbokojo area Amunigun Ogunpa Asberr	3752
Ward eight**	NTC Road/iyaganku Oke bola Ogunpa	10048
Ward nine*	Molete Challenge Arifani College area Imak Salafia	3752

Ward ten*	Oke-Ado Liberty Road Joyce B Ososami	3418
Ward eleven**	Ring road/ Iyaganku/ Joyce B Oluyole Estate/ challenge Old passport office Orta challenge Town planning New Adcoyo	14020
Ward twelve**	Odo ona, Akinyemi way Apata Gbekuba Idi-isin Railway station/ Jericho Oke Ayo Gada/odo ona	14800

Source: Ibadan South West Local government (Administrative Department 2012)

*Wards with low population

**Wards with high population

Ward One and eleven were then randomly selected for the study area.

3.7 Methods for Data Collection

3.7.1 Development of Instruments and Methods for Data Collection

Both qualitative and quantitative methods were used in collecting the data.

1. Qualitative: The qualitative method used was the Focus Group Discussion (FGD). A Focus group Discussion guide was developed which explored issues relating to concept of growth monitoring, nutrition, how caregivers traditionally monitor their children's growth, what they know about modern ways of monitoring child growth, the ease and difficulties of performing the task involved and willingness to undertake such tasks (Appendix III).

2. Quantitative: A validated semi-structured questionnaire (See Appendix II) measured the caregivers' knowledge, perception, attitude and willingness to carry out growth monitoring was used to elicit response from respondents of the study using interviewer administered approach. The questionnaire was developed after a review of the literature. The results of the conducted FGDs were also used to fine tune or modify the questionnaire.

3.7.2 Validity and Reliability

3.7.2.1 Validity

Validity is the ability of a test or an instrument to measure what the investigator wants to measure and was ensured by the following steps:

1. A draft of the questionnaire was constructed by consulting relevant literature
2. The draft instrument underwent an independent review from peers and experts in the field of public health.
3. Supervisor's review was used in fine-tuning the instrument.
4. Content validity of the questionnaire was further ensured through the incorporation of the preliminary pretested FGD outputs.
5. Special care was taken to monitor the quality of data collected through supervision during collection of data.

3.7.2.2 Reliability of the Instrument

Reliability is the accuracy or precision of a research-measuring instrument. Both the FGD guide and the questionnaire were reviewed for quality and consistency. The instruments were translated into Yoruba (which is the local language of the target population-Appendix IV) by a Yoruba language expert. Another Yoruba language expert translated it back to English language. The two instruments were pre-tested to ascertain suitability and appropriateness to field situations, determine whether the questions were clear and simple enough for participants' comprehension and determine the trend in the response of participants and the amount of time it took to administer the questionnaire. Two FGDs, forty-one child caretakers were interviewed with the questionnaire (representing 10% of the actual sample size for this study) at Yemetu area. At the end of the exercise, items that were not easily understood were reframed, those that were found to be irrelevant were removed and adequate spaces were provided for responses. The pretest questions were analyzed using the SPSS Version 15.

The reliability coefficient of the questionnaire was also done by conducting the interview twice with the same child caretaker using the same questionnaire. The reliability was calculated using the Cronbach's Alpha reliability test. The result was 0.8 which was interpreted as reliable.

3.8 Ethical Consideration

The proposal was submitted, reviewed and approved by the Oyo State Ethical review committee before the commencement of data collection (See Appendix VIII). A letter introducing the researcher and the purpose of the research work was obtained from the Department of Health Promotion and Education, for all official contacts throughout the period of fieldwork (Appendix VII).

Informed consent was obtained from the respondents by giving them an informed consent form to fill and explaining it to the best of their understanding and also their ability to read and write. The informed consent form spelled out the title of the study, purpose of the study, justification for doing the study and as well as the benefits that would be derived from the end of the study. The form was given to participants who could read requesting them to go through the entire form and make a decision on participating. For those who cannot read or write, oral consent was obtained.

Participation was voluntary and participants were given the choice to withdraw their consent freely if they choose to anytime. There was no criticism of respondents who refused to participate. Confidentiality of information given by each respondent was highly maintained during the research and after the data collection. No identifier like name or address was written on the questionnaire so as to keep the information given by each respondent as confidential as possible.

3.9 Data Collection Procedure

The instruments were modified and standardized after which three research assistants were trained for data collection. The research assistants were trained in the following areas; the objectives of the study, basic facts on sampling procedure as well as a review of the instruments item by item in order to ensure adequate understanding of the instruments, appropriate recording of responses and seeking clarification in case of unclear responses and communication skills. In addition, ethical issues such as obtaining informed consent, respect for privacy and confidentiality of information were explained to the research assistants. A

manual of field operation was prepared to explain how entries would be made, the number of questionnaires to be administered and how variables would be coded.

The research assistants with the researcher were involved in the collection of the data. Data collection took place in the month of July 2012 mostly in the evenings on week days and in the mornings and evenings of weekend days when it was easier to get the participants. Short debriefing sessions were also held at the end of each day where the day's work was reviewed and the next plan of action disseminated to the research assistants.

3.9.1 The Focus Group Discussion Guide (FGD)

A total of six focus group discussions were held in June, 2012 for two days. Each focus group session, which lasted for almost half hour, involved between 6 and 8 participants. A team of two persons consisting of a moderator, and note taker were involved in each of the FGDs. The moderator was the principal investigator and the other persons were research assistants. The moderator welcomed all and explained the reason for the meeting in Yoruba language. All the participants were allowed to express themselves without interruptions. A tape recorder was also used to complement documentations by the note takers. Questions were asked using the FGD guide. At the end of the FGDs, the tapes were transcribed verbatim and the report of each was written.

3.9.2 Questionnaire Interview

The researcher with the (3) trained research assistants administered the questionnaire to caregivers in Ibadan South West, Oyo state, Nigeria. The completed questionnaires were submitted to the researcher at the end of each day of the period of data collection and were screened before the research assistants left. A total of 410 questionnaires were completed as shown in Table 3.2 below:

Table 3.2: Community Location of the Respondents

Location	Frequency	Percent
Periphery**	273	66.6
Inner core*	137	33.4
Total	410	100

**Challenge, Orita Challenge, Joyce B. Oluyole, New Adcoyo, Ring Road.

*Beere, Oja Oba, Orita Merin, Alekuso, Oriolowo, Orisin niyan.

3.10 Data Management and Analysis

The tape – recorded responses from the FGDs were transcribed verbatim and used to update the write up of the recorder. The FGD report was analyzed manually by the researcher. Content and context analysis using a thematic approach involving the grouping together of similar themes in each transcript was done followed by identifying emerging trends and differences across transcripts:

In respect to data analysis from the questionnaire the following were done:

1. All questionnaires were numbered, reviewed and edited by the researcher for completeness
2. The quality of the information collected was checked.
3. A coding scheme guide was developed and data were manually coded and entered into the computer.

The data were analyzed using statistical package for social science (SPSS). Knowledge variables were scored: From a total maximum knowledge score (on caregiver's knowledge about growth monitoring) of 21 points, an incorrect answer or no response had a score of 0. The scores were then summed up to give a composite knowledge score for each respondent. Knowledge of respondents was categorized into "high" (>15), "average" (8-15) and "poor" (<8) grades.

Perception variables were scored: From a total maximum perception score (on caregiver's perceptions about growth monitoring) of 16 points, an incorrect answer or no response had a score of 0. The scores were then being summed up to give a composite perception score for

each respondent. Perception of respondents were categorized into negative perception (≤ 8) and positive perception (> 8)

Attitude variables were scored: From a total maximum attitudinal score (on caregiver's attitude about growth monitoring) of 11 points, an incorrect answer or no response had a score of 0. The scores were then summed up to give a composite attitudinal score for each respondent. Attitude of respondents was categorized into negative attitude (≤ 6) and positive attitude (> 6).

Frequency and percentage tables were generated and Cross tabulations of some variables done using the Chi-square (χ^2) test. The research hypotheses were tested to establish significant relationship between the independent and dependent variables using the chi-square test at 5% probability level for rejecting the null hypotheses. Cross tabulation of dependent and independent variables was also done to establish relationship between the variables. The results were presented in tables.

3.11 Limitation of the Study

Limitations encountered were inability of the caregivers to recall some of their past experiences concerning their child's health. Most of the caregivers that participated in the quantitative research were demanding for money and materials which was not part of the initial plan of the study. The incentive packages were only meant for those that took part in the Focus Group Discussions.

Most of the caregivers panicked and were not willing to answer the question at the initial stage because on hearing that the research will involve their under-five children. There was also difficulty in gaining access to the government reserved areas. However these problems were addressed successfully through the provision of more information and assurance.

CHAPTER FOUR

RESULTS

Socio Demographic Variable

The results for both qualitative and quantitative data are presented in this chapter.

4.1: Socio- Demographic Profile of the COU-5 and their Children

A completion response rate of 100% (410 out of 410) was obtained among caregivers selected for the study. The ages of the caregivers ranged from 19 to 56 years and the children age from 1 to 59 months with the mean age of 31.6 ± 6.5 years and 23.5 ± 16.7 months respectively. Fig 4.1 shows the distribution age of the caregivers. Majority 215 (52.4%) of the respondents were Muslims and 195 (47.6%) were Christians. The distribution of the respondents by ethnic group showed that the majority of the respondents 362 (88.3%) were Yoruba; the remainder were Igbo 30 (7.3%), Hausa 11 (2.7%) and others (Edo, Ebiara, Ijaw and Bomo) 7 (1.7%).

The educational qualification showed that 310 (75.6%) had secondary education and above, while 69 (16.8%) and 31 (7.6%) had primary and no formal education respectively. Slightly more than half 233 (56.8%) were taders, 87 (21.2%) artisans, 40 (9.8%) Teaching, 21 (5.1%) Housewife, 18 (4.4%) civil servant, 4 (1.0%) Student, 3 (0.7%) Apprentice, 2 (0.5%) Nurse and 2 (0.5%) were unemployed. Majority 396 (96.6%) were married, 8 (2.0%) divorced while single and widowed were 4 (1.0%) and 2 (0.5 %) respectively. Nearly more than half 226 (55.1%) of the respondents had stayed mostly in town while 140 (34.1%) and 44 (10.7%) had lived in cities and villages respectively.

Two hundred and ninety nine (72.9%) of the children were born in health facilities while 43 (10.5%), 16 (3.9%), 52 (12.7%) were from Home, TBAs and Mission Home/Church respectively. Fifty-two percent (213) of the U-5 were male, while 197 (48.0%) were female. The number of their children ranged from one to five and above 206 (50.2%) have between 1 to 2 children, 3 to 4 164 (40.0%), 5 and above 40 (9.8%). Also, 23 (5.6%) weighed < 2.5 kg at birth while 189 (46.1%) weighed > 2.5 and above

Table 4.1: Respondent and their Children's Profiles

Socio- Demographic	Frequency	Percentage
Religion		
Christianity	195	47.6
Islam	215	52.4
Ethnicity		
Yoruba	362	88.3
Igbo	30	7.3
Hausa	11	2.7
Others	7	1.7
Educational Level		
No formal Education	31	7.6
Primary Education	69	16.8
Secondary Education & above	310	75.6
Occupation		
Civil servant	18	4.4
Trading	233	56.8
Artisan	87	21.2
Teaching	40	9.8
Students	4	1.0
Housewife	21	5.1
Apprentice	3	0.7
Nurse	2	0.5
Unemployed	2	0.5
Marital Status		
Single	4	1.0
Married	396	96.6
Divorced	8	2.0
Widow	2	0.5
Area Lived Before		
Village	44	10.7
Town	226	55.1
City	140	34.1
Sex of the Child		
Male	213	52.0
Female	197	48.0
Age of the Child		
Less than 11 months	127	31.0
12-23 months	87	21.2
24-35 months	80	19.5
36-47 months	60	14.6
48-59 months	56	13.7
Place of birth		
Hospital	299	72.9
Mission Home Church	52	12.7
Home	43	10.5
THAs	16	3.9
Number of Children		
1-2	206	50.2
3-4	164	40.0
5 & above	40	9.8
Weight at Birth		
<2.5 kg	23	5.6
>2.5 kg and above	389	41.6



Figure 4.1: Respondents Age



Figure 4.1: Respondents Age

Knowledge about Growth Monitoring

Three hundred and sixty two 362 (88.3%) have heard information about growth monitoring while 48 (11.7%) have not heard about it. The mean knowledge score of growth monitoring is 9.25 ± 2.7 ; 273 (75.4%) got the growth monitoring information from health facility, 33 (9.1%) heard from radio and television, 26 (7.2%) from books, while 17 (4.7%), 10 (2.8%), 3 (0.8%) heard from parent/family, friends and posters respectively (Table 4.2).

One hundred and ten respondent (24.1%) indicated that weighing, 99 (21.7%) nutrition, 111 (24.1%) for observation had been the ways through which they have been monitoring their child's growth and 137 (30%) don't know. (Table 4.3)

Table 4.3: Ways in which the respondents have been monitoring their children's growth

N=456

Responses	Frequency	Percentage
Weighing	110	24.1
Nutrition	99	21.7
Observation	110	24.1
Don't know	137	30.0

* Multiple response questions

Thirty-nine percent of the respondents were able to define growth monitoring as measuring height and weight, 56 (13.7%) define it as giving nutritious food to children while 14 (3.4%) agreed to measure height and weight to give nutritional intervention to children. 65 (15.9%) others gave various definitions to growth monitoring (overall health of children, taking care of the baby, drug use, child's safety, proper caring and playing habit) and 115 (28.0%) gave no response. (Table 4.4)

Table 4.4: Definitions of growth monitoring by the respondents

N=410

Responses	Frequency	Percentage
Measuring height and weight	160	39.0
Giving nutritious food to children	56	13.7
Measuring height and weight to give nutritious intervention to children when necessary.	14	3.4
Others*	65	15.9
No response	115	28.0
Total	410	100

*Overall health of the children, Taking care of the baby in order to make them clean, Playing habit of the children, No ideal, Drug use, Child's safety and proper caring.

As regards the purpose of growth monitoring, the respondents 329 (80.2%) and 368 (89.8%) agreed to height and weight as a purpose of growth monitoring respectively (Table 4.5)

Table 4.5: Purpose of growth monitoring

N=410

Variable	Responses					
	Yes		No		No response	
	Freq.	%	Freq.	%	Freq.	%
Height	329	80.2	67	16.3	14	3.4
Weight	368	89.8	28	6.8	14	3.4

* Correct response

On the component of growth monitoring services; majority of the respondents 330 (80.5%) agreed positively to immunization, ORT 211 (51.5%), Breast feeding 355 (86.6%), Complementary feeding 345 (84.1%) and Family Planning 165 (40.2%) as part of the services that should be included in growth monitoring (Table 4.6).

Table 4.6: Growth Monitoring services components

N=410

Variables	Responses					
	Yes		No		Don't know	
	Freq.	%	Freq.	%	Freq.	%
*Immunization	330	80.5	57	13.9	23	5.6
*Oral Rehydration Therapy	211	51.5	174	42.4	25	6.1
*Breast feeding	355	86.6	33	10.7	22	5.3
*Complementary feeding	345	84.1	44	10.7	21	5.1
*Family Planning	165	40.2	219	53.4	26	6.3

*Correct response

With regard to how long the growth monitoring should be, majority of the respondents 62 (31.2%) were of the opinion that it should be 1-5 years, 59 (14.4%) said 6-10 years, 23 (11.6%) were of opinion that it should be for 11-15 years, (24.6%) said 16-20 years while the least percentage 6 (3.0%) said it should be 21 years and above with the mean score of 10.7 ± 6.4 .

(Table 4.7)

Table 4.7: Respondent's opinion of how long growth monitoring should occur

N=410

Description	Response options	Frequency	Percentage
Years	1-5 years	62	31.2
	6-10 years	59	14.4
	11-15 years	23	11.6
	16-20 years	49	24.6
	21 years & above	6	3.0

*Multiple responses

In the qualitative results, some of the caregivers also explained further on the issue of growth monitoring with regards to using the modern approach. They said the caregivers could observe the growth of the child rather than using a weighing scale. Further, the age that growth monitoring should cover was also stated, some said it should be forever, while some of the caregivers expressed their opinion that it should be done from birth to at least five years old. One of the reasons given was that at this early stage, abnormal growth can still be corrected.

"If a child is in baby, so they will weigh him, so after 3 month of caring in terms of eating food and breast feeding, we will carry them to hospital so that they will help us weigh him, the weight will determine how ones care for the child"

"From birth to 18 years because when I was in secondary, they use to weigh us so then I had one friend then but she doesn't know her weight so they called for her parent that are not given her food very well or lack anything. So, it is important to weigh our child as they grow"

Majority 274 (66.8%) also opined that growth monitoring can be carried out both at home and at health facility, while 75 (18.3%) and 53 (12.9%) agreed that it can be either at a health facility or at home only (Table 4.8).

Table 4.8: Respondent's opinion about places where growth monitoring can be done

N=410

Description	Response options	Frequency	Percentage
Places where growth monitoring can be carried out.	*Both at home and health facility	274	66.8
	Health facility	75	18.3
	At home only	53	12.9

*Correct response

In the qualitative response, examples on how the health workers monitor child's growth were sighted by the caregivers. It was also said that it could be done both at home and at the health facility, that it should not be restricted to the health facility alone. This was corroborated by the respondents' statements below:

"They used to carry the baby and look at the eyes, tongue, weigh by hand throw the boby up before placing the baby on a scale".

"From birth to 1 year, and also 2 years from birth - 1 year we must carry our child to hospital every 3 month for weight. Even we can buy the small scale and use it to monitor the growth of our child".

"We used to use it but we don't have weight scale at home she can also called the check your weight vendor and weigh our child"

On the aspect of when children should be eating on a daily basis, 275 (67.1%) respondent viewed that food should be given to the child by the mother, 81 (19.8%) said it should be given on request, some respondents 45 (11.0%) also supported that it is when the child cries that is when the food is required, while others (three times and at least four times) and don't know responded to 3 (0.7%) and 6 (1.5%) respectively (Table 4.9)

Table 4.9: Respondent's viewpoint on number of times in which children can eat on a daily basis

N=110

Description	Response options	Frequency	Percentage
Number of times in which children can eat on a daily basis	Voluntarily given by mother	275	67.1
	On request	81	19.8
	When the child cries	45	11.0
	Others	3	0.7
	Don't know	6	1.5

The quantitative result above can be corroborated with the qualitative data. In discussing with the caregivers, they were averagely knowledgeable on the issue of growth monitoring by explaining what they understand by growth monitoring and what it entails. Some of the caregivers expressed their beliefs beyond the normal growth monitoring that are being done at the health facilities by the health workers: the aspect of food that are being given to the child at every stage, the environment the children stays were also stated as part of the growth monitoring. They explained further that if a child refuses to eat some certain foods at a particular age, such child may not grow as he/she is supposed to. These are some of the statements made by the caregivers:

"yes, about growth monitoring of children by giving such child food that is healthy and nutritious and then one should be careful on those thing that could cause harm to such child should be avoided ; so that there won't be any trouble and such child will developing is food that I know is very important for the child to grow and I believe that as from six to seven months, they should have been eating what adults eat, also if the baby can eat , there are problem that will make such child not to be eaten. I cannot say more than that"

"Some children would not eat, the child that is eating before will not eat, the child will be crying and loss of appetite making the child to grow lean".

"If a child is a baby, so they will weigh him, so after 3 months of caring in terms of eating food and breast feeding, we will carry them to hospital so that they will help us weigh him. The weight will determine how ones care for the child"

"Like in the hospital when I gave birth to my first born, they gave us feed him, feed something like that. You know the way you take care of them from birth. Since birth, they will tell you to bring them to the hospital to weigh them and if one is at home, where the children plays whether crawling or walking something or other things must be well taking care of. It must be neat, it must not be a bad environment. One must do it so that the child will grow and also the way we take care of them should show very well, that is it"

Perceptions of Caregivers on Growth Monitoring

This section discussed caregiver's perceptions about growth monitoring. Most (90%) had positive perception about growth monitoring while a few of them 10% had negative perception with the mean age of 10.8 ± 2.9 .

Majority of the respondents 325 (79.3%) agreed that the growth chart is a useful tool for the child's health and development, 73 (17.8%) disagreed while 12 (2.9%) don't know. Also, 360 (87.8%) agreed that growth monitoring can help to detect malnutrition, while 38 (9.3%) and 12 (2.9%) disagreed and did not know respectively. Sixty-one percent (250) of the respondents also supported that the outcome of the weight of children can discourage the mother if the outcome is less than the expected value for the age of the child, while 149 (36.3%) disagreed with the notion and 11 (2.7%) opted for don't know.

On the usefulness of the growth chart, 285 (69.5%) supported its usefulness, 112 (27.3%) did not support and 13 (3.2%) did not know. Slightly more than half of the respondents 232 (56.6%) disagreed that the growth chart is not meant for the health workers only, it is for both the caregivers and health workers while 166 (40.5%) and 12 (2.9%) went for agreed and don't know respectively. Majority of the respondents 319 (77.8%) also agreed that both parents should be involved in monitoring the growth of their children, while 78 (19.0%) disagreed. Majority 349 (85.1%) also disagreed that is a western practice, while 46 (11.2%) agreed that is a western practice, that is not suitable for our culture.

Majority of the respondents 290 (70.7%) disagreed on the issue of growth monitoring not being beneficial to children while 107 (26.1%) agreed. Using growth monitoring to detect abnormality, 349 (85.1%) agreed, 46 (11.2%) disagreed while 15 (3.7%) did not know. Fifty-two percent (213) of the respondents disagreed that growth monitoring cannot be done by two persons (213) of the respondents disagreed that growth monitoring cannot be done by two persons who are not educated, while 180 (43.9%) agreed and 17 (4.1%) don't know. Two-hundred and seventy eight respondents (67.8%) believe that growth faltering is best observed by mothers rather than measuring weight, while 120 (29.3%) disagreed and 12 (2.9%) responded to didn't know.

Few of the respondents 113 (27.6%) agreed that growth monitoring should be done in primary health centers alone, while more than half 282 (68.8%) disagreed with that opinion. Concerning understanding the basic component of growth monitoring, slightly more than half, 224 (54.6%) agreed that it is difficult; close to half of the respondents 174 (42.4%) disagreed while just the minority 12 (2.9%) don't know. Also on the issue of putting appropriate marks on the growth monitoring chart, majority 318 (77.6%) agreed that it is difficult to mark, 79 (19.3%) and 13 (3.2%) disagreed and don't know respectively.

Majority of the respondent 353 (86.1%) disagreed that growth monitoring can make children sick, 43 (10.5%) agreed while a minority 14 (3.4%) don't know. Two hundred and thirty five respondents (57.3) disagreed that growth monitoring cannot accurately predict the nutritional status of children, while 162 (39.5%) agreed and just a few of the respondents 13 (3.2%) said they don't know. (Table 4.10)

Table 4.10: Perceptions of Caregivers on Growth Monitoring

Variables	Responses					
	Agree		Disagree		Don't know	
	Freq	%	Freq	%	Freq	%
The growth chart is a useful tool for monitoring child health and development*	325	79.3	73	17.8	12	2.9
Growth monitoring is useful to detect some basic childhood illnesses such as malnutrition*	360	87.8	38	9.3	12	2.9
The outcome of a child's weight can discourage the mother if the value is less than normal*	250	61.0	149	36.3	11	2.7
Growth chart can be a useful tool to the caregiver*	285	69.5	112	36.3	13	3.2
Only health workers should use growth chart for monitoring the health and development of the children as it is cumbersome**	166	40.5	232	56.6	12	2.9
Both parents should be involved in monitoring the child's growth*	319	77.8	78	19.0	13	3.2
Growth monitoring is a western practice, so it is not suitable to do same in our culture**	46	11.2	349	85.1	15	3.6
Growth monitoring is not beneficial to children**	107	26.1	290	70.7	13	3.2
It can also assist in detecting abnormal growth in children*	349	85.1	46	11.2	15	3.7
Growth monitoring cannot be done by mothers who are not educated**	180	43.9	213	52.0	17	4.1
Growth faltering is best observed by mothers rather than measuring the weight of the baby*	278	67.8	120	29.3	12	2.9
Growth monitoring should be done in primary health centers alone**	113	27.6	282	68.8	15	3.7
It is difficult for caregivers to understand the basic components of growth monitoring**	224	54.6	174	42.4	12	2.9
It is difficult to put appropriate marks on the growth monitoring chart*	318	77.6	79	19.3	13	3.2
Growth monitoring can make children sick**	43	10.5	353	86.1	14	3.4
Growth monitoring cannot accurately predict the nutritional status of children*	162	39.5	235	57.3	13	3.2

* correct response

** incorrect response

As to the caregiver's view about growth monitoring, the respondents affirmed that it is a very good thing for mothers to monitor their children's growth to help in detecting some abnormalities especially if the baby is not meeting up to the weight requirement for his/her age. Explaining further on whom to monitor the growth of children, they felt it should be everybody but mostly the mother, because mothers have more contact with the child.

"They will weigh the baby if they also discover that the weight is smaller for his/her age, they will advise us on the type of food you will be giving such child, they will advise that they should be giving them more protein".

"There is no person that should not monitor the child growth but the most involved is the parent because they are the one they gave birth to the child. Then, the neighbors if there is love can help to care for the child. Because at times the neighbor might notice more of the child growth. And the way mothers of nowadays care for children differs from how our older mothers notice child. But all of us should be involved in taking care of the child because we don't know the future of those children".

This section explains the traditional ways in which caregivers monitor the growth of their U-5 children, what they usually look out for, the results they have had with the method used, what they do if the child is found not to be growing well, and the traditional method mentioned that can be incorporated into a household.

One hundred and two of the respondents (24.9%) suggested that the child should be observed as part of the methods used to monitor, 70 (17.1%) said by carrying the baby to feel his/her weight, 39 (9.5%) are of the opinion that cloth size should be used as a measure, also 30 (7.3%) use of bead strings, 19 (4.6%) wall marking, 14 (3.4%) supported eating pattern of the child, 14 (3.4%) change in position, few of the respondents (2.0%) still suggested weighing scale as traditional ways in which caregivers can use, 8 (1.7%) recommended age comparison while 59 (14.4%) and 48 (11.7%) are for others and no response respectively (Table 4.11).

Table 4.11: Traditional ways and methods used in monitoring child's growth.

N=410

Ways and method used to monitor child's growth	Frequency	Percentage
Observation	102	24.9
By carrying the baby	70	17.1
Cloth size	39	9.5
Use of bead strings	30	7.3
Wall marking	19	4.6
Eating pattern	14	3.4
Change in position	14	3.4
Weighing scale	8	2.0
Age comparison	7	1.7
Others	59	14.4
No response	48	11.7

The result above can also be corroborated with these suggestions that were made by the caregivers; observations, using cloth size of the child to determine the growth pattern, developmental stages and response to things, age comparison, wall marking, stringing of beads round the waist and wrist. Some even suggested the use of concoctions in monitoring their children's growth:

"In the olden days, our mothers do not use hospital. They prepare things like concoction for children prepare soap for them to bath that was what they use then".

"Our mothers, if they carry the baby, if they carry him/her, eh, eh, eh, they will know how weights the baby is"

"When is three months, one will be looking at it that the neck supposed to be straight by now and probably sitting down, when is six to seven months, the baby should be crawling, then nine month, nine to ten months the baby should have been standing with support, so a year the baby should walk, that is how we know that the baby is growing"

"also comparing the child with those children that are age mate"

"Also, if they use bead round the baby's waist, the bead eh, eh, when is round the waist, if the baby is lean, the bead will be loosed, it will be loosed and when the baby gain weight, the bead will be tight definitely"

"Yes, one can use bead, as the baby is growing, they will be noticing it. It will get to a time that the bead will be very tight, through this, they will know that the baby has improved"

"Bead, the marking of walls, one can use it in the house. One will just look for a place in the house and mark it to measure the baby every month if we don't have weighing scale at home"

"A times, in the olden days, if we want to go to school they will say, if hand does not get to your ear, such child will not be admitted. If hand of a child gets to his/her ear, they will say that the baby is ready to start school. So, they can also use this method to know the growth of a child"

"Stick can also be cut from the bush to know the child's height"

The respondents also gave these responses as regards to what they usually measure; 127 (31.0%) said they look out for height and weight of the child, 124 (30.2%) said is the child's physical development that they monitor, 17 (4.1%) check whether the child wants to fall sick, 23 (5.6%) for overall health, 8 (2.0%) check appearances, 19 (4.6%) check child's behavior and responses, 10 (2.4%) quantity of food consumed by the child, 21 (5.1%) also look out for the child's physique and 61 (14.9%) don't know (Table 4.12).

Table 4.12: What they usually observe when using the traditional ways

Response options	N=110	
	Frequency	Percentage
Height and weight	127	31.0
Physical development	124	30.2
Checking the overall health	23	5.6
Change in physique	21	5.1
Checking whether the child wants to be sick	17	4.1
Child's behavior and responses	19	4.6
Quantity of food consumed by the child	10	2.4
Checking appearances	8	2.0
Don't know	61	14.9

The respondents also mentioned some of the results they have heard with the method used. Majority of the respondents 268 (65.3%) expressed their satisfaction on the methods used, 30 (7.3%) are indifferent about the method used, 8 (2.0%) not satisfactory, 6 (1.5%) said that it gives more insight about child's growth and 98 (23.9%) gave no response (Table 4.13).

Table 4.13: Result they have had on the traditional method used

Result Had	N= 410	
	Frequency	Percentage
Satisfactory	268	65.3
Can't say	30	7.3
Not satisfactory	8	2.0
Give more insight about child's growth	6	1.5
No response	98	23.9

The respondents were asked what they do if the child is found to be growing well, 123 (30.0%) said they do nothing, 121 (29.5%) said they give more care, 111 (27.0%) feel encouraged, 12 (2.9%) feel relieved, 2 (0.5%) said they are very sure their child is growing well, 3 (0.7%) give more breast milk while 2 (0.5%) said they change such child's wears and 36 (8.8%) gave no response (Table 4.14).

Table 4.14: Things done if the child is found to be growing well

N=410

Response options	Frequency	Percentage
Nothing	123	30.0
Give more food/care	121	29.5
Feel encouraged	111	27.0
Relieved	12	2.9
Give more breast milk	3	0.7
He/she is growing well	2	0.5
Change wears	2	0.5
No response	36	8.8

Close to half of the respondents 182 (44.4%) said they sought for medical care if their child is found not to be growing well, 105 (25.6%) said they give food as a supplement, 46 (11.2%) give drugs, 20 (4.9%) give herbal care, 8 (2.0%) affirmed that they have never experienced it while (1.5%) opted for breast milk provided the child is still within the age of being breastfed and 12 (2.9%), 31 (7.6%) went for others and no response respectively (Table 4.15).

Table 4.15: Things done if the child is found not to be growing well**N=410**

Response Options	Frequency	Percentage
Go for medical care	182	44.4
Give food as a supplement	105	25.6
Give drugs	46	11.2
Give herbal care	20	4.9
Never experienced it	8	2.0
Give breast milk	6	1.5
Others	12	2.9
No response	31	7.6

As regards the traditional methods that can be incorporated into household use, these were some of the responses from the respondents, 38.5% for observation, 8.5% carrying the baby to feel his/her weight, 29 (7.1%) cloth size, 24 (5.9%) use of beads, 18 (4.4%) quantity of food intake, 16 (3.9%) wall marking, 14 (3.4%) response to things, 8 (2.0%) still suggested weighing scale while age comparison, none, others and no response were 5 (1.2%), 2 (0.5%), 15 (3.7%), 86 (21.0%) respectively (Table 4.16).

Table 4.16: Suggested methods that can be incorporated into household use

N=410

Methods that can be used	Frequency	Percentage
Observation	158	38.5
By carrying the baby	35	8.5
Cloth size	29	7.1
Use of beads	24	5.9
Quantity of food intake	18	4.4
Wall marking	16	3.9
Response to things	14	3.4
Weighing scale	8	2.0
Age comparison	5	1.2
None	2	0.5
Others	15	3.7
No response	86	21.0

The caregivers also gave some of the examples of the methods they have mentioned that can be used at household level apart from the weighing scale. Some of the caregivers expressed their satisfaction on the methods used especially the beads string on the wrist and waist.

'Bead can be use as a measure at home. One can also check and observe the eyeball. The face will be lean and one will know that eh, eh, this child is lean'

Caregivers' Practices of Growth Monitoring through Conventional Ways

Majority of the respondents 257 (80.3%) claimed that they monitored their child's growth within the first to fourth week, 35 (8.5%) for fifth to eight weeks, 23 (5.6%) for ninth to sixteenth weeks, 5 (1.2%) eighteenth to fifty-two weeks while 90 (22.0%) cannot remember when last they did monitor their child's growth. The overall mean of the respondents that monitor their child's growth is 4.07 ± 4.5 (Table 4.17).

Table 4.17: Times the caregivers monitor the baby's growth last through conventional way

N=110		
Last time the caregiver monitored their child's growth	Frequency	Percentage
1-4 weeks	257	80.3
5-8 weeks	35	8.5
9-16 weeks	23	5.6
17 weeks & above	5	1.2
Don't monitor	90	22

Two hundred and one respondents (49.0%) said they have been trained on how to monitor their child's growth, while slightly more than half 209 (51%) affirmed that they have not been trained. Majority 161 (39.3%) of the respondents received their training from health facility, 37 (9.0%) at home 2 (0.5%) at school, 1 (0.2%) could not remember where she was trained while 201 (51.0%) consisted of the people that had not received training (Table 4.18).

Table 4.18: Where the caregivers were trained on monitoring the child's growth

Place of training	N=410	
	Frequency	Percentage
Health facility	161	39.3
Home	37	9.0
School	2	0.5
Don't know	1	0.2
Never trained	209	51.0

The respondents also stated how they know the weight of their children who are 0-59 months. The use of hospital weighing scale 182 (44.4%) had high responding rate as one of the ways the caregivers measure their children's weight. Next to it is observation 95 (23.2%), some 48 (11.7%) also said by carrying the baby to feel his/her weight, 42 (10.2%) respondents said they normally patronize people that commercialized the weighing scale "hawkers", while 10 (2.4%) use clothing size of the baby as a measure, 4 (1.0%) mention beads and 6 (1.5%) for others (combination of some of the methods) (Table 4.19).

Table 4.19: Ways in which caregivers know the weight of their children

Ways used to know the weight of their children	N=410	
	Frequency	Percent
Hospital weighing scale	182	44.4
Observation	95	23.2
By carrying the baby	48	11.7
Commercial weighing scale	42	10.2
Cloth size	10	2.4
Bead	4	1.0
Others	6	1.5
Don't know	23	5.6

A Large percentage of the respondents 360 (87.8%) said they have weighed their child since their child was born, while 50 (12.2%) have never weighed their child. The time they started weighing their children were also documented. Majority 300 (83.3%) weighed them immediately after birth, 52 (14.4%) can't remember, while 5 (1.5%), 3 (0.8%) are after some days and during immunization respectively (Table 4.20).

Table 4.20: When the respondents started weighing their child ren

N=410

Time of birth	Frequency	Percentage
Immediately after birth	300	83.3
Can't remember	52	14.4
After some days	5	1.5
During immunization	3	0.8

The table below shows how often the caregivers weighed their child. More than half of the respondents 267 (65.2%) said it is on rare occasions, 95 (23.2%) more often while 48 (11.7%) don't weigh (Table 4.21).

Table 4.21: How often the caregivers weigh their children

N=410

How often is the baby weighed?	Frequency	Percentage
Rarely	267	65.2
More often	95	23.2
Don't weigh my baby	48	11.7

Almost all the respondents 384 (93.7%) did not have a weighing scale at home, only very few of the respondents 26 (6.3%) had a manual weighing scale. Slightly more than half 243 (59.3%) said they can use a weighing scale while 167 (40.7%) could not (Figure 2). In demonstrating how the weighing scale is used, 93 (38.3%) were able to validate the scale, 150 (61.7%) were unable to do so. One hundred and sixty three (39.8%) respondents were able to remove the child's clothing before weighing them, 80 (32.9%) did not. Reading correctly the weight of the child, 179 (73.7%) were able to point out the reading areas on the weighing scale while 64 (26.3%) could not (Figure 3).

The respondents shows where they were taught on how to use the weighing scale: 140 (57.6%) hospital/immunization clinics, 65 (26.7%) home, 19 (7.8%) Training school, 17 (7.0%) nowhere and 2 (0.8%) don't know. Majority of the respondents 314 (76.6%) also indicated their willingness to be trained on how to use weighing scale while 96 (23.4%) did not show interest (Table 4.22).

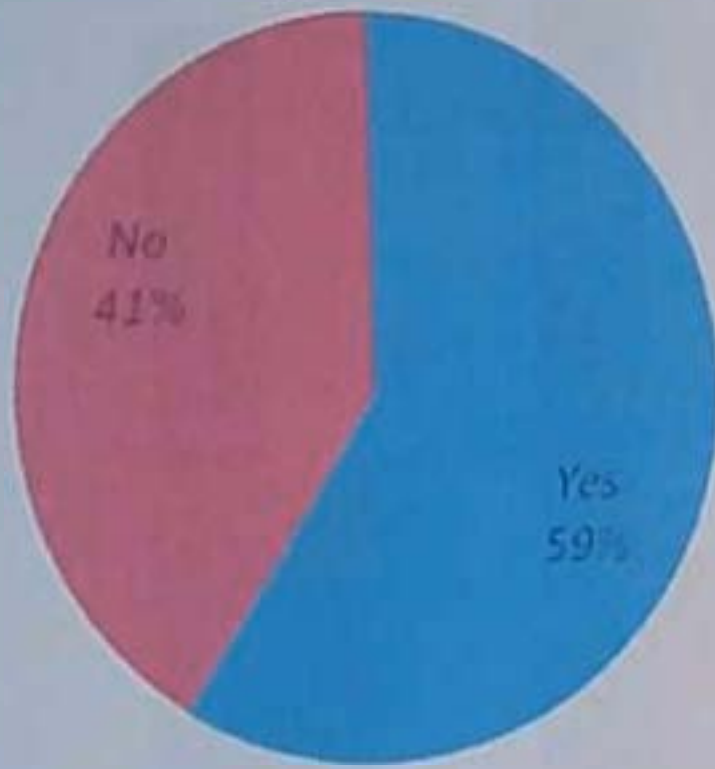


Figure 2: Weighing Scale Use by the Caregivers



Figure 3: Demonstration of Weighing Scale Use



Figure 3: Demonstration of Weighing Scale Use

Table 4.22: Where they were taught on how to use weighing scale

N=243

Where caregivers were taught on how to use weighing scale.	Frequency	Percentage
Hospital/immunization clinic	140	57.6
Home	65	26.7
Training school	19	7.8
No where	17	7.0
Don't know	2	0.8

On the aspect of method that can be used apart from the conventional way of monitoring child's growth by health workers, the respondents gave various suggestions as to some of the things that can be done since they do not have a weighing scale at home and thinking that it is expensive and also have the notion that it is only meant for health workers.

"There is no money to buy such equipment"

"When we are not doctors or nurse had it been that we are doctors or nurse that is when we can say we want to buy it whether we will see customer that will patronize us. For someone to buy that it would be costly and we are not told to buy it"

They were interested in the modern way of growth monitoring and said they would appreciate it if the government could train them.

"Government should give us, do you understand? Help us to tell government that we need it"

"They should also teach us the way to use it"

On the aspect of growth chart card, 73.7% affirmed that they have seen it before while 26.3% have not. On issues pertaining to the interpretation of the chart, 14.4% were able to interpret it correctly while 85.6% were unable to interpret the information on the chart (Figure 4).

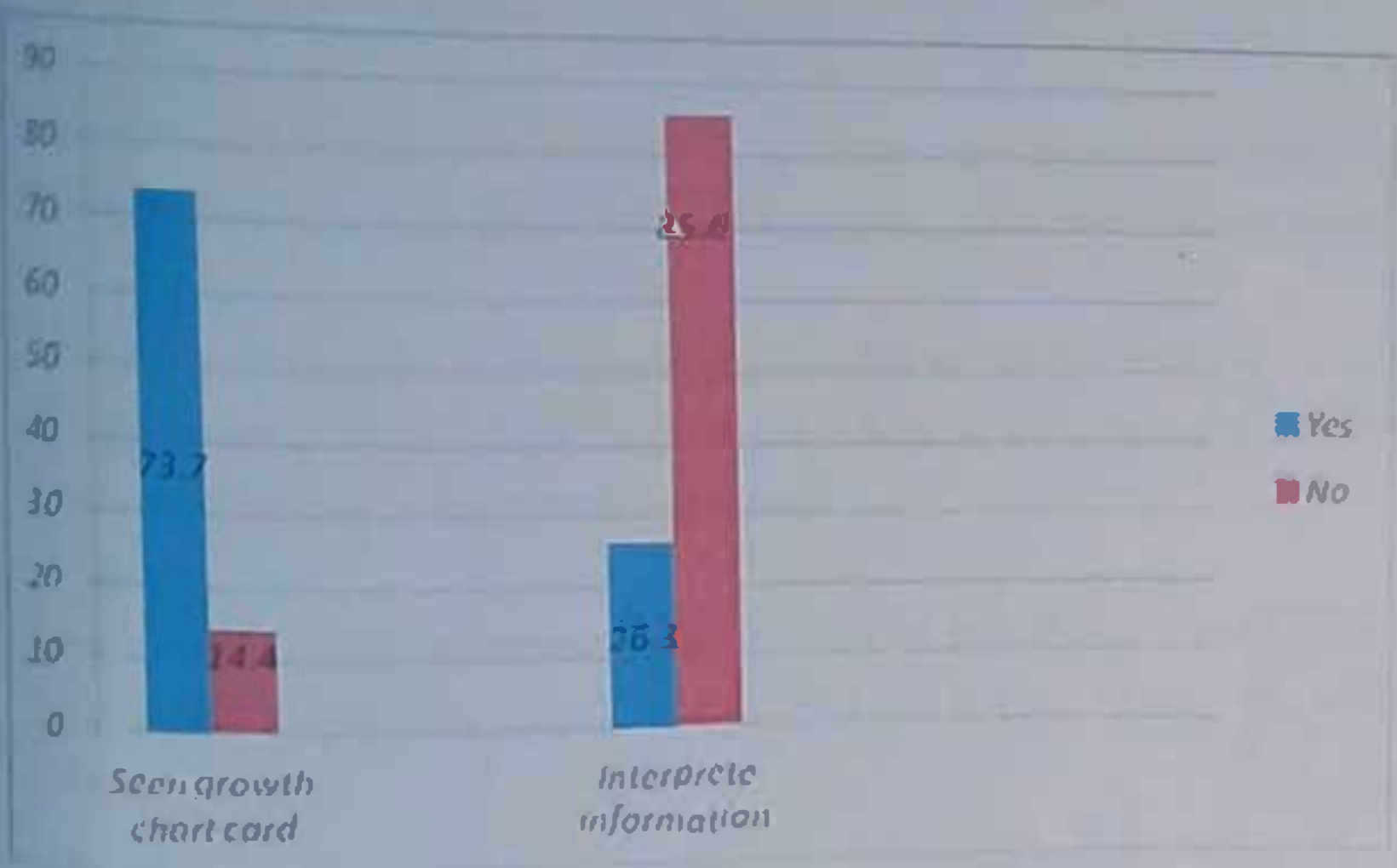


Figure 4: Information of the growth chart card

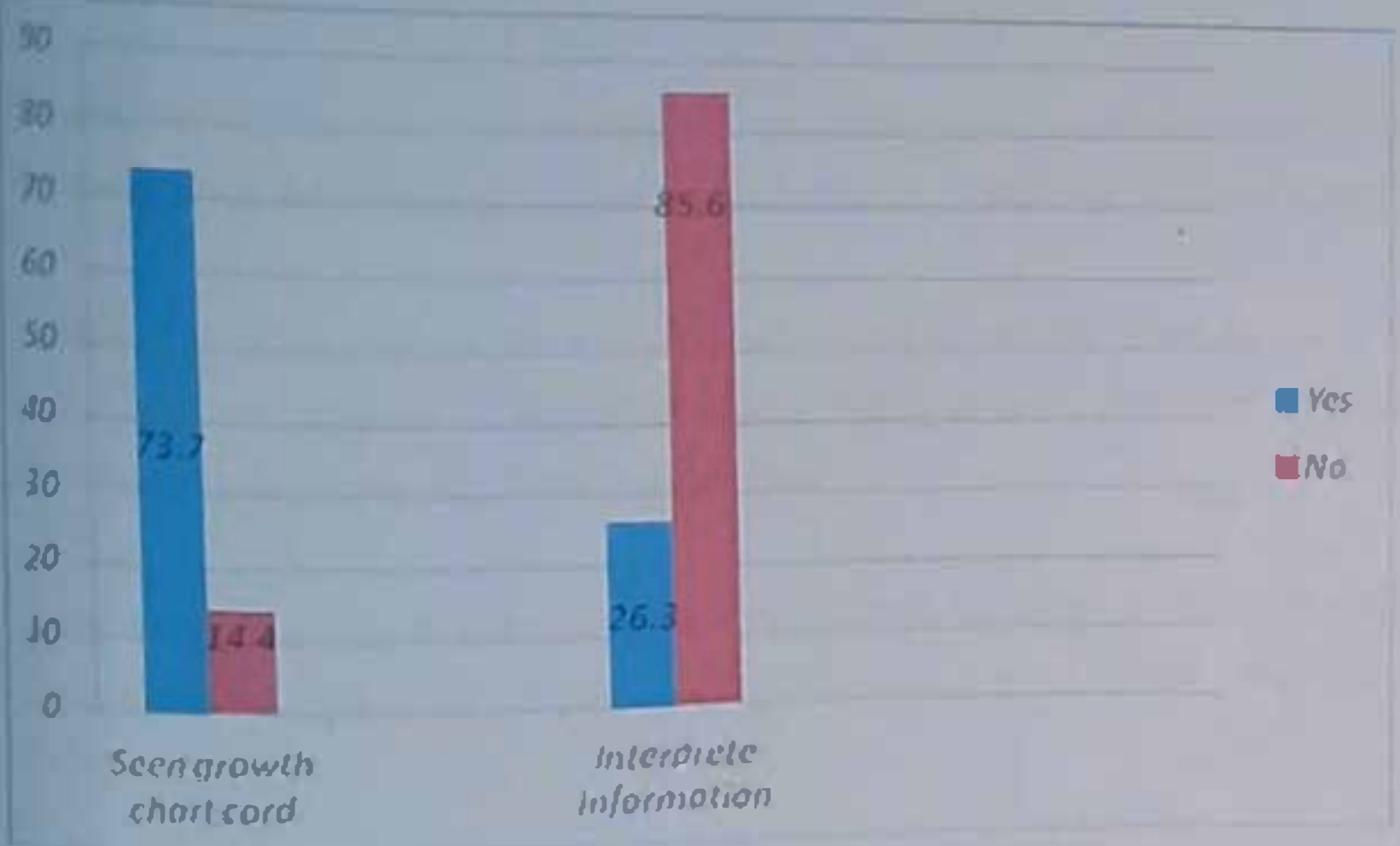


Figure 4: Information of the growth chart card

In table 4.23i, 29 (49.2%) were able to get the answer correctly as regards the line above upper reference curve which means excess weight gain while 27 (45.8%) said it represents weight gain is normal and good.

Table 4.23ii, 46 (78.0%) of the respondents were able to get the answer correctly, recognizing the line as when the weight gain is inadequate while 9 (15.3%) said is normal weight gain.

Table 4.23iii, thirty eight of the respondents (64.4%) agreed that when the line is horizontal line is after the sickness of the child implies failure to grow due to an infection and 15 (25.4%) said it indicates that there is no problem.

Table 4.23iv, majority of the respondents 40 (67.8%) were able to identify that the average birth weight is 2.5kg while 13 (22.0%), 1 (1.7%) said it is 3.5 kg and 1.5kg respectively, 5 (8.5%) don't know.

Table 4.23v, the respondents 23 (39.0%) said when the plotted line is outside the two reference curves, it means there is an indication for intervention while 25 (42.4%) agreed to the plotted line between the two reference curves.

Table 4.23i: Line above the upper reference curve

		N=59	
When the line is above upper reference curve, it means	Frequency	Percentage	
**Weight gain is normal and good	27	45.8	
*Excess weight gain	29	49.2	
Don't know	3	5.1	

*correct response
**incorrect response

Table 4.23ii: Line is below the reference curve

N=59

When the line is below the two reference curves it means	Frequency	Percentage
•• Weight gain is normal and good	9	15.3
• Weight gain is inadequate	46	78.0
Don't know	4	6.8

• correct response

•• incorrect response

Table 4.23ii: Line is below the reference curve

N=59

When the line is below the two reference curves it means	Frequency	Percentage
**Weight gain is normal and good	9	15.3
*Weight gain is inadequate	46	78.0
Don't know	4	6.8

* correct response

** incorrect response

Table 4.23iii: Horizontal line after the sickness

N=59

Horizontal line after the sickness of the child means:	Frequency	Percentage
**There is no problem	15	25.4
* Failure to grow due to an infection	38	64.4
Don't know	6	10.2

*correct response

**incorrect response

Table 4.23iv: Average Birth weight

N=59

The average birth weight is:	Frequency	Percentage
**Birth weight 3.5kg	13	22.0
* Birth weight 2.5kg	40	67.8
**Birth weight 1.5kg	1	1.7
Don't know	5	8.5

* correct response

** incorrect response

Table 4.23v: When there is an indication for intervention

N=59

When do you think there is an indication for intervention?	Frequency*	Percentage
**The plotted line is between the two reference curves	25	42.4
* The plotted line is outside the two reference curves	23	39.0
Don't know	11	18.6

* correct response

** incorrect response

This section discussed the attitudinal disposition of the caregiver towards monitoring the growth of their under-five children.

In making growth monitoring compulsory, majority 374 (91.4%) of the caregivers agreed to that, 17 (4.1%) disagreed and 19 (4.6%) were not sure. Almost all the respondents 376 (91.7%) agreed, while 5 (1.2%), 29 (7.1%) disagreed and were not sure respectively. Slightly more than half 241 (58.8%) agreed that knowing the child's weight can create anxiety, 109 (26.6%) disagreed and 60 (14.6%) were not sure. Using weighing to help detect abnormality, 337 (82.2%) agreed, 28 (6.8%) disagreed and 45 (11.0%) were not sure.

On the part of weighing scale not being reliable, 108 (26.3%) agreed, 232 (56.6%) disagreed while 70 (17.1%) were not sure. Limiting the growth monitoring to children less than a year old, almost all the respondents 373 (91.0%) disagreed, just a few of the respondents 26 (6.3%) agreed while 11 (2.7%) were not sure. Fifty-two percent (213) disagreed on the process being cumbersome while 132 (32.2%) agreed and 65 (15.9%) were not sure. Majority 336 (82.0%) disagreed on the issue of growth monitoring as a waste of time, 40 (9.8%) agreed and 34 (8.3%) were not sure.

More than half of the respondents 233 (56.8%) disagreed to growth monitoring is best used when the child is sick, 130 (31.7%) agreed while 47 (11.5%) not sure. Majority 378 (92.2%) agreed that all children need growth monitoring, just a few of the respondents 26 (6.3%) disagreed with the statement and 6 (1.5%) said they were not sure. Forty nine (12%) also believe that it is only the children who are at risk of infection that need growth monitoring, while 315 (76.8%) disagreed and 46 (11.2%) were not sure (Table 4.24)

The caregivers had a positive 98.3% attitude in respect to growth monitoring while 1.7% had a poor attitude. The overall mean for the attitudinal rating was 8.9 ± 1.4 .

Table 4.24: Attitudinal Disposition of caregivers towards growth monitoring

N=410

Variable	Responses					
	Agree		Disagree		Not sure	
	Freq	%	Freq	%	Freq	%
Growth monitoring should be made compulsory for all mothers and caregivers*	374	91.4	17	4.1	19	4.6
Growth monitoring is an acceptable method in child survival strategy*	376	91.7	5	1.2	29	7.1
Knowing the child's weight can create anxiety for the mother*	241	58.8	109	26.6	60	14.6
Frequent weighing of the child helps in detecting abnormality*	337	82.2	28	6.8	45	17.1
The weighing scale is not a reliable way of conducting growth monitoring**	108	26.3	232	56.6	70	17.1
Growth monitoring should be limited only to children less than one year**	26	6.3	373	91.0	11	2.7
The cumbersome process makes it difficult to practice**	132	32.2	213	52.0	65	15.9
Measuring growth is a waste of time**	40	9.8	336	82.0	34	8.3
Growth monitoring is best used when the child is sick**	130	31.7	233	56.8	47	11.5
All children need growth monitoring*	378	92.2	26	6.3	6	1.5
Only children who are at risk of infection need growth monitoring**	49	12.0	315	76.8	46	11.2

*correct response

**incorrect response

Hypothesis Testing

Hypothesis One

Educational level of the respondents and setting of the calibration to zero were cross tabulated to determine if educational level had an influence on setting of the calibration to zero. Table 4.25 shows that there was an association between Educational level of respondents and setting of the calibration to zero ($p < 0.05$). Educational level has a role to play in setting of the calibration to zero.

The null hypothesis, which stated that there is no association between Educational level and setting of the calibration to zero, was therefore not rejected.

Table 4.25: Association between educational level and setting of the calibration to zero

Educational level	Setting of the calibration to zero					
	Yes		No		Total	
	Freq	%	Freq	%	Freq	%
No formal education	0	0.0	3	2.0	3	1.2
Primary education	9	9.7	35	23.3	44	18.1
Secondary education & Above	84	90.3	112	74.7	196	80.7
Total	93	100.0	150	100.0	243	100.0

$\chi^2 = 9.517$

df = 2

P-value = 0.009

Hypothesis Two

The second null hypothesis which stated that there is no association between Educational level of the respondents and correctly reading the weight of the child were cross tabulated to determine if Educational level had an influence on reading correctly the weight of the child. Table 4.26 shows that there was no association between Educational level of respondents and correctly reading the weight of the child. Educational level has no role to play in reading correctly the weight of the child.

The null hypothesis, which stated that there is no association between Educational level and correctly reading the weight of the child was therefore rejected, and the alternate that the respondent educational level had a role to play in reading correctly the weight of the child is therefore accepted.

Table 4.26: Association between educational level and correctly reading the weight of the child

Educational level	Reads correctly the weight of the child					
	Yes		No		Total	
	Freq	%	Freq	%	Freq	%
No formal education	1	0.6	2	3.1	3	1.2
Primary education	30	16.8	14	21.9	44	18.1
Secondary education & Above	148	81.0	48	75.0	196	80.7
Total	163	100.0	80	100.0	243	100.0

$\chi^2 = 3.541$

df = 2

P-value = 0.170

Hypothesis Three

Educational status and growth monitoring knowledge level of the respondents were cross-tabulated to determine if Educational status had an influence on growth monitoring knowledge level. Table 4.27 shows that there was an association between Educational status and knowledge level of the respondents ($p < 0.05$). Educational status has a role to play in the growth monitoring knowledge.

The null hypothesis which stated that there was no association between Educational status and growth monitoring knowledge level was therefore not rejected.

Table 4.27: Association between educational level and knowledge of growth monitoring

Educational level	Knowledge level of growth monitoring							
	Poor		Average		Good		Total	
	Freq	%	Freq	%	Freq	%	Freq	%
No formal education	17	18.1	14	4.5	0	0.0	31	7.6
Primary education	17	18.1	52	16.7	0	0.0	68	16.8
Secondary education & Above	60	63.8	246	78.8	4	100.0	310	75.6
Total	94	100.0	312	100.0	4	100.0	410	100.0

$\chi^2 = 21.209$

df = 4

P-value = 0.000

Table 4.27: Association between educational level and knowledge of growth monitoring

Educational level	Knowledge level of growth monitoring							
	Poor		Average		Good		Total	
	Freq	%	Freq	%	Freq	%	Freq	%
No formal education	17	18.1	14	4.5	0	0.0	31	7.6
Primary education	17	18.1	52	16.7	0	0.0	68	16.8
Secondary education & Above	60	63.8	246	78.8	4	100.0	310	75.6
Total	94	100.0	312	100.0	4	100.0	410	100.0

$\chi^2 = 21.209$

df = 4

P-value = 0.000

Hypothesis Four

The fourth null hypothesis which stated that there was no association between respondents' age and knowledge level of growth monitoring were cross tabulated to determine if age had an influence on growth monitoring knowledge level. Table 4.28 shows that there was no association between respondent's age and knowledge level of growth monitoring. Age has no role to play in knowledge level of growth monitoring.

The null hypothesis, which stated that there was no association between respondent's age and knowledge level of growth monitoring was therefore rejected, the alternate response that respondent's age influences knowledge level of growth monitoring is therefore accepted.

Table 4.28: Association between age and knowledge level of growth monitoring

Age	Knowledge level of growth monitoring							
	Poor		Average		Good		Total	
	Freq	%	Freq	%	Freq	%	Freq	%
<10 years	3	3.2	5	1.6	0	0.0	8	2.0
11-30 years	51	54.3	151	48.4	2	50.0	204	49.8
31-40 years	32	34.0	119	38.1	2	50.0	153	37.3
41-50 years	8	8.5	36	11.5	0	0.0	44	10.7
50 years & above	0	0.0	1	0.3	0	0.0	1	0.2
Total	3	3.2	312	100.0	4	100.0	410	100.0
								0

$\chi^2 = 3.376$

df = 8

P-value = 0.909

CHAPTER FIVE

DISCUSSIONS

5.1 Socio-Demographic Characteristics

In this study, majority of the respondents were 21 and 30 years old (Bruce and Anna, 2002) with a mean age of 31.6 ± 6.5 years which indicates that most of them are young caregivers. Majority of the children in this study on which the interview was based on were male and the place of birth for most of them was at the health facility. This corresponds with NDHS (2008). Caregivers that were delivered by health professional (82%) and they are most likely to deliver in a health facility (74%).

5.2 Knowledge of Respondents about Growth Monitoring

In this study almost all the respondents had heard about growth monitoring and immunization clinics were their major source of information. This finding was corroborated by those of Guwani and Sampatha (2008) stated that 89.2% of mothers had satisfactory awareness on child's growth monitoring. This implies that the caregivers to some extent knew what growth monitoring is and its importance to a child's growth and development.

The caregivers in this study indicated that they have been monitoring their children's growth through weighing which may be attributed to the high level of education and awareness of growth monitoring. This finding is also supported by those Ann. Roger and Kazil (2008) who emphasized weighing their children to assess health and nutrition status.

The findings of this study also show that respondents have different definitions of growth monitoring and its goal and objectives, is hardly surprising giving that those in nutritional and child development programmes are unable to agree on a standard definition of growth monitoring and its objectives. A major finding is respondents viewpoint that growth monitoring should also be home based and not clinic based alone. This view is supported by Robertoid et al (2000), who affirmed that it should be done both at home and health facilities. This implies that child caregivers should be involved in measuring the growth of their children apart from the health workers.

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5) Perceptions of Caregivers on Growth Monitoring of Less than Five

In this study almost all the caregivers that reported that growth charts are useful in monitoring the health and development of children are educated emphasizing the need for mother's education on children's health improvement. This however were in line with Latham (2008) findings emphasized that charts have not been shown to be beneficial in improving growth and reducing malnutrition which might be as a result of a poor understanding of what growth monitoring is all about. This can be resolved by redesigning the chart cards that can be easily understood by the caregivers and training programmes should also be conducted (Latham, 2008).

Another key finding was Caregivers supported growth monitoring in detecting childhood illness such as malnutrition. If the outcome of the weight is negative to the normal value, it can discourage them from participating in growth monitoring activities and Latham (2008) stated that growth monitoring is an effective, simple and inexpensive way to prevent malnutrition in children.

Caregivers also stated that mothers might become anxious about their children's weight and may feel guilty if the clinic detects poor weight gain or loss of weight between visits; (Garner, Panpanich and Logan, 2000).

Another key finding in this study is that the caregivers should be involved in carrying out growth monitoring too, not limiting the activity to the health workers alone. This finding has provided health workers with windows of opportunity for actively engaging child caretakers in growth monitoring. It is essential that health personnel and mothers comprehend this by active involvement of both and ensure that growth monitoring becomes a guide to appropriate remedial actions; (Cash, Kcusch, Lamstein, 1987). In the study carried out by Cain, Kelly and Shannon (1980) it was shown that both parents were involved in home monitoring of their children. However, emphasis should be laid on making the growth chart as simple as possible for easy comprehension of the basic components and the charting of the lines, Lotli (1990) stated that the weight cards used in growth monitoring should be simple, emphasizing growth, while those used in nutrition surveillance must be precise, with emphasis on nutritional status.

5.4 Traditional Ways by Which Caregivers Monitor Their Children's Growth

A major finding from this current study is the identification of traditional methods that the caregivers use for growth monitoring. These range from observation, carrying of the baby, wall marking to check the height, beads round the waist or wrist, cloth size in determining how the baby is gaining or losing weight and quantity of food the baby consumes were also suggested as a measure to check the growth of the child. They also suggested that some of the methods mentioned can be incorporated into a household provided there is no access to a weighing scale at home because it may not be affordable for some households.

This finding is important given the PHC philosophy of thinking globally and acting locally and within the PHC framework of community participation. In respect to cost consideration, Ashworth et al (2008) stated that one obstacle to the participation of families in growth monitoring has been the fact that modern scales are quite expensive and difficult for many families to understand.

The findings further revealed that some caretakers refer their children with growth problems to health care workers while some engage in complementary feeding. This is an important finding because it suggests a good referral process is ongoing on the home front while the purpose of growth monitoring is being fulfilled through the taking of action by the caretakers.

5.5 Practices of Growth Monitoring Through Conventional Way

Another important finding is that a considerable proportion of caretakers use the modern weighing scale in determining the growth of their children this might be attributed to observational learning by the caretakers whenever the health workers are weighing their children. On the other hand, they might have learned this through people that have commercialized weighing scales which they might see as economical since they do not have to pay such people money on a constant basis. However, it should be noted that many of these caretakers do not engage in regular monitoring but do so occasionally. This finding is not in line with the study carried out by Olugbenga-Bello and Asekun-Olarinmoye (2010) in which they reported that caretakers do not use weighing scales.

Furthermore, another interesting finding was that there was discrepancy between caregivers that they can use weighing scales compared with the few that demonstrated competency in doing so when given the scales to use (calibrating the scale to zero, removing the clothing before weighing and reading correctly). This implies a training gap that should be filled by health workers. Another important key finding is the majority of the respondents that reported never seeing a growth chart card before and the very few that could correctly interpret the information on the chart card. This finding is in line with the study done among health workers on growth chart comprehension (Olugbenga-Bello and Asokun-Olarinmoye, 2010).

3.6 Attitude of Caregivers towards Growth Monitoring

In this study, almost all the respondents were in agreement that growth monitoring helps in detecting abnormality. It was also stated that is best used when the child is sick and not only the child who is at the risk of infection needed growth monitoring. These findings were corroborated by Panpanich and Garner (2009) in a study that reported that respondents viewed growth monitoring as helping to detect problems especially feeding difficulties among younger children, from causes such as respiratory infections, malaria, tuberculosis and growth hormone deficiency.

It was reassuring that majority of the respondents are favorably disposed to growth monitoring probably reflecting the importance attached to immunization schedules since growth monitoring is inseparable from immunization (Bruce and Anna, 2002).

Caregivers also in their responses felt it should be made compulsory for all the caregivers because it serves as one of the tool to child survival. Half of the caregivers said knowing their children's weight can create anxiety for them, provided the child does not meet the threshold value. It was explained further that weighing scale was a reliable way of conducting growth monitoring this shows there is need for training on the conventional ways of monitoring growth comparing it with the improvised methods of the caregivers and since most of them had secondary education and above.

The caregivers opposed on limiting it to the children less than one year suggesting that it should be for as long the child is still with the parent. Caregivers also stressed the fact that it

mean for all children. Also discussed was the procedures in weighing the children at the primary health centre, the caregivers sees it as cumbersome and makes the weighing of children at the clinic difficult to practice and some considered the practice of growth monitoring as a waste of time.

5.7 Conclusion

In conclusion, the findings of this study show a poor level of participation on the part of caregivers in growth monitoring process of their under five children which they emphasized have been centered round the health workers alone.

However, findings indicate a high level of attitudinal support for growth monitoring. Based on these and other findings, it is critical to train caregivers on how they can actually monitor their child's growth along with health workers using a combination of modern and traditional approaches. Fortunately, majority of the caregivers indicated willingness to be trained on growth monitoring thus providing a positive environment for training.

5.8 Recommendations

- Based on the findings of this study, the following recommendations are made:
1. Apart from using weighing as an indicator for growth monitoring, health workers should incorporate appropriate traditional growth monitoring indicators such as presence of illness, extreme thinness to identify children of different ages who need special attention and tailored advice while weight-for-age monitoring is being introduced. This would help workers and caregivers learn to solve more growth monitoring problems.
 2. In line with the above, appropriate rational monitoring activities should be incorporated into the growth monitoring of children, as the need for health belief synthesis has never been more urgent if Nigeria is to solve her health problems more holistically.
 3. Health workers should develop growth monitoring information communication, education materials especially on the aspect of the growth chart to increase the awareness and to serve as a reminder for both health workers and caregivers on the need to monitor the growth of the under-fives.
 4. Child caretakers should be trained on how to conduct, record and report the results of growth monitoring for their children.

5. Religious bodies should make weighing scale as part of gift to a newly wedded couple within the organization in order to encourage growth monitoring practices.
6. Men within the community should also be sensitized on the need for each household to have weighing scale to monitor growth.
7. There is also a need to use other media like fliers to promote growth monitoring.

5.9 Suggestions for Further Research

1. Willness of Primary Health care workers (CHEWs) in Maternity Centers in task shifting on growth monitoring of under-fives.
2. Perceptions of Primary Health care workers on their involvement in integration of traditional ways of growth monitoring with the conventional method.
3. Roles of religious organizations in child growth involvements.

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APPENDIX 1

Informed Consent Form

My Name is----- a Master Student of Public Health, University of Ibadan, Department of Health Promotion and Education, Faculty of Public Health, College of Medicine. I'm conducting a study, the goal of which is to generate information about Perceptions and Practices on Growth Monitoring by Care Givers of Under-Five Children in Ibadan South West Local Government Area, Oyo State. You have been selected for this interview because you have a child whose age is below 59 months. Participation in this study is voluntary and you can choose not to answer any of the questions I will like to ask you on these issues. All information obtained will be treated as confidential. Therefore your name is NOT required. Please ensure that you answer each question honestly as the success of this programme rests on your co-operation. Now I would like to seek your permission to start the discussion with you. Are you willing to participate?

1. Yes 2. No. (If answer is No, stop interview)

Thank you.

Signature/Thumbprint of the respondent & date

Signature of interviewer & Date

APPENDIX II

QUESTIONNAIRE

For official use only.

Serial Number _____

Interviewer's Name: _____

Location _____

SECTION A: SOCIO-DEMOGRAPHIC VARIABLES

Please answer the following questions about yourself and your family.

1. How old were you on your last birthday _____ (YEARS OLD).

2. How long have you lived in this place _____

3. What kind of area have you lived mostly before moving here? 1. Village _____

2. Town _____ 3. City _____

4. What is your religion? _____ 3) Traditional _____

1) Christianity _____

2) Islamic _____

4) other specify _____

5. Ethnic group: 1. Yoruba _____ 2. Hausa _____ 3. Igbo _____ Others (specify) _____

6. Current Marital Status: 1) Single _____ 2) Married No. of years _____ 3) Separated _____

4) Divorced _____ 5) Widowed _____ 6) other (specify) _____

7. What was your highest level of education?

1. No Formal Education _____

2. Primary Education _____

3. Secondary Education and Above _____

8. What is your main occupation?

1. Civil servant _____

2. Trading _____

3. Artisan _____

4. Teaching _____

5. Student _____

6. Housewife _____

7. Others (Specify) _____

9. How many children do you have? _____ (Total) No of Boys _____ No of Girls _____

10. What is the sex of the child (under five) that the interview will be based on?

1. Male _____ 2. Female _____

11. What is the age of the child (under five) that the interview will be based on? -----
(IN MONTHS)

12. Where was the child born? (1) Home

(2) Hospital

(3) Traditional Birth Attendant Home

(4) Mission home

(5) Church

(6) Mosque

(7) Others _____

DONT KNOW _____

13. What is the weight of this child at birth (kg) _____

SECTION B: KNOWLEDGE OF CAREGIVERS ON GROWTH MONITORING
14. Have you heard about growth monitoring (of Children) before? 1. Yes 2. No {IF NO, GO TO QUES17}

15. Where did you get the information on growth monitoring?

1. Radio & Television

2. Books

3. Friends

4. Handbills/Posters

5. Immunization clinics & Hospitals

6. Parents & Family

7. Others _____

16. In what ways have you been monitoring the growth of your child to date?
1. _____ 2. _____ 3. _____

17. How do you define growth monitoring? _____

PLEASE ANSWER "YES" or "No" to each of these questions that I'm about to ask

18. The purpose of growth monitoring is to check (monitor):

- (a) The height of the child
(b) The weight of the child

1. Yes 2. No
1. Yes 2. No

Which of these should be included in growth monitoring services?

INTERVIEWER Please Tick as appropriate.

- a. Immunization 1. Yes 2. No
- b. Oral rehydration therapy 1. Yes 2. No
- c. Breast feeding 1. Yes 2. No
- d. Complementary Feeding 1. Yes 2. No
- e. Family Planning 1. Yes 2. No

For how long do you think growth monitoring should be? 1. _____
 2. Don't know

Where can growth monitoring be carried out?
 1. At home only
 2. Health facility only
 3. Both Home and Health facility
 4. Don't know

How often do you think under-five children should be eating on a daily basis?
 1. When the child cries
 2. On request
 3. Voluntarily given by mother
 4. Don't know

SECTION C: PERCEPTIONS OF CAREGIVERS ON GROWTH MONITORING OF <5 CHILDREN

Please tick as appropriate.

SN	Statement	Yes	No
23	The growth chart is a useful monitoring tool for child health and development.		
24	Growth monitoring is useful to detect some basic childhood illnesses such as malnutrition.		
25	The outcome of a child's weight can discourage the mother if the value is less than normal		
26	Growth chart can be a useful tool to the caregiver		
27	Only health workers should use growth chart for monitoring the health and development of the children as it is cumbersome		
28	Both parents should be involved in monitoring the child's growth		
29	Growth monitoring is a western practice, so is not suitable to do same in our culture		
30	Growth monitoring is not beneficial to children		
31	It can also assists in detecting abnormal growth in children		
32	Growth monitoring cannot be done by mothers who are not educated		
33	Growth faltering is best observed by mothers rather than measuring the weight of the baby		

- 3. Growth monitoring should be done in primary health centers alone
- 4. It is difficult for caregivers to understand the basic components of growth monitoring
- 5. It is difficult to put appropriate mark on the growth monitoring chart
- 6. Growth monitoring can make children sick
- 7. Growth monitoring cannot accurately predict the nutritional status of children.

SECTION D: TRADITIONAL WAYS BY WHICH CAREGIVERS MONITOR THEIR CHILDREN

1. Please describe the traditional ways which you have ever used to monitor the growth of your children in respect to the following:

2. What are the ways/methods used? _____

3. What things do you usually look for? _____

4. What type of results have you had with your last child when you used the traditional method of growth monitoring? _____

5. What is done when your child is found to be growing well? _____

6. What is done if your child is found NOT to be growing well? _____

7. What aspects of these traditional methods of growth monitoring can be incorporated into household measurement of children's growth monitoring? _____ (IN WEEKS)

8. When last did you monitor your child's growth? 1. Yes 2. No

9. Have you ever been trained on how to monitor your child's growth? 1. Home 2. Hospital 3. Don't know

10. If yes, where? _____

SECTION E: RESPONDENTS EXPERIENCES AND ABILITY TO MONITOR THEIR CHILDREN'S GROWTH THROUGH CONVENTIONAL (HEALTH WORKERS') APPROACH

11. How do you know the weights of your children who are 0-59 months? _____

12. How do you know the weights of your child since s/he was born? 1. Yes 2. No (IF NO, GO TO QUESTION 17)

13. When did you start weighing this child? 1. Immediately after birth

2. Can't remember

3. Others specify _____

14. How often do you weigh this child? 1. Rarely 2. Sometimes 3. Occasionally/once in a while

4. More often 5. Don't weigh my baby

7. Do you have a weighing scale at home? 1. Yes 2. No (TYPE OF SCALE)

(a) Manual (b) Electronic/digital

8. Can you use the weighing scale? 1. Yes 2. No (IF NO GO TO QUESTION 32)

9. If Yes, Please demonstrate by weighing your child on the scale.

INTERVIEWER PLEASE RECORD WHETHER RESPONDENT DID THE FOLLOWING)

a. Sets the calibration to Zero 1. Yes 2. No

b. Removes child's clothing before weighing 1. Yes 2. No

c. Reads correctly the weight of child? 1. Yes 2. No

30. Where were you taught on how to use weighing scale? 1. Hospital/immunization clinic
2. Training school
3. Home
4. Others (specify) _____

31. Are you willing to be trained on how to use the weighing scale? 1. Yes 2. No

INTERVIEWER PLEASE GIVE THE GROWTH CHART TO THE RESPONDENT AND ASK HER THE FOLLOWING QUESTIONS

52. Have you seen a growth chart card before? 1. Yes 2. No

53. Can you interpret the information on the growth chart card? 1. Yes 2. No (IF YES, GO TO THE NEXT QUESTIONS, IF NO, GO TO QUESTION 54)

S/N	Variable	Please tick
a	When the line is above the upper reference curve, it means:	
	(i) Weight gain is normal and good. (ii) Excess weight gain.	
b	When the line is below the lower reference curve, it means:	
	(i) Weight gain is normal and good. (ii) Weight gain is inadequate.	
c	The horizontal line after the sickness of the child means:	
	(i) there is no problem (ii) failure to grow due to infection	
d	Average birth weight is:	
	(i) Birth weight 3.5kg (ii) Birth weight 2.5kg.	
	(iii) Birth weight 1.5kg	

c.	When there is an indication for intervention,	
	(i) the plotted line is <u>between</u> the two reference curves.	
	(ii) the plotted line is <u>between</u> outside the two reference curves.	

SECTION F: ATTITUDE OF CAREGIVERS TOWARDS GROWTH MONITORING

Please give your opinion on the statements listed below by stating whether you strongly

agree, Agree, Strongly disagree, disagree, or you are unsure

SN	Variables	Strongly Agree	Agree	Not sure	Strongly Disagree	Disagree
a.	Growth monitoring should be made compulsory for all mothers and caregivers					
b.	Growth monitoring is an acceptable method in child survival strategy					
c.	Knowing the child's weight can create anxiety for the mother					
d.	Frequent weighing of the child helps in detecting abnormality					
e.	The weighing scale is not a reliable way of conducting growth monitoring					
f.	Growth monitoring should be limited only to children less than one year					
g.	The cumbersome process makes it difficult to practice					
h.	Measuring growth is a waste of time					
i.	Growth monitoring is best used when the child is sick					
j.	All children need growth monitoring					
k.	Only children who are at the risk of infection need growth monitoring					

Thanks for participating.

APPENDIX III

FGD GUIDE

PERCEPTIONS AND PRACTICES ON GROWTH MONITORING BY CARE GIVERS OF UNDER-FIVE CHILDREN IN IBADAN SOUTH WEST LOCAL GOVERNMENT AREA, OYO STATE.

INTRODUCTION:

I am Abiodun Opeyemi and my colleagues' are _____ We are students from the Faculty of Public Health, University College Hospital, and University of Ibadan. We are grateful to you for accepting to participate in this discussion. This discussion will focus on the perception of mothers on growth monitoring and promotion of their children in Ibadan South-West, Oyo State, Nigeria. The result of this research will help designing appropriate health programmes that will encourage mothers to participate in growth monitoring exercise. In this discussion, your views will be respected and will not be used against anyone. No answer will be judge right or wrong.

We also seek your permission to use tape recorder so that we can adequately capture all your contributions. We will ensure that we do not take too much of your time and we also assure you that all that will be discussed here will be confidential.

SN	Question	Purpose
1	What are the common illnesses children less than one year (infants) suffer from?	How they identify these illnesses and how can it be prevented?
2	What type of food items are given to children age 0-59 months?	Why such foods are introduced?
3	How do people define growth monitoring in this community?	What have been heard about Growth monitoring? How important is it to children's health and development?
4	What are the traditional or local ways in which child caretakers in this community monitor their children's growth?	Why are these methods being used? What are the things they usually look for?
5	What type of results is obtained when these ways are used?	What is done if a child is found to be growing well? What is done if a child is found NOT to be growing well? What aspects of these traditional methods of growth monitoring can be incorporated into household measurement of children's growth monitoring?

6	What are the modern ways by which health workers monitor the growth of children?	<p>What are the components of growth monitoring used by Health Workers?</p> <p>When is it done?</p> <p>Where is it done?</p> <p>How it is done?</p> <p>And past experiences, what age should it cover?</p>
7	Who should be involved in growth monitoring of a child?	For aspects of growth monitoring that are carried out by father, mother and other family members and community members
8	To what extent are mothers using the health workers approach to monitor children's growth at home	How many mothers are using this approach, those not using, reasons why and why not?
9	Do child caretakers have the weighing scales at home?	For what they are used for, whether they are used to measure infants and children?

THANK YOU FOR PARTICIPATING

APPENDIX IV

GBIGBA ASE LOWO AKOPA NINU IWADI

Oruko mii ni Abiona Opeyemi. Mo je omo ile- iwe Eko giga ti o wa ni ilu Ibadan. Mo n se iwadi lori awon ti o tipe odun marun. Anfaani iwadi yii wa lati beere ibeere lowo obi tabi alagbato awon omo ti o tip e odun marun lati salaye ohun ti won mo nipa BIBOJUTO IDAGBASOKE AWON OMO ODUN MARUN SI ISALE. A situn yan yin lati kopa nitori eai omo ti o wa ni ojo ori yii. Kikopa ninu iwadi yii je yiyonda lati odo yin, kii se tipa tipa, mo sit un n fid a yin loju pe gbogbo idahun si ibeere yii yoo wa fun iwadi yii nikan. nitorinaa, a ko nilo oruko fun idahun si ibeere yii. E sir ii daju pe e so ohun ti e mo nipa awon ibeere ti a o mas bi yin lati gba idahun ti o daju, mo sit un nilo ifowosowopo yin. Mo fee beere pe se e fe tesiwaju ninu iwadi yii, ninu awon ibeere ti a o mas bi yin. 1. Beeni 2. Beeko. (ti idahun ba je beeko, Iwadi pari lodo akopa)

A dupe pupo.

Signature/Thumbprint of the respondent & date

Signature of Interviewer & Date

APPENDIX V

ERO AWON IYA/ALAGBATO NIPA MIMOJUTO IDAGBASOKE OMO TI KO TI PE ODUN MARUN

IPA A: ALAYE NIPA ONIDAHUN IBEERE

1. Kini ojo ori yin _____
2. Lati igba wo ni eti ngbe adugbo yii? _____
3. Nibo ni e ti gbe ri ki e to wa si adugbo yii? 1. Igberiko 2. Ilu 3. Ilu nla
4. Kini esin re? _____ 1. Kiristiani 2. Musulumi 3. Esin abalaye. 4. Omiran _____
5. Kini eya ree? 1. Yoruba 2. Hausa 3. Ibo 4. Oniran _____
6. Ipo ti ewa gege bii obinrin. 1. Apon 2. Se e wa nile oko? _____ fun odun melo _____
3. Pinya pelu oko 4. Pinya ni ti ilana ofin 5. Opo 6. Omiran _____
7. Iru iwe eri wo leni? 1. Ko si iwe eri 2. Ile kewu 3. Ile eko ngba 4. Ile eko alakobere
5. Ile eko girama 6. Ile eko ti awon oluko 7. Ile eko giga ti yunifasiti 8. Omiran _____
8. Kini ise ti e yan laayo? 1. Osise ijoba 2. Okowo 3. Ise ara eni 4. Akokoo 5. Oluko
6. Iyawo ile
9. Omo melo to wa? _____ (aropo) onku obinrin _____ onka okunrin _____
10. Omo yin ti a o maa beere ibeere nipa re, se 1. Okunrin 2. Obinrin ni?
11. Kini ojo ori omo naa? (Ni osu) _____
12. Nibo le bi omo naa si? 1. Inu ile 2. Ile iwosan 3. Ile agbebi 4. Ile ijosi 5. Soosi
6. Mosalasi 7. Omiran _____
13. Kini iwon omo naa nigba ti a bii? _____ Mi o mo/ Mi o le ranti _____

IPA B

14. Se e ti gbo nipa bibojuto idagbasoke awon omode rii? 1. Beeni 2. Beeko (ti o ha je beeko, lo si ibeere 17)
15. Nibo ni e ti gbo nipa bibojuto idagbasoke omo? 1. Ero asoromagbesi & amohun maworan
2. Iwe kika 3. Ore 4. Iwe ilewo aworan. 5. Ile iwosan abere ajesara 6. Awon obi/ebi
7. Omiran _____
16. Iru awon onsi wo ni e ti ngba bojuto idagbasoke awon omo yin?
1 _____ 2 _____

17. Bawo le se le sapejuwe bibojuto idagbasoke? _____

Jowo so "beeni" tabi "beeko" si awon ibeere ti n o maa beere yii

18. Aafaani bibojuto idagbasoke ni ki a mojuto:

a. Giga omo 1. Beeni 2. Beeko

b. Bi omo se tobi si 1. Beeni 2. Beeko

19. Fun bii igba wo ni e ro pe mimojuto idagbasoke le je? _____

20. Inu awon nkan wo lo ye ki a maa gbeyewo nigba ti a ba n bojuto idagbasoke omo?

Abeere Ibeere, jowo sala sii bi o ti ye: 1. Beeni 2. Beeko

a. Abere njesara _____

b. Omi iye _____

c. Fifun omo lomu _____

d. Fifun omo ni ounjje mirari _____

e. Fifi eto si omo bibi _____

21. Igba wo ni e lero pe o ye ki omo osu kan si osu mekandinlogota ye ki o maa jeun lojojumo? 1. Nigba ti o ba n sokun 2. Ti o ba beere 3. Ki iya re maa fun 4. Kosi oye

22. Nibo ni a ti lese bibojuto idagbasoke omo nipa iwon? 1. Ninu ile 2. Ni ije iwosan

3. Ni inu ile ati ile iwosan

IPA C: OHUN TI AWON IYA ATI ALAGBATO LERO NIPA BIBOJUTO AWON

OMO TI KO TI PE ODUN MARUN

Jowo sami sii bi o se ye.

S/N	Awon Ibeere	Beeni	Beeko
23	Iwe bibojuto idagbasoke wulo fun ilera ati idagbasoke omo		
24	Bibojuto idagbasoke wulo lati mo awon aisan ti o lee maa se omode bii siru ounjje ti o lo je		
25	Abajade esi iwon le je ki iya maa ronu ti o ba kun oju iwon ti o ye		
26	Iwe bibojuto iwon omo lee wulo fun iya tabi alagbato		
27	Awon osise eto ilera tikan ni o ye ki o maa lo iwe bibojuto idagbasoke lati lo fun ilera ati idagbasoke omo niloripe ki se ohun ti o ronun		

28	Baba ati iya ni o ye ki o maa bojuto idagbasoke omo		
29	Bibojuto idagbasoke je asa awon oyinbo, ko ye ki a maa sec ni asa wa		
30	Bibojuto idagbasoke ko se awon omo lanfaani		
31	O tun le je ki a mo awon omo ti ko dagba soke bi o ti to.		
32	Bibojuto idagbasoke ko sese fun awon obi ti ko kawe		
33	Iya tabi alagbato lee mo idagbasoke omo ti ko lo geere, nitorinaa, ko nilo ki a maa mo iwon won		
34	Bibojuto idagbasoke omo ye ki o je ni ile iwosan nikwa		
35	Ko rorun fun iya tabi alagbato lati mo awon ohun ti room bibojuto idagbasoke		
36	Ko rorun lati fi ami ti o to si iowe bibojuto idagbasoke		
37	Bibojuto idagbasoke omo lee je ki o se aisan		
38	Bibojuto idagbasoke omo ko lee salaye aisan ti o wa nipa aiyeun ti o to		

IPA D: ONA IBILE TI E TI LO LATI BOJUTO IDAGBASOKE OMO YIN

39. SAPEJUWE ONA IBILE TI E TI GBA LATI BOJUTO IDAGBASOKE AWON

OMO YIN NI ABE AKORI YII:

- Ona wo ni e maa n lo? _____
 - Kini awon ohun ti e maa n wo? _____
 - Kini awon ohun ti e maa n se ti omo yin baa dagba bi o ti to ati bi o ti ye? _____
 - Kini awon ohun ti e maa n se ti omo yin ko baa dagba bi o ti to ati bi o ti ye? _____
- _____
- e. Inu ona ibile yii wo ni a lee so fun awon iya tabi alagbato lati maa lo lati mo bi o mo won se n dagba soke ni? _____
40. O ti to igba wo ti e ti mo iwon omo yin? _____ (idahun ai ose)
41. Se e ti ko nipa bi a se lee mo bi omo se n dagba si? 1. Beeni 2. Beeko
42. Ti o ba je beeni, ni bo ni e ti koo? 1. Kiko lati odo are/chi 2. Ile iwosan
3. Sisan owo lati koo 4. Kiko nipa kika iwe 5. Omiran _____

IPA E: OYE AWON OBI LATI BOJUTO IDAGBASOKE OMO WON NIPA TI ILANA AWON ELETO ILERA

43. Bawo lese n mo iwon omo yin ti o wa ni bi osu odo si osu mokandinlogata? _____

44. Se e ti fi igba kan gbe omo yin sori iwon lati igba ti e ti bi? 1. Beeni 2. Beeko (ti o ba je beeko lo si ibeere)

45. Nigba wo ni e bere lati maa won omo yin? 1. Ni kete ti mo bii 2. Mi o lee ranti

3. Omiran _____

46. Bawo le see n won omo yii si? 1. O sowon 2. Igba iniran 3. E kokan 4. Gbobo igba

5. Mi o kii won

47. Se e ni ero iwon nite? 1. Beeni 2. Beeko (Inu iwon wo ni? a. Eyi ti ko nilo ina ijoba

b. Eyi ti o nilo ina ijoba)

48. Se e lee lo ero iwon? 1. Beeni 2. Beeko

49. Ti o ba je beeni, ejowo e won omo yin lori ero iwon yii

(Onibeere, jowo koo sile boya ndahun ibeere se ohun wonyii)

a. Yii ila si oju odo 1. Beeni 2. Beeko

b. Bo awon ohun ti omo naa wo (a:io ati bata) 1. Beeni 2. Beeko

c. Kaa daradara ohun ti omo naa won 1. Beeni 2. Beeko

50. Ni bo ni a ti koo yin bi a se lee lo ero iwon yii? _____

51. N je e lee ko bi a ti se n lo ero iwon yii? 1. Beeni 2. Beeko

Onibeere, jowo fun ndahun ibeere ni iwe bibojuto idagbasoke omo, ki o si beere ibeere wonyii:

52. Se e ti ri iwe yii ri? 1. Beeni 2. Beeko (Ti idahun ba je beeko, lo si ibeere)

53. Se e lee salaye awon ohun ti o wa tunu re? 1. Beeni 2. Beeko (Ti idahun ba je beeni losi ibeere ti o tele, ti idahun ba si je beeko, losi ibeere 54)

S/N	Awon ibeere	Samisi
A	Ti ila ba lo si ibi ti o lo si apa oke, otumo si: 1. Sianna mo niwon, osi dara 2. Sianna tip o ju	
B	Ti ila ba lo si ibi ti o lo si apa isale, otumo si: 1. Sianna mo niwon, o si dara 2. Sianna ku die kaa to	

C	Ila ti o ba lo si aarin leyin ailera omo tumo si: 1. Kosi wahala 2. Ijakule lati dagba nitori arun	
D	Iwon ti o kere fun omo, ti o dara ni 1. iwon 3.5kg 2. iwon 2.5kg 3. iwon 1.5kg	
E	Nigba ti ewu ba wa, ti omo naa nilo iranlowo ni: 1. Ila kiko yoo bo si agbede meji 2. Ila kiko yoo bo si iwaju agbede meji	

IPA F: ILA TI A WON ENIYAN KO SI BIBOJUTON IDAGBASOKE

54. Jowo so ohun ti o mo nipa awon ibcere ti o wa ni isale yii:

S/N	Awon Ibcere	Mo si laratora firamo	Mo fara mo	Mi o le so si	Mo si laralara sim moo	Mi o lara moo
a.	O ye ki bibojuto idagbasoke omo je ohun ipa fun awon iya ati alagbato					
b.	bibojuto idagbasoke je ohun ti a lee lo lati lee fi loju omo					
c.	Mimo iwon omo lee da ironu fun iya/alagbato					
d.	Wiwon omo ni gbogbo igba nje ki a amo awon ibi ti o ku die kaa to fun					
e.	Ero iwon ko see gbekede lati fi mo iwon omo					
f.	Bibojuto idagbasoke ye ki o wa fun awon omo ti o up e odun kan					
g.	O soro lati see, alon awon wahala ti owa nlu re					
h.	Mimo iwon iwon omo je ifskoko sofo					

i.	A lee lo daradara ti omo ba se aisan					
j.	Gbogbo omo lo nilo bibojuto idagbasoke won					
K	Omo ti o ba fe ni arun ni o nilo bibojuto idagbasokes					

Adupe ti e da wa lohun.

APPENDIX VI

FOCUS GROUP DISCUSSION GUIDE

Oruko mi ni Abiona opayemi, oruko cnikeji mi ni _____. A je akekoo lati De-iwe eko giga ti ilu ibadan. A sit un dupe pupo lati fi ara yin ji fun ibawa foro jomitoro oro. Ohun ti a o maa soro le lori naa ni; ERO AWON IYA/ALAGBATO OMO ODUN MARUN SI ISALE. Abajade iwadi yii yoo se anfaani fun iya/alagbato lati maa bojuto idagbasoke awon omowon.

Asi tun nfi da yin loju pe gbogbo obun ti e baso, ako ni lo lodi si yin, yoo si je fun lilo ise yii nikan soso. Ko si si ibeere ti o lona ati eyi ti ko tona. Asi tun fi akoko yii gba ase lati lo cro igbohunsile. A dupe.

1. Iru awon aisan wo lo wopo laarin awon omode? Beere siwaju sii: Bawo ni ase lee mo awon aisan yii ati bawo ase lee dena re?
2. Iru awon ounje wo ni a lee fun awon omo osu kan si mokandinlogata (0-59 months). Beere siwaju sii: Kini idi ti a fi n fun won ni iru ounje naa?
3. Bawo ni e ase lee sapejuwe mimojuto idagbasoke ni agbegbe yii? Beere siwaju sii: Kini e ti gbo nipa re? Bawo ni o se wulo fun ilera ati idagbasoke omo wa?
4. Ona ibile/tiwantiwa wo ni iya /alagbato ni agbegbe yii n lo lati bojuto idagbasoke awon omo won? Beere siwaju sii: Nigba wo ni a n lo ona yii? Se e le se sapejuwe ona yii? Kini awon ohun ti a n reti ninu ona ti a ti lo yii?
5. Kini abajade iru awon ona ti a ti lo yii? Beere siwaju sii: Ti idagbasoke omo ko bay a geere, kini a lee se? Ti o bu si ya geere, kini a tun lee se? Iru awon ona tiwantiwa ti bibojuto idagbasoke wo ni a lee lo ninu ile lati fi mo bi omo se n dagba soko si?
6. Iru awon ona ode oni wo ni awon osise ile-iwosan nlo lati fi mo idagbasoke awon omo? Beere siwaju sii: Kini awon obun ti o jo mo mimojuto idagbasoke ti awon osise ilera maa n lo? Nigba wo ni a n see? Nibo ni won ti n see ati bawo ni won see n see ati eyi ti se jacyln wa, omo odun melo ni o ye ki a maa se imojuto idagbasoke won?
7. Tani o ye ki o maa majuto idagbasoke omo? Beere siwaju sii: Iru ipa wo lo ye ki baba, iya, ebi ati ata agbegbe ko ninu mimojuto idagbasoke awon omo? Nje a lo esi abajade re fun ilosiwaju cro ilera omo naa?

8. Njẹ awon iya tabi alagbato nlo ona ti awon osise cleto ilera ngba bojuto idagbasoke awon omo ninu ile? Beere siwaju sii: iya melo ni o nlo liana yii ati awon ti ko lo, kini idi? (ti won fi lo ati ti won ko fi loo)
9. Awon melo ni o ni ero idiwon ti idagbasoke sile? Beere siwaju sii: Kini won n lo fun, boya won n lo awon omo won?

APPENDIX VII



DEPARTMENT OF HEALTH PROMOTION AND EDUCATION



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19th June, 2012

TO WHOM IT MAY CONCERN

RELATIONS OFFICER
MINISTRY OF HEALTH

This is to certify that the bearer is an MPH (Health Promotion and Education) student in the Department of Health Promotion and Education, Faculty of Public Health Education, College of Medicine, University of Ibadan.

Kindly accord her all the necessary assistance she may require in connection with her research project titled: "PERCEPTIONS AND PRACTICES ON (12 MONTH) MONITORING BY CAREGIVERS OF UNDER-FIVE CHILDREN IN IGADAN SOUTH WEST LOCAL GOVERNMENT AREA, OYO STATE."

Thank you

Ademola J. Ajuwon
Prof. A.J. Ajuwon

19th June 2012
HEAD
DEPARTMENT OF HEALTH
PROMOTION & EDUCATION
COLLEGE OF MEDICINE
UNIVERSITY OF IBADAN
IBADAN, NIGERIA.

APPENDIX VIII

ETHICAL APPROVAL FROM THE STATE

TELEGRAMS.....

TELEPHONE.....



MINISTRY OF HEALTH
DEPARTMENT OF PLANNING, RESEARCH & STATISTICS DIVISION
PRIVATE MAIL BAG NO. 5027, OYO STATE OF NIGERIA

Your Ref. No.
All communications should be addressed to
the Honorable Commissioner of Health
Ex. Ref. No. AD 131 4791 244

17th July, 2012

The Principal Investigator,
Department of Health Promotion & Education,
Faculty of Public Health,
University of Ibadan.

Attention: Abluna, Nursing

Ethical Approval for the Implementation of your Research Proposal in Oyo State

This acknowledges the receipt of the corrected version of your Research Proposal titled "Perception and Practices on Growth Monitoring by caregivers of under-five Children in Ibadan South West Local Government Area, Oyo State."

2. The committee has noted your compliance with all the ethical concerns raised in the initial review of the proposal. In the light of this, I am pleased to convey to you the approval of committee for the implementation of the Research Proposal in Oyo State, Nigeria.

3. Please note that the committee will monitor, closely, and follow up the implementation of the research study. However, the Ministry of Health would like to have a copy of the results and conclusions of the findings as this will help in policy making in the health sector.

4. Wishing you all the best.



Secretary
Department of Planning, Research & Statistics
Ministry of Health, Oyo State
Research Ethical Review Committee

APPENDIX X

WEIGHING SCALE MACHINE



We have 12 political wards namely:-

Ward 1:-

Beere
Oja-Oba
Drita-Merin
Alekuo
Oriolowo
Orisinnyan | Akere Compound

Ward 2:-

Oja-Iba
Idi-Arere
Isale-osi
Born photo | Apampa Compound

Ward 3:-

Gige
~~Wade~~ Ita Amegbie Omo Compound
Akuro
Apampa Isale yebu

Ward 4:-

Idi-Arere
Ibuko
Gibodu
Popo yemoja
Akuro
Bode

Ward 5:-

Gige
~~Apampa~~ Apampa
Foko-Asaka
Maya
Akuro

Ward 6:-

Foko
Maya
Pimule
Akuro
Ita maya
Oja-Foko

Ward 7:- FOKO
Amule,
Uc-Saki,
Ayborajo Area
Amunigun,
Egunpa,
Agbeni.

Ward 8:- Nre Road / Yaganku
Dke-Bola,
Egunpa / Gbagi.

Ward 9:- Moleba,
Challenge,
Anfan,
College Crescent,
Imale Palafia.

Ward 10:- Oko-ndo,
Liberty Road,
Soye-2,
Eko-Sami.

Ward 11:- Ring Road / Yaganku,
Single Club / Challenge,
Old passport office,
Orta Challenge,
Town Planning,
Ibe Adajo,
Joye B.

Ward 12:- Ode-oro, Kenyan way,
Apata,
Chokun,
Idun,
Cultural Centre, Jende,
Opa-Ayo,
Sade, Ode-oro.

Ward 7:- Foko,
Amule,
Ue-Saki,
Agbokojo Area,
Amunigun,
Ogunpa,
Agbemi.

Ward 8:- NTC Road / Iyaganku
Oke-Bola
Ogunpa, / Gbagi.

Ward 9:- Molete /
Challenge,
Anfani,
College Crescent,
Imale Palafis.

Ward 10:- Oke-Ado,
Liberty Road,
Joyce B
OSOSAMI,

Ward 11:- Ring Road / Iyaganku / Queens
Oluyole Estate / Challenge
Old passport office,
Orita, challenge,
Town Planning,
New Adeoyo,
Joyce B

Ward 12:- Odo-ona, Akinyemi way.
Apata
Gbekuba
Idi-Isis
Railway Station, Jericho
Oke-Ayo
Gada, Odo-ona.