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CAUSES AND PREVENTIVE MEASURES FOR UNDERNUTRITION MANAGEMENT

Among children under five years of age in Uganda

A Literature review

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ABSTRACT

The aim of the thesis was to study the reasons that contributed to malnutrition in children under the age of 5 years, thus exploiting the key interventions as implementation of preventive measures for undernutrition.

The study was conducted as descriptive literature review. The data was gathered from electrical data base via National Electronic Library Interface – information portal; Arto, Aleksi, Cinalh, Medic, Pubmed, Linda and EMBCO. Also sources such as Google Scholar books, publications, articles and various governmental internet pages were used to analyse and compare the results to meet the research questions. Keywords were malnutrition, undernutrition, causes, and children under 5 years, Uganda and prevention. The data was analysed by content analysis method.

The literature review showed that proper nutrition is the backbone of good health in child's development process. The nutritional status of the children under 5 years was dependant on social, economic and behavioural elements. Mother's nutrition, exclusive breastfeeding among other aspects affected on undernutrition.

Mothers should be encouraged on duration of breastfeeding period. There is a strong correlation to impure water, hygine and sanitation and children's undernutrition and poor health. The causes of malnutrition were classified as immediate, underlying, and basic causes.

Key words: Malnutrition, causes, undernutrition, children under 5years, Uganda, prevention.

LIST OF ABBREVIATIONS

WHO	World Health Organisation
UNICEF	United Nations International Children's Emergency Fund
EBF	Exclusive breast feeding
RUFT	Ready to Use Therapeutic Food
HIV	Human Immunodeficiency Virus
UBOS	Uganda Bureau of Statistics
UN	United Nations
MoH	Ministry of Health
NGO	Non-governmental organisation
UNSCN	United Nations System Standing Committee on Nutrition
KPAP	Karamoja Productive Assets Programme
WFP	World Food Program
DFID	Department For International Development

1 INTRODUCTION

We are living in the 21st centrury and still face individually, nationally economically severe and painful problem/dilemma of malnutrition. There are more overweight than malnourished people in the world today. FACTS. This really is a dilemma that may not be solved soon due to e.g. political interests but it needs to be addressed and discussed. We just cannot close our eyes and hope that the problem disappears by itself. We have enough food to feed the world but sadly it is unevenly divided – people in the western world are eating too much while people in most parts of Africa are still starving. According to study by FAO in 2010 about 30 per cent of the food produced for human cumsuption is lost or globally wasted in the world.

This thesis focuses on the undernuourised children under five years of age living in Uganda. This is because one of the authors originates from there and the interest is that at some point in the future one is able make a difference to the situation at hand. Uganda is heavily heat by malnutrition, 33 percent of children under five are stunted, 14% are underweight, and 5% are wasted and the rates of anaemia are at 49% for children but the malnutrition leves vary by regions. (Uganda Bureau of Statistics UBOS 2012.) There will be a short overview of the global malnutrition in the context of undernutrition. Thesis discusses the causes, managements and key interventions of undernutrition globally, focusing on Uganda.

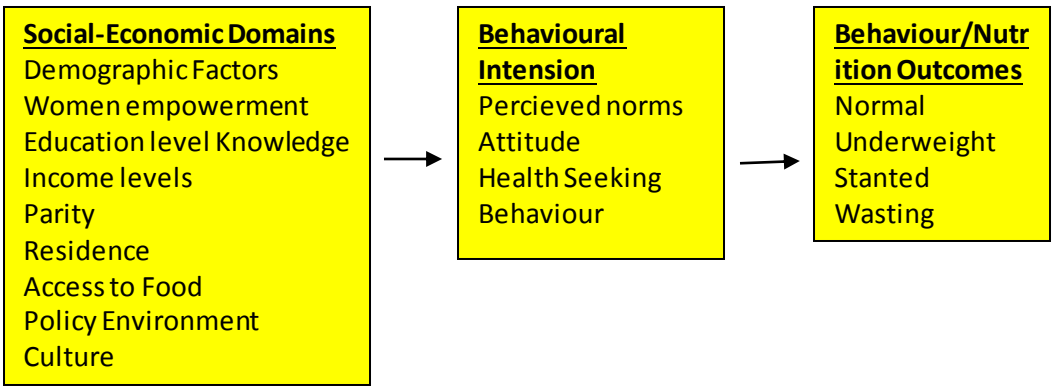
"We are guilty of many errors and many faults, but our worst crime is abandoning the children, neglecting the foundation of life. Many of the things we need can wait. The child cannot. Right now is the time his bones are being formed, his blood is being made and his senses are being developed.
To him we cannot answer "Tomorrow". His name is "Today" (Gabriela Mistral 1948.)

2 CHILDREN'S MALNUTRITION

The conceptual framework of this study adopts its construct from the theory of Planned Behavior by Ajzen & Fishbein 2010 which states that specific contexts of attitudes, subjective norms, and perceived behavioral control predict behavior. Therefore, for an individual to perform certain behavior there must be an intention to perform that behavior. The individual is highly likely to perform the required behavior in presence of facilitating factors but with absence of impending factors. Hence, attitudes towards the behavior, subjective norms and perceived behavioral control are key determinants of intention to perform the presumed behavior (Ajzen & Fishbein 2010).

These proximate determinants of behavior are therefore, influenced by a number of background factors, which are the central part of this study. The behavior, which leads to the overall goal, "proper nutrition status" is feeding well (Proper Infant and Young Child Feeding –IYCF practices) or not. Proper IYCF practices are influenced by behavioral intentions which are dependent on the background factors (social-economic domains) of the individuals or households (Ajzen & Fishbein 2010).

FIGURE 1 Ajzen & Fishbein (2010) the Integrative Model of Behavioral Prediction



Nowadays almost a billion people still suffer from hunger and it is extremely challenging for the public health. The number of the children under the age of five suffering from acute and chronic undernutrition is at least 225 million (United Nations UN 2012). UN also states that one million people die of undernutrition every year. More than half of the children under five years of age die because of the undernourisment, and common childhood diseases become fatal for them. Childhood undernutrition is a significant global health problem, contributing to childhood mortality, morbidity; suboptimal adult work capacity, harmed intellectual development and grown risk of diseases in adulthood (World Health Organization WHO 2013).The most common forms of undernutrition are mild and moderate undernutrition. Most vulnerable to undernutrition are children between ages of 6 and 24 months (Flax 2010).

Undernutrition can be determined as a condition in which the physical function of a child or an individual is reduced to the point where they can no longer maintain body's natural capacities. These capacities include pregnancy, lactation, growth, physical work and resisting or coming through from disease and learning abilities. It also related to problems from being dangerously thin (underweight) or too short (stunting) or being too fat (obesity) (Ingutia, Islam & Hossain 2009.)

The highest numbers of malnutrition occur in unstable countries which suffer from different kinds of conflicts, countries that are vulnerable and fragile. Such countries need more support and actions to reduce the chronical undernutrition in the future. The continous malnutrition is very destructive to a child causing stunting and affects the whole society and its future. Malnutrition also weakens child's health, learning abilty, later on livelyhood and capability to have healthty children on his/her own (World Vision Finland 2013.)

In many cases the parents are unaware of the fact that childrens's diet should be versatile and the importance of breast feeding is not fully understood. Mothers suffering from malnutrition give birth to malnutritioned children. Their breast milk does not contain the important nutritions that the infant needs. The breast milk is the best way to insure the proper intake of food during the first years after birth. The child is proteced with valuable resists that help to strength the immunity of the child. Further more breast feeding is one of the most effective ways to

prevent child deaths. This could save about 1.5 million lives per year. After breast feeding it is important that a child has a diverse diet. In many cases the child's malnutrition is not due the scarcity of food but due to the unawareness of the parents about healthy diet (UNICEF 2013).

The present global financial and economic crisis is not only effecting on companies and nations but people as well, increasing the risk of hunger and malnutrition. Due to this women and children particularly are at risk: crises increase poverty in the regions which already suffer from it. It is not only the quantity but also the quality of the diet that matters. This is particularly crucial for pregnant women for them to give birth succesfully and secure the future health and the development of the baby and the young children. If healthy diets are not available for pregnant women and children, it affects on the next generations as well. The new generation will be at the risk of becoming malnourished and the trend continues (UN 2007).

Climate change, population growth and high energy costs effect on the wellfare and diet of the families. The global increase of food prices is threatining to increase children's malnutrition especially in the poorest countries. In developing countries a slightest increase in food prices may significantly effect on the children's food intake. In developing countries up to 70 % of the income is used on food. In the western world the number is 10 to 20 per cent (UNICEF 2013.)

2.1 Importance of nutrition

WHO defines nutrition as the intake of food, in relation to body´s dietary needs. It further states that good nutrition is adequate, well balanced diet which should be combined with exercise (WHO 2014). Brown et al 2013, 1-2 further state it is a science that focus on food, its nutrients, other chemical components and the effect of the food components on the body functions and health. Brown et al concentrate on Concepts of Nutrition which emphasized on many multiple problems that placed humans at high risk of malnutrition. Dietary nutrients are beneficial in treating deficiencies by use of adequate diets while excess is harmful. Successful nutrition intervention complements other lifestyle choices to stabilize psychological decline and enhance physical and mental resilience.

Brown et al 2013 stated that proper nutrition leads to better overall health of an individual, low risk of infections due to good immunine system, healthy body weight, increase self esteem; looking and feeling better, being energetic and above all strong bones and muscles. Good health results due to proper nutrition mixed with healthy lifestyles, this enables the strengthening of the bones and proper body mass thus reducing the chances life threatening diseases like heart diseases, obesity, hypertension, stroke, osteoporosis. The individual's sense of well being is also mentally upright as this leads to a relaxed mind (Brown et al 2010, 267).

2.2 Causes for children's undernutrition

According to The United Nations Children's Fund (UNICEF) every fourth child suffers from malnutrition which jeopardies the child's life and development. Malnutrition is the cause to 1/3 of the deaths of the children under five years of age. Adequate and versatile diet is a precondition for child's development and good health. The immunity of the child weakens and diseases like diarreal can be fatal. Every year about three million children die of malnutrition and in the deveoping countries about 200 million children under five years of age suffer from dwarfism (UNICEF 2013).

The substabtial reasons for children's malnutrition are caused by three aspects namely immediate, underlyng and basic causes. First are immediate causes which are related to poor diet and diseases, example of diseases being HIV, measles, hookworms, diarhoea among other infections. Secondly are underlying causes including food insecurity, unhygienic living conditions and inadequate health services and finaly the basic causes are as a result of war, poverty, lack of information and in adequancy of resources (Lisa, Ramakrishnan, Ndiaye, Haddad, & Martorell 2003; Prakash 2010).

Despite the fact health care workers were well informed of feeding preferances of children born of HIV mothers there was still some knowlege gaps, regardless of conveyed information. It's clear that the gap existed due to lack of empowerment which the mothers were not introduced to; henceforth it is a great recommendation that the mothers should be empowered through client oriented,

group counselling in order for them to know they can handle the situations at hand (Minnie et al 2006).

2.2.1 Poverty and inequality

Poverty is one of the main reasons to undernutrition, malnutrition and child's deaths in all over the world (UNICEF 2013.) Poverty is a condition in which a person or the community is lacking the essentials for a minimum stardard of living (Ingutia, Islam & Hossain 2009.) The minimum stardard of living is part of human rights. The amount of minimum stardard of living varies from country to country from developing to developed countries. It is determined e.g. by the current economical and social economical situation and income level in a country (UNICEF 2013).

Some of these essentials are defined as material resources such as food, shelter and clothing and safe drinking water. They can also be so called social resources such as healthcare, education, social status, and access to information or political power. An extended duration of poverty causes lifelong damage to children's mind and body. It turns into adulthood poverty and is then passed on their children creating a poverty cycle. To achieve equitable and sustainable human development the best guarantee is investing in children and their welfare (Ingutia, Islam & Hossain 2009).

According to WHO 2009, 38 per cent of the population in Uganda was living with less than one dollar per day. 75 per cent of all hungry people live in rural areas in developing countries and are extremely dependent on agriculture as asource for their food. People living in these rural areas have no alternative source of income or employment. This means that they are very vulnerable to crises. Women are much more affected by hunger and poverty than men, even though women are the world's primary food producers. This is due to cultural traditions and social structures (Ingutia, Islam & Hossain 2009).

In the Sub Saharan countries including Uganda childen's undernutrion is very common due to poverty. People are completely dependend on corn crop which is readily available. The amount or absence of the crop determinates whether people

have anything to eat next year. People living in the region eat mainly corn porridge.The nutritious value of corn porridge is very low and the children are not able to eat it as much as they should in order to get the energy they need. Unbalanced diet is lacking protein, fatty acid and vitamins (Flax 2010).

It is particulary challenging to improve the standard of living in the rural areas. These parts of the country usually have very little resources for making improvements which is the case in Uganda. The rural areas face other problems which also affects the health care professionals. The staff is poorly paid which affects their motivation. They may be isolated, disempowered and possess few skills to actually make thing better (Karamgi, Lubanga, Kiguli, Ekwaru & Heggenhougen 2004).

2.2.2 Climate

Climate change is one of the unfavorable factors as it results to hunger and malnutrition as a result of floods and drought (Nelson et al 2009). It was further stated that that not only the increase in food stuffs and socio economic conditions were the solutions but also the benefits of managing environmental friendly atmosphere by reduction of carbon dioxide emissions. As a result this will cut down on the negative factors caused by emissions thus room for production leading to reduction of food shortage (Lloyd et al 2011). The global change of climate and the global warming is forecasted to *reduce* future cereal yields and threaten food security. It is affecting the countries and regions that already suffer from undernutriton. In 2013 UN secretary Ban Ki-moon stated that there cannot be food security without climate security. He also stated that foodcrises and global warming walk hand in hand.

2.2.3 Political and economical causes

Countries that experience political instability face higher cases of malnutrition in comparison to political stable countries. The political conflicts results to war thus no room for production input, this calls for support and interventions inorder to reduce on malnutrion. Political strategies have to be amended to curb issues like corruption inorder to improve on safety and development of positive democracy

(World Vision Finland 2013). Globally the food prices are increasing which has an effect in both developing and developed countries effecting on daily nutrition intake. In developing countries up to 70 % of the income is used on food. In the western world the number is 10 to 20 per cent (UNICEF 2013.)

2.2.4 Sanitation, safe water and diseases

In developing countries citizens suffer from lack of safe drinking water, this leads to consumption of impure and infected drinking water. Unsafe water along with inadequate sanitation and poor hygiene causes nearly 90 percent of the children's deaths to diarrhea. According to UNICEF 2012 one of the key interventions is to improve access to safe drinking water. According to WHO In 2010, 72% of the population in Uganda was using improved drinking water sources.

Studies show that handwashing with water and soap is the most effective, affordable, way to reduce on illnesses among the under-fives such as diarrhea and pneumonia. Sanitation and improvement of overall household hygiene and open desinfections are vitally important (UNICEF 2012.) According to WHO 2010, 34 per cent of the population in Uganda was using improved sanitation facility.

2.3 Children's malnutrition in health context

Poor nutrition poses a great risk to maternal health and child development. Not with standing relative food availability in Uganda, the state of nutrition is wanting especially for women and children. Uganda has a high burden of under nutrition with 33 percent of children under five stunted, 14 percent underweight, and 5 percent wasted (UBOS 2012).

Among women of reproductive age, 12 percent are chronically energy deficient. In addition, micronutrient deficiency is high, with rates of vitamin-A deficiency among children and women at 38 percent and 36 percent respectively, anemia 49 percent and 23percent, respectively. Malnutrition disproportionately affects rural areas where rates of stunting are over 36 percent in relation to 19 percent in urban areas. In addition, there is regional differential in levels of malnutrition, with the

Karamoja, Western and SW regions having higher rates of stunting 45%, 44% and 42%, respectively than any other region in the country (UBOS 2012)

The MoH indicates that under nutrition directly and indirectly contributes up to 60% of child mortality in Uganda, which makes it a great contributor to childhood mortality in the country (MoH 2009). Similarly, 20 percent of maternal mortality is associated with iron deficiency anaemia (4) and at current levels of anemia among women of reproductive age in Uganda, it is estimated that 3,000 mothers die annually from anemia-related causes.

This is attributed to several factors, including but not limited to poor dietary practices such as inadequate infant and young child feeding; high disease burden especially from malaria, diarrhea, tuberculosis, HIV and AIDS; widespread poverty; and gender inequality in most of Ugandan societies (UBOS 2012).

On the other hand, proper nutrition and dietary practices are uneven in Uganda, While 98 percent of children are breastfed for some period of time, only 63 percent of children less than 6 months are exclusively breastfed. Among all children aged 6-23 months, only 13% are fed with the correct

The general findings of the study will be compared to the situation in Uganda. Uganda had an estimated total population of 24.2 million people according to the findings from in the 2002 population census (UBOS 2002 Pop estimates). The main economic activity in the country is agriculture. Key preventive measures to manange children's undernutrition are introduced in relation with the prevailing situation in Uganda.

2.3.1 Competence and collaboration of care workers

Health care professionals play significant role in everyone's lives. Their importance is emphasized on lives of those who live in developing countries; living in poverty, suffering from undernutrition and various diseases, they do not have access to information provided by independent sources due to illiteracy. These are people who depend totally on the skills and knowledge of healthcare workers.

Health care professionals such as nurses, midwives and doctors and their national and international co-workers play a very important role in promoting maternal care, newborn and child health. They also have a unique role of educating and training people. Health care workers can also influence in some level, to national healthcare policy (The Partnership for maternal, newborn and child health 2006).

Health care professionals across the national and international level communicate, co-operate and collaborate with United Nations and various donor organizations, which makes their valuable work even more effective (The Partnerhip for maternal, newborn and child health 2006). These donor organizations play vital role in fighting against poverty, undernutrition and diseases in developing and other coutries as well. In Uganda over the past ten years, dispite the efforts of government and health care workers, maternal mortality has remained unchanged at 500/100 000 (Karamgi, Lubanga, Kiguli, Ekwaru & Heggenhougen 2004).

2.3.2 Reduction of child mortality rate

Below is a chart by World Bank which demonstrates the rate of reduction of infant mortality in the world. The emphasis of this study is in Africa. As shown below, the rate of reduction is low in Sub-Saharan Africa region. It is clearly shown that the reduction of infant mortality rate after approximately twenty years was at 20 per cent. Improving health is one of the central goals of the World Bank 2010. Many countries have emphasised on primary health care, safe motherhood initiatives, including immunization, sanitation and access to safe drinking water. As can be seen, the reduction of child mortality is affected by the same key interventions that are in the centre of prevention of undernutrition.

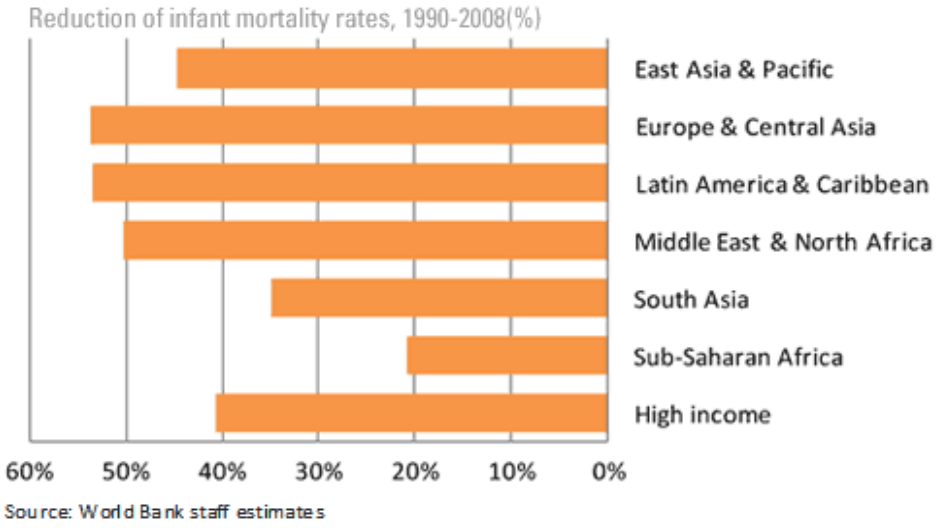


CHART 1 Reduction of infant mortality rates 1990-2008 by World Bank 2010

2.3.3 Improving mother's health

According to UN 2010 report, maternal mortality, ill-health and other complications during pregnancy and childbirth are mainly contributed by maternal undernutrition. Malnutrition during pregnancy not only affects the infant's birth weight. It also increases the risk of mental and physical underdevelopment and exposes infants to serious diseases later in their adult lives (Vorster & Kruger 2007).

It is important to pay attention to mothers' health by increasing assistance from skilled health personnel during pregnancy and delivery. This includes adequate supply of equipments and access to emergency obstetric care. Pregnant mothers should visit at least four times antenatal care during their pregnancy. Many underaged mothers are exposed to unwanted pregnancies which require access to counselling and information on birth control methods. Unwanted pregnacies affects both the mother's and the child's health and their future prospects. Making pregnancies wanted and childbirths safe prevents maternal deaths and saves children's lifes (UNICEF 2013).

2.3.4 Emphasis on the importance of breast feeding

Breastfeeding benefits both mothers and infants. It ensures good nutrition base for babies and strengthens the mother-child interaction. During the first six months of breasfeeding the infant receives enough nutrients for growth and development apart from vitamin D. Vitamin D is needed to prohibit dysfunction of mineral intake (Käypähoito 2013).

Breastfeeding during the first six month of the child's life is one of the most cost-effective means to reduce the risk of a young infant dying due to pneumonia or diarrhea and help a child to survive severe conditions prevailing in developing countries. Statistics show that exclusive breast feeding has increased in many high-mortality countries in the early 90's. Despite this trend less than 40 percent of children less than six month of age are exclusively breastfed in developing countries. Many studies have shown that exclusive breasfeeding practices are vitally important in reducing children's under nutrition and morbidity to above mentioned pneumonia and diarrhea (UNICEF 2012).

According to WHO proper infant feeding practices are key to child survival, breastfeeding is the best, easiest, and most cost-effective method to ensure and maintain child's proper nutrition and health. Annually more than 1.4 million deaths in children under five in the developing world could be prevented with optimal breastfeeding. Children under two years of age have the greatest potential for a positive impact of breastfeeding on child survival. Statistics show that breastfed children have at least six-times greater chance of survival in the early months than those who have not been breastfed. Multiple studies show that breastfeeding dramatically decreases deaths from diarrhoea and acute respiratory infections as well as from other infectious diseases. Acute respiratory infections and diarrhoea are the major child killers in the world (WHO 2010).

Breastfeeding patterns have improved significantly over the past 10 years in some countries. But in the developing countries they are still far from what is recommended. The table below shows that only 39 per cent of all infants 0–5 months of age are exclusively breastfed in the developing countries. The global levels of continued breastfeeding are quite high at one year of age (76 per cent)

but only half of infants are still breastfed at two years of age (50 per cent). As can be seen in the CHART 6 below some sub-Saharan African countries have made significant improvement in exclusive breastfeeding. One should keep in mind though that there is a large disparity among regions and that the statistics show the average improvement (UNICEF 2009).

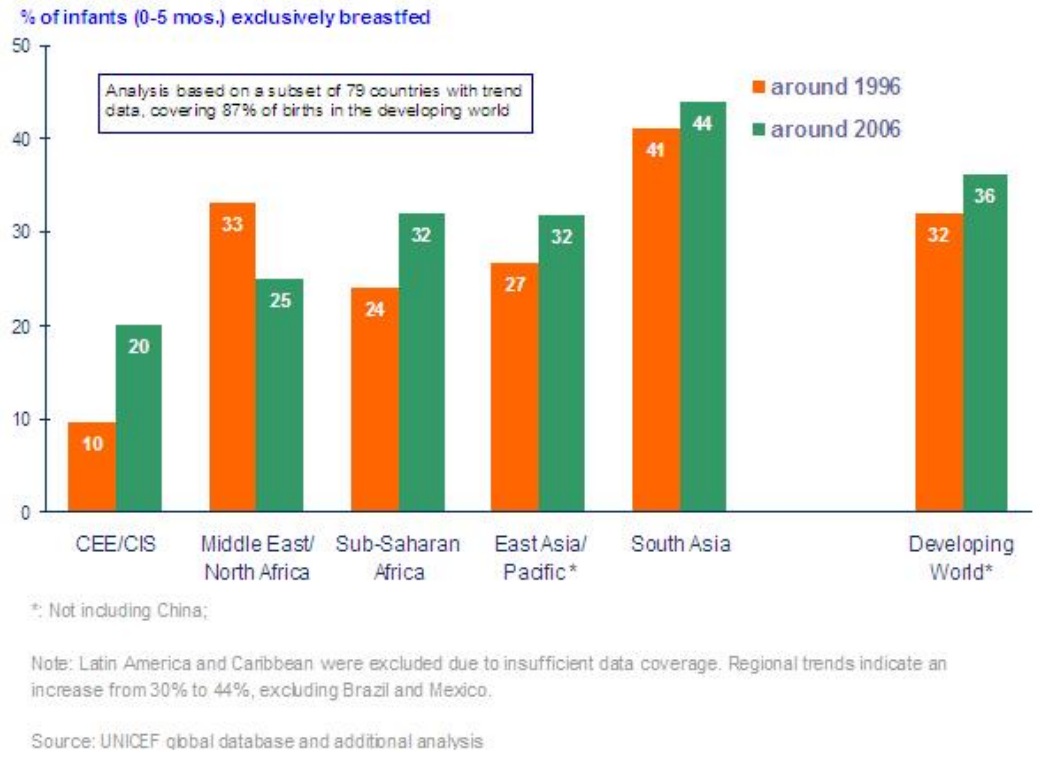


CHART 2 Infants exclusively breastfed by World Health Organization.

2.3.5 Key interventions in Uganda

International Non Govermental Orrrganisation's (NGOs) partner to start local food production projects in poor cummunities of Uganda that suffers from chronic poverty, malnutrition, food shortages and frequent drought as well as other natural disasters. Such small villages projects include the Karamoja Productive Assets Programme (KPAP) where Department for International Development (DFID) World Food Programm (WFP) partner with the government of Uganda to work against food crisis to ensure constant access to food in the communities (DFID 2011).

Other initiative from international NGO such as HarvestPlus include holding training workshops with farmers talking about food varieties and their benefits such as the importance of foods rich in vitamins A to improve health. In addition, they distribute such food seedlings to farmers to grow nutritious food rich in vitamins, proteins, carbohydrates, minerals and fats for both household consuption and income generation (DFID 2012).

2.4 Ways of managing undernutrition

Since some of the underlying causes of undernutrition; such as poverty, climate and climate changes, social and economic factors as well the access to safe drinking water are out of reach and aid of the health care professionals, new innovative thinking and new approaches are needed. According to UNICEF 2012 one of the key interventions is to improve access to safe drinking water. According to WHO In 2010, 72% of the population in Uganda was using improved drinking water sources.

Refugee organizations have for many years done research development in order to develop nutritious, small sized and well preserved supplements. In the beginning of the 1990's a French André Briend developed peanut butter paste which has been exported to areas of crises such as Darfur and Afganistan. The peanut is high in protein and possess good fatty acids and contains lots of fat in order to keep well. Compered to other supplements such as flakes, powder and salts, peanut paste is very handy and at the ready. Products that have been grown and manufactured in the target region are not as vulnerable to political and economical situations (Flax 2010).

Children should not suffer from malnutrition, as this leads to vulnerability to diseases period during infancy, growth and development. Many actions have been taken to safeguard the nutritional status of these children. Research shows that undernourished children were fed with Ready to Use Therapeutic Foods (RUFT) in order to improve on their nutritional levels (WHO 2014).

Farmers keep part of their harvest in form of seeds to plant in the next season; in addition households form groups and farm in together. This initiative is embraced

in Karamoja in the WFP project called Karamoja Productive Assets Programme (KPAP). These small villages' projects create income from production of high hielding crop varieties, and access to irrigation systems that promote reliable ways for households to grow food (DFID 2011). Through research international NGOs have introduced different food crop varieties such as sweet potato that that are rich in micronutrient like vitamin A.

One of these programs is HarvestPlus. It promotes local breeders to promote these research efforts to improve malnutrition through both availability and nutrition content essential to children's development. In some health facilities, the hospital distributes emergency relief food to patients and complements it with food production skills. Health workers sensitize caretakers on the vice of alcohol abuse and selling of food harvest to buy alcohol, people have turn back to the granary system of storing food for future consumption during times of scarcity (DFID 2012).

In addition, to better manage malnutrition, health facilities offer patients especially those suffering from HIV/AIDS food rations to help them improve their health status and adhere to treatment. Further more some health facilities offer special food diet to malnourished children incare and continue to sensitize caretakers' ways of preventing child malnutrition. At community level, health facilities carry out periodic visit and sensitize communities on proper feeding and link victims of malnutrition to local health units to easily receive food supplements until child recovery (Masinde 2013).

3 CHILDREN'S UNDERNUTRITION IN UGANDA

The population growth is the world's third highest in Uganda creating a huge challenge to decrease poverty and inequality. The portion of young people is the highest in the world, more than half of the total population is under 15 years of age (Plan Finland 2013). Poor nutrition poses a great risk to maternal health and child development. Not withstanding relative food availability in Uganda, the state of nutrition is wanting especially for women and children. Uganda has a high burden of undernutrition with 33 percent of children under five stunted, 14 percent underweight, and 5 percent wasted (UBOS 2012).

PICTURE 1 Map of Uganda and neighbouring countries by Google map

Malnutrition levels vary by region in Uganda, with Southwestern districts having higher levels than nation average in terms of stunting (42%) and underweight (15%), while the Eastern region the levels of stunting and underweight are below the national average (25% and 10%, respectively). Though there have been a number of interventions in both region, the rates of malnutrition are still high

neccesitating investigations as to establish the factors contributing to persistant high level of malnutrition among children in Uganda (UBOS 2012).

As illustrated in the chart below provided by World Health Organisation, the amount of malnutrioned childen is Uganda is declining. The rate of decline is moderate but the course is right. In ten years the total decrease in percentages in underweight and stunting children is total of 15 precentages. One should not be satisfied with that but it is a start.

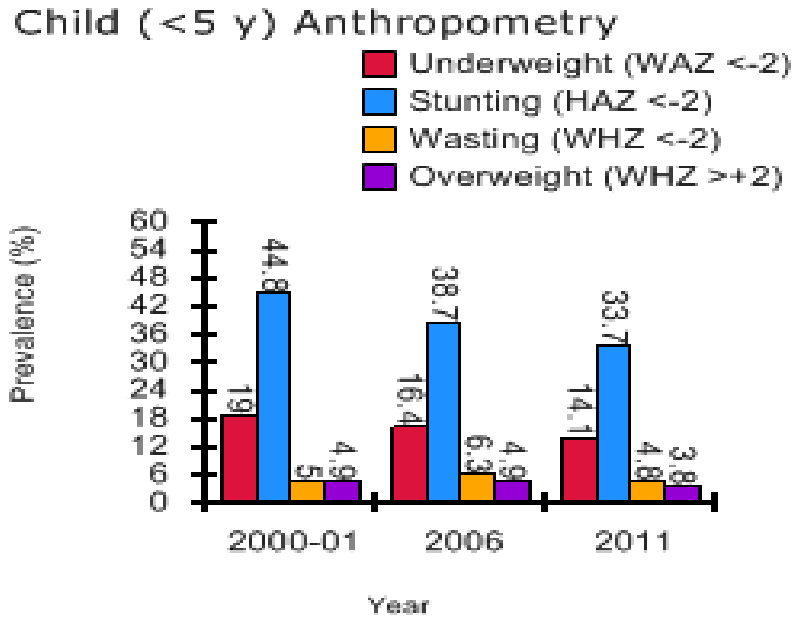


CHART 3 Databases on Child Growth and Malnutrition in Uganda World Health Organization (WHO)

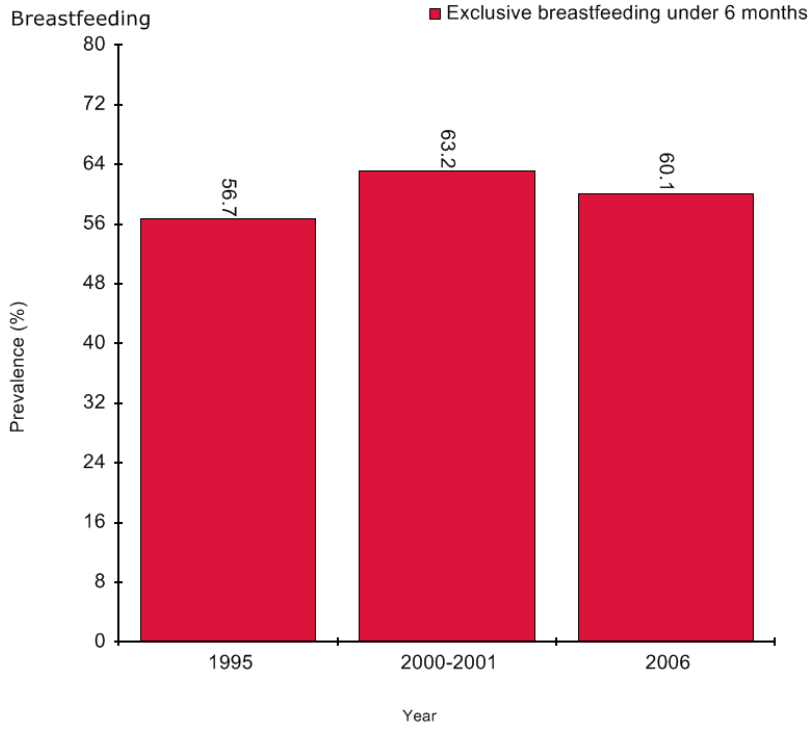
Among women of reproductive age, 12 percent are chronically energy deficient. In addition, micronutrient deficiency is high, with rates of vitamin-A deficiency among children and women at 38 percent and 36 percent respectively, anemia 49 percent and 23percent, respectively. Malnutrition disproportionately affects rural areas where rates of stunting are over 36 percent in relation to 19 percent in urban areas. In addition, there is regional differential in levels of malnutrition, with the Karamoja, Western and SW regions having higher rates of stunting 45%, 44% and 42%, respectively than any other region in the country (UBOS 2012).

The Ministry of Health (MOH) indicates that undernutrition directly and indirectly contributes up to 60% of child mortality in Uganda, which makes it a

great contributor to childhood mortality in the country (MOH 2012). Similarly, 20 percent of maternal mortality is associated with iron deficiency anemia (4) and at current levels of anaemia among women of reproductive age in Uganda, it is estimated that 3,000 mothers die annually from anaemia-related causes. This is attributed to several factors, including but not limited to poor dietary practices such as inadequate infant and young child feeding; high disease burden especially from malaria, diarrhea, tuberculosis, HIV and AIDS; widespread poverty; and gender inequality in most of Ugandan societies (UBOS 2012).

On the other hand, proper nutrition and dietary practices are uneven in Uganda. While 98 percent of children are breastfed for some period of time, only 63 percent of children less 6 months are exclusively breastfed. Among all children aged 6-23 months, only 13% are fed recommendedly. There hasn't been a very significant change in breastfeeding perveilance in Uganda during 1995 – 2006 as the chart below shows.

CHART 4 Exclusive breastfeeding under 6 months in Uganda by World Health Organization (WHO)



As illustrated in the CHART 4 by WHO below the mortality rate of under-five in Uganda is decreasing. Undernutrition leads to premature death. It is vitally

important to reduce the mortality rate among children. The rate has dropped to half in 20 years. Even though the trend in developing countries, as it is in Uganda in under-five mortality rate is declining, too many children die before the age of five. Fortunately there is something that can be done to reduce this rate. The focus should be in the most-vulnerable, marginalized and the poorest areas.

Special attention should be paid to ensure clean and safe delivery practices and to improve ante-natal care. Encourage the mothers to exclusive breasfeeding. It is also very important to reduce deaths from pneumonia, diarrhea and malaria. These diseases are number one reason for under-five child deaths and are linked to poverty. These diseases can be prevented. Mothers should be adviced to let children sleep under insecticide treated mosquitonets to avoid stings of infected mosqitoes. Also the importance of washing hands with water and soap should be promoted (UNICEF 2013).

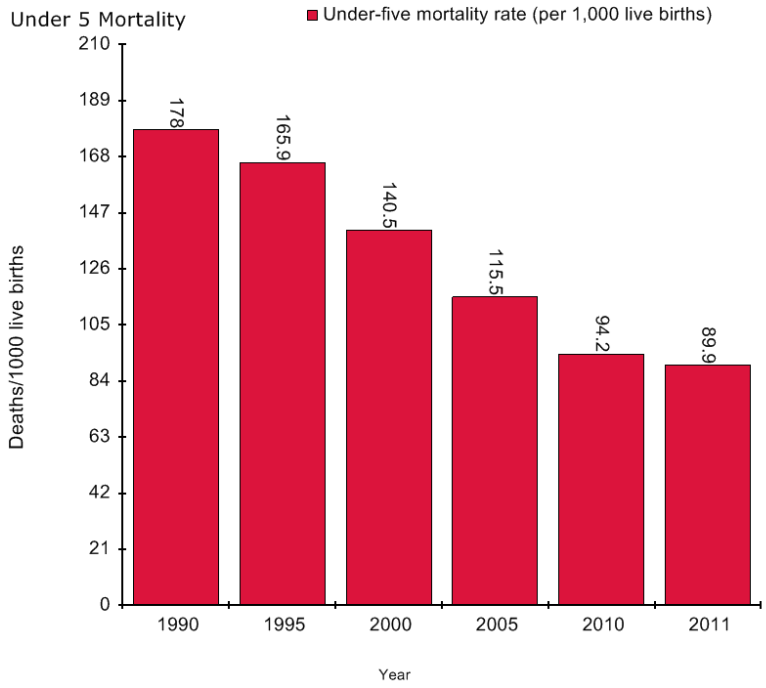


CHART 5 Under-five mortality rates by World Health Organization (WHO)

4 AIMS, OBJECTIVES AND RESEARCH QUESTIONS

The aim of the thesis is to present the causes and key interventions to promote health among children under five years of age. The key interventions will be discussed in order to improve undernutritional status of children less than five years. The thesis is covering undernutrition both national and international level focus ing on Uganda. When discussing malnutrition we refer to undernutrition not overnutrition.

4.1 Objectives

The thesis objective is to analyse and increase awareness of causes of undernutrition among children under the age of 5 years. The thesis will also present the key interventions to prevent undernutrition of the target group in Uganda. By answering the research question recommendations are made based on findings to prevent and improve undernutrition situation among children less than five years of age in Uganda.

4.2 Research questions

The research questions are defined and limited by literature review.

1. What are the reasons for undernutrition among children under five years of age?

2. What are the key interventions to prevent children's under nutrition?

5 LITERATURE REVIEW

A literature review was used to deepen the knowledge of the gathered research material and findings. By doing this we are using evidence based research. As future nurses we base our decisions and nursing practises on evidence based practises.

The purpose of the descriptive literature review was to introduce background information for the thesis. The thesis briefly discussess undernutrition, but it concentrates on the causes of children's undernutrition. The thesis also discusses the methods and means to improve children's undernutrition. The emphasis is on national level in Uganda but issues are also discussed at in international level.

The literature review is often used as a base for scientific work. In this research Literature review was based on versatile and essential literature based on the research questions. Literature review was conducted by reflecting on what had been studied before, relating it to this research and the research prospective (Hirsjärvi 2010, 121.) The most important goals of the literature review are unification and development of the old theory and building a new one. The new theory can be evaluated quite profoundly through literature review, and analyse it's the possible weaknesses. The literature review builds a very comprehensive picture of a specific subject. A history of a specific theory can be analysed and studies effectively by the literature review (Salminen 2011: 3-4).

According to Salminen 2011 literature review is partly combibation of qualitative and quantitave method and is used as administrative sciences's method and research technique. Literature review is considered as an important scientific method. Descriptive literature review is typically yet devivid into two groups; narrative and integrate classes. By using a narrative literature review, a wide illustrative picture of the subject, its history or progression is provided. In some cases the narrative literature is further divided into three varieties: editorial, commentary and synoptic. (Salminen 2011, 6-7). Intregrate literature review is used when one wants to describe the study at hand as versatility as possible and from variety of sources. It enables to gather samples from variety of studies since it does not go through the research data as accurately as systematic literature

review. The main difference between narrative and integrate review is; critical examination is essential part of integrate literature review (Salminen 2011: 8).

Compared to literature view in other sciences, nursing sciences does not deviate from other sciences that significantly. Johansson in 2007 classified types of literature review as following: literature review, review, narrative, systematic and traditional literature review and systematic review and meta-analyses. Most commonly narrative e.i. traditional literature review is used in nursing sciences (Käärinen, Lahtinen 2006, 38.) Narrative/descriptive literature review provides a good and broad general picture over the subject at hand and the perspective of the study is chosen by the experts (Johansson 2007.) The problem with narrative/descriptive literature review is considered its inaccuracy, availability of inadequad original studies and from researchers point of view; the objective respect of unflavorable studies. (Kääriäinen & Lahtinen 2006, 38).

In this study the literature review was carried out as narrative/descriptive literature review, as an interegate literature view to be precise. The studied phenomena can be described widely as a general review by interegate literature. Advantages include that it enables to use more extensive literature with out strict and accurate regulations. Further more the research questions are broader compared to systematic literature review and meta-analyses (Salminen 2011, 6). Since the timetable of the thesis was ectremely tight and the subject of the study extensive, the systematic literature review was excluded.

5.1 Data collection

The thesis was carried out by descriptive literature review. The aim of the descriptive literature review is to review information related to the thesis topic. Data collection was carried out by many different data bases, internet and books. Data was collected from electrical data base via NELLI (National Electronic Library Interface) – information portal. These databases included; Arto, Aleksi, Cinalh, Medic, Pubmed, Linda and EMBCO. We also used Google Scholar books, publications, articles and various governmental internet pages to analyse and compare the results to meet the research questions. The data was searched by

keyword entries; undernutrition, malnutrition, children, prevention, causes and Uganda.

Limitation criteria were typicly approximate at best and included too old data, studies that enabled acces only to abstract. General selection included topic related to the subject, topicality and data related to causes and interventions of undernutrition. The data was searched by keyword entries so that every study that fulfilled criterion for the entry had equal chance to get selected. We used with accordance of the thesis objectives search words such as malnutrion, children's malnutrition, and children under five years of age, prevention, Uganda and under nutrition to find research material. The searches were limited to articles between years 2004- 2014. Plenty of keyword entries were performed.

The answers to the research questions were found in electrical data bases. These data bases included: Theseus, Cinalh, Medline, Cochrane, Arto, Aleksi, Medic, Pubmed, Linda, Elsevir Sciverse ScienceDirect and EMBCO. The search results can be seen at **APP 1.** Totally 210 articles were accepted based on the title. 118 articles were picked and analysed based on the asbstract. The data based on entire text included 58 articles. Of all the studies that were analysed 41 articles provided the answers to the research questions and met the quality assesement. The data was, as mentioned above, searched by keyword entries; undernutrition, malnutrition, children, prevention, causes and Uganda. Other entries such as mortality, breastfeeding, prevailance and nutrition were also performed. Limitation criteria also included elderly and adults so that the results of the entries were exclusively about children.

The thesis is limited on small children under five years of age. The thesis is focused on undernutriton. The definition of caretaker in this context is person working and caring for the children. The focus is on mothers and health care workers. Given the sensitivity of the study subject and the target population, it is possible that the literature about malnourished children is limited. Thus, it will be difficult to generalize conclusion and to make recommendation across the district and the country at large since is limited to one hospital and has no community component. The complexity of the subject matter may itself be a limitation to the study since there is no direct contact with the caretakers.

5.2 Data analysis

We are using content analysis method in this thesis. Content analysis is a scientific method that uses verbal, symbolic or communicative data to reach a certain conclusion. The aim is to analyse documents systematically and objectively. These documents include e.g. books, articles, journals, letters, interviews, speeches, conversations, dialogues, rapports, etc. Content analyses suits also well for analysing unstructured data and literature. And by using content analyses it is also possible to analyze finished data which was not originally made for research. The aim of content analyses is to describe the documents verbally and to create verbal and clear description of the studied phenomena. It also aims to organize the data into a compact and clear form (Silius 2005).

Content analysis is best used for published documents and texts. It's descriptive; it uses general statements basing on the frequency of the theme in the selected text rather than subgroups of texts. The interpretation in content analysis is based on themes, topics and phrases used in the selected text (Wendy 2012, 62).
After the data collection, the information was grouped and aggregated into major themes/classes. This provided a thematic/classic way of discussion the key interventions, causes, experience and management of under malnutrition in Uganda. This analysis was verbaim using literal discussion on what is documented in various literature sources or publications.

When there is inadequate intake of dietary contents and poor health then malnutrition occurs (UNICEF). The main causes of malnutrition in the developing countries are less nutrient intake, diseases like HIV/AIDS, diarrhea.

6 FINDINGS

The results in this chapter are reflecting on the causes and interventions in Uganda. The substantial reasons for children's malnutrition are caused by three aspects namely immediate, underlyng and basic causes. First are immediate causes which are related to poor diet and diseases, example of diseases being HIV, measles, hookworms, diarhoea among other infections. Secondly are underlying causes including food insecurity, unhygienic living conditions and inadequate health services and finaly the basic causes are as a result of war, poverty, lack of information and in adequancy of resources (Lisa et al 2003; Prakash 2010).

6.1 Immediate causes

The kind of food consumed by the children has less micronutrient. The increasing food prices and the changing growing seasons have affected the food consumption and food production. This makes it hard to access the various foods needed for the body (GOU 2011). Infections like malaria, diarrhoea, HIV/AIDS and respiratory infections contribute to undernutrition. These diseases lower the child's immunity resulting into a viscious cycle (Flax 2010).

According to a study done by Engebretsen, Wamani, Karamagi, Semiyaga, Tumwine and Tylleskär (2007) in eastern Uganda among 99% of the mother's breast fed. By 6 month none of the mothers practiced exclusive breast feeding practice and at 3 months only 7% exclusively breast fed. Breastfeeding has a positive impact on child's survival for children less than two years of age. Statistics show that breastfed children have at least six-times greater chance of survival in the early months than those who have not been breastfed. Multiple studies show that breastfeeding dramatically decreases deaths from diarrhoea and acute respiratory infections as well as from other infectious diseases. Acute respiratory infections and diarrhoea are the major child killers in the world (WHO 2010).

6.2 Underlying causes

The underlying factors for causes of undernutrition include food security, resources for care, and resources for health and all have an affect on the immediate causes (Flax 2010.) In many homes children live in unhealthy environment. There is no access to proper toilets or other sanitation services (GOU 2011). According to the Ugandan news paper, Newvision (Mar 16, 2013) it is reported that half of the Ugandan population has no access to clean water and sanitation. In Uganda people need more information on the importance of proper hand hygiene like washing hands after using toilet.

The poverty situation compels families to sell off their crop produce leaving nothing for home consumption. Nothing is kept in the granaries and any money realized from crop sell is spent on alcohol consumption in the poor communities and leaving no coin for the mother to prepare for recommended daily meals. In addition, due to high levels of illiteracy, communities perceive malnutrition as curse rather than a bodily deficiency in micronutrients or food values (Masinde 2013).

The mothers have poor attitude as regards admitting malnourished children into healthcare, since in many communities in Uganda mothers do a lot in providing for the family, they usually escape from the health facilities in order to continue working for household survival. The source of income for these mothers is brewing local beer. Therefore the mothers abscond from the hospital even though the children have not cured. In addition, the tendency for women to do small business such as brewing local beer leaves no time for food production and hence limited access to food varieties (DFID 2011).

6.3 Basic causes

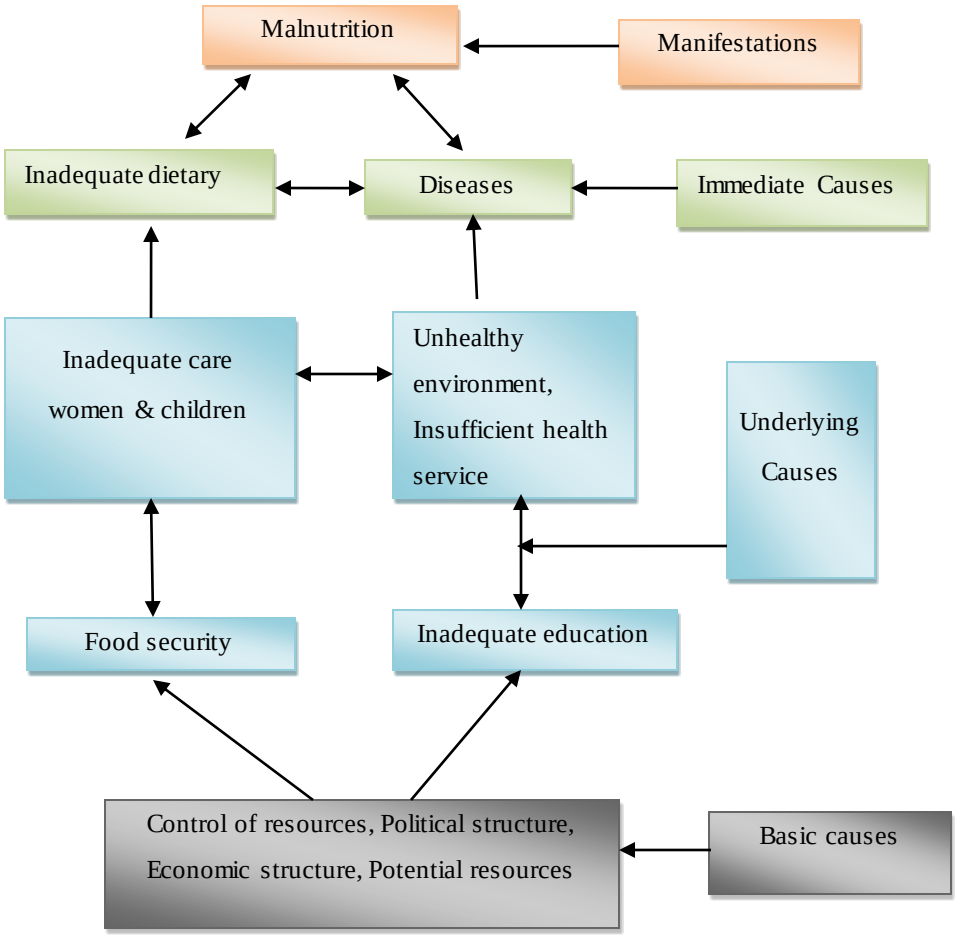
Flax 2010 mentioned in her study the basic factors that cause undernutrition as political and economic structure, potential resources, natural, social, human, financial. Social and cultural context the basic Study showed that educated mothers are more aware of their children nutritional status there fore there is a

positive connection between maternal education and child nutrition al status (Flax 2010.)

There is limitation to the development of policies in Uganda due to lack of political commitment and lack of public commitment. The countries development in the recquired structures is affected by lack of political commitment affecting coordination of actions to fight young child and maternal malnutrition. By using positive legislation it would create friendly environment to invest in nutrition (GOU 2010).

It is particulary challenging to improve the standard of living in the rural areas. These parts of the country usually have very little resources for making improvements which is the case in Uganda. The rural areas face other problems which also affects the health care professionals. The staff is poorly paid which affects their motivation. They may be isolated, disempowered and possess few skills to actually make thing better. (Karamgi et al 2004).

The picture below summarizes the three dimentions and effects on children undernutrition and health. It shows the interaction between the three concepts.



PICTURE1 Conceptual model of factors influencing child nutritional status (Adapted from Flax 2010)

6.4 Key interventions

There research further discovered that some of the interventions that have been applied to fight malnutrition in Uganda were that projects are set up by Non Government Organisations (NGO) to improve on food production. These projects are organised in communities that suffer from chronic poverty, malnutrition, food shortages and frequent draughts and other natural disasters. The Karamoja Productive Assets Programe is one of the projects set up in the Eastern part of the country to fight against the food crisis to ensure continues supply of food in the communities. In this program the Department for International Development

(DFID, World Food Programm (WFP) partner with the government of Uganda (DFID 2011).

Workshops with farmers are held and in these workshops food production, food varieties, benefits of the foods are discussed. The NGO known as HarvestPlus has discussed the importance of food nutrients like vitamin A in improving health. This organisation stretches further to distributing food seedlings to farmers to grow nutritious food rich in vitamins, proteins, carbohydrates, minerals and fats for both household consuption and income generation (DFID 2012).

The role of donor organizations is crucial in fighting against poverty, undernutrition and diseases particularly in developing coutries. Regardless of the governmental efforts and health care workers input, maternal mortality has not chamged in Uganda over the past ten years. Mortilty rate in Uganda according to this study is 500/100 000 (Karamgi et.al 2004).

In the nutritional plan strategy through 2016 on improving utilization of nutritional services to children is implemented by improving and promoting proper food handling, hygiene, and sanitation through increased knowledge on the use of safe water, and hand washing practices at household level (GOU 2010). The government of Uganda together with patners funds the rural water supply and sanitation program which monitors the water supply network and it has managed to improve on the accessibility of the water supply and sanitation in the rural areas. More than half population in the rural area shas had access to watersupply and sanitation (Ssozi & Danert 2012).

Sanitation status was improved by improving on the latrines whereby the community focussed on improving the sanity of the latrines The locals received concrete slabs to improve on the condition of the latrines this enhanced the maintainance of the latrines. Level of sanity was measured 1-8 scale. They considered these factors; no urine present, no feces present, few flies present, clean, latrine hole covered, wiping material present, hand-washing facility present with soap, broom present (Mellor 2009).

Caregivers are models of educating the public/community on the dangers of under nutrition and preventive measures. Mothers are educated on hygiene, nutrition and

child care, as this assist them cope with day to day life due to empowerment (Mellor 2009).

7 REFLECTIONS

Since many of the underlying causes of undernutrition; such as poverty, climate and climate changes, social and economic factors as well the access to safe drinking water is out of reach and aid of the health care professionals, new innovative thinking and new approaches are needed. But one should not sink into gloom and depression. If there is a will there is a way. It is completely possible and even inevitable that capable and willing people including health care professional, volunteers, and leaders of the world, national decision-makers and the people of the nations can make a difference.

Uganda has over the past years steadily increased funding for its people's health. But it is not enough to meet Uganda's national targets. Dispite of the additional resources being placed on health sector, Uganda has to allocate the resources better and more effectively. There is a problem with labour shortage and staff efficiency and the current actions are not enough. Both short-term and long-term actions are needed. Short-term actions include the lack of human resources by reducing absence of the staff. If addressing the problems leading to absenteeism, healthcare workers would enjoy more of working. At the moment there are delays in enrolling and paying wages. The long-term actions include investing on healthcare workers education and competence (Okwero & Tandon & Sparks & McLaughlin & Hooveveer 2010).

Mothers should be empowered and educated further on importance of health promotion "lets teach them how to swim in the river of life, to enjoy its fruits; No room for drowning" thus curbing under nutrition in their families, Improving mothers' nutrition and thus their overall health, spread the message of the importance of breastfeeding and give guidance in its practises, improve the state of hygiene and utilise the safe drinking water by international investments and donations

7.1 The ethics and reliability

This thesis is carried out in compliance with good scientific practise. In Finland there is an advisory board called Tutkimuseettinen neuvottelukunta which sets the

ethical guidelines on studies carried out in Finland. This advisory board insists that the thesis is composed honestly, carefully and accurately. We have applied the criteria and ethics accordingly to research collection, methods and evalualtions. The findings have been openly published in respect to other researcher's accomplisments and outcomes (Tutkimuseettinen neuvottelukunta 2012). Due to tight schedule and unfamiliarity to conduct scientific research, some on the key world entries are not listed in the thesis. This needs to be addressed and remembered when wrinting a scientific research.

The emphasis on assessing the quality of the research data was how liable the study was and how the study results were being interpreted. At the beginning of the study process limitations were made to evidence based knowledge and validity. The articles used in the study where selected through the illustrated process.

Using literature review is laborious and takes a lot time since there were many articles that met the search words. But at the same time it is a very rewarding as the authors can change ideas about the choices they made and come up new ideas and conclusions. A literature review is used to deepen the knowledge of the gathered research material and findings. By doing this we are using evidence based research. As future nurses we base our decisions and nursing practises on evidence based practises.

7.2 Conclusions and further recommendations

The nutritional status of an individual or a household is dependent on various social, economic and behavioral aspects. These different spheres of human life facilitate or impede achieving the desired health or living standard at personal, household and society level. Indeed, studies have shown that improving nutritional conditions in populations requires both improvements in resources and improvements in knowledge within the household and community level (Menon, Loechl, Pelto & Ruel 2002). Therefore, attaining better nutrition outcomes among the population requires interventions both at community and institution level (health facility) to impact both knowledge and behavior or practices.

According to this research results, Uganda is still facing the problem of malnutrition and non government organizations together with the Ugandan government have set up strategies to curb the problem. With the findings from this research it shows factors like mothers' knowledge, poor access to health care services, no availability of foods, poverty and diseases like diarrhea contributed to malnutrition. But not many interventions have been put in place according to the different factors. Therefore with this research the non government organizations should be able to set proper annual strateties basing on the real factors causing malnutrition specifically in Uganda. Further research should be done to find which foods are readily available in the country and their nutritional nutrients contained to make aweekly menu plan for the children.

The nutritional content of foods that are consumed by a child affects the nutritional status. In Uganda the daily diet of a child consists of fewer nutrients to enable child growth. Breast feeding builds the Childs immune system and it's highly recommended. This requires the mothers to have knowledge on the importance of proper (breast) feeding practices; exclusive breast feeding for 6 months is recommended, recommended meals rich in nutrients and proportion of foods. Statistics have shown that there is a correlation between infections and undernutrition and this has been a contributing factor to the increasing numbers of undernutrition in the country (Flax 2010).

Many children live in unhealthy environment in Uganda and half the population has no access to clean water and sanitation (GOU 2010.) Uganda has been experiencing changes in the climate due to the global warming. It has two growing seasons but there is less rain being dependent on agriculute this is altered. As a result the food production in homes has been affected having less for consumption. Uganda has suffered political instability and has affected the countries structure development including maternal and child nutrition. The government needs to commit to improving the standard of living in the rural areas. The rural areas are most vulnerable to malnutrition due to limited resources (GOU 2010).

Though the trend in the rate of childhood mortality is declining over the past decades (140.5/1000 in 2000 to 89.9/1000 in 2011), it is still high by international

standards necessitating timely innervations (UNICEF 2013). These interventions can be ensuring safe motherhood and water safety and hygiene as well as promoting recommended infant and young child feeding practices including exclusive breastfeeding in the first six months of life. These efforts will help to curb deaths from pneumonia, diarrhea and malaria that become worse amidst malnutrition. Given the magnitude of malnutrition in the county, this study to establish the key interventions taken to prevent and manage child undernutrition in Uganda.

Efforts to eliminate malnutrition in Ugandan community should concentrate on addressing causes rather than focusing on the symptoms. Furthermore, research has advocated for changes in cropping patterns in different agricultural regions. This involves growing different crops with more nutrient qualities to boost the nutrient yield of farmers. On the other hand, modern farmers are adopting biofortification of food crops with different micronutrient especially for rural poor communities. In Uganda, HarvestPlus program is promoting Orange flesh sweet potato (OFSP) biofortified with vitamin A. This is found to be efficient in improving the vitamin A status of children and mothers in rural communities (Hotz et al 2012; Miller & Welch 2013).

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APPENDIX 1The inclusion and exclusion benchmark of data collection by LAMK